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A comparative investigation of personality characteristics among crippled and non-crippled children

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A COMPARATIVE INVESTIGATION OF PERSONALITY CHARACTERISTICS AMONG CRIPPLED AND NON-CRIPPLED CHILDREN

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PREFACE

A comparatively small amount of literature has appeared in regard to the effects of physical handicap on the integration of the child personality. Of that which does exist, the greater portion comes from the penetrating observations of a conscientious group of workers. Their studies infer a positive relation between the physical impediment and its crippling effect on the personality.

The studies of an experimental nature in this field have been fewer still. The findings spell disharmony and diversity. It is, therefore, the purpose of this study to determine, by the experimental use of objective questionnaires, whether the crippled child's affliction in any way affects the normal development and maturation of his personality when compared with that of the non-cripple.

The author wishes to acknowledge his indebtedness to Professors Merton E. Carver, Chairman, Stanley Skiff, and Austin E. Grigg, of the Psychology Department for their patient guidance and understanding in this study, as well as in the work of the past two years. Special thanks are due Professor Grigg for suggesting the topic, and for taking the author

under his wing in its realization. Many thanks are also due the patients and staff of the Crippled Children's Hospital of Richmond, and to the Varina School and Henrico County School Board.

University of Richmond
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J. G. P.

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THE PROBLEM AND DEFINITIONS OF TERMS

We are all in a continuous process of emotional interaction with the people and objects of our environment. Each situation demands that we adjust in the characteristic and specific way which will bring us personal gratification and social approbation. When a physical limitation is placed upon the individual, the problem of adjustment becomes ever more complex.

The handicapped child must, much the same as the non-handicapped child, pass through identical stages of adjustment and development before reaching a concrete personality structure. The growth processes concerned with the physique, intelligence, and emotion are taking place concurrently during the formative years from infancy to adolescence. This combination of physical, intellectual, and emotional factors will determine to a large extent the manner in which

the individual will perceive and interact with his environment. This is the way in which his personality structure emerges, which in turn determines his attitudes and behavior.

The process of perceiving and interacting with the environment is primarily one of adjustment and adaptation on the basis of the physical, intellectual, and emotional attributes which are characteristic of the organism. In this respect, the physical factor will be an important factor to be dealt with in considering the personality development and adjustment of the crippled child. Whatever mental attitude he develops toward his physical impediment may depend very largely on the reactions of his parents, teachers, siblings, and playmates to his problem. It is just such a body-mind relation with which this investigation is concerned.

I. STATEMENT OF THE PROBLEM AND IMPORTANCE OF THE STUDY

It was the purpose of this study to determine, by means of two different objective personality inventories, what significant differences, if any, exist in certain specific areas of personality adjustment between an experimental group of twenty-four crippled children and an equated, non-crippled control group. The areas of personality integration studied were social maladjustment, personal inferiority, family maladjustment, insecurity, irritability, and daydreaming.

The current need for work of this nature was stated very

succintly by Menninger at the twenty-eighth annual convention of the National Society for Crippled Children and Adults: "We are very badly in need of tested knowledge about these problems. There is perhaps no broader and potentially rich field of research than the emotional reactions to physical crippling and the most effective ways of dealing with these."[1]

Estimates of the incidence of crippling conditions vary because of differences in definition, as well as a lack of surveys of large areas. The White House Conference on Child Health and Protection of 1930[2] conservatively estimated the number of orthopedically crippled children in our school population as 300,000 in number, with an additional 375,000 having serious organic heart disease. This makes a total of about 7 in every 1000.

New York's most recent study estimated 7.2 per thousand under the age of 21.[3] Michigan reported between 3 to 9

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1 William C. Menninger, "Emotional Adjustment for the Handicapped," Crippled Child, 27:4:4-7, Dec., 1949.

2 White House Conference on Child Health and Protection, Special Education, p.5.

3 New York City, Commission for the Study of Crippled Children, The Crippled Child in New York City, cited by Rudolf Pintner, The Psychology of the Physically Handicapped, P: 263

cases per 1000 with children of school age.[4] New Jersey found 7.24 per 1000 with children 18 years and younger.[5]

The true nature of the problem is startlingly brought to light by Bentley,[6] who estimated that two-thirds of all the children in our population have some physical defect which is more or less damaging to the personality and provocative of other related abnormalities. He states that if the problems and needs of the victims of aggravated physical disabilities are not recognized and treated accordingly, our children are in grave danger of becoming the victims of a sense of inferiority, failure, unhappiness and social maladjustment.

The total number of significant studies concerned with the personality adjustment of the crippled child has been comparatively small. A large part of this body of information is based on the subjective reports of those who have observed and worked with crippled children. Extensive verification of these reports is lacking. This accounts in part for the disagreement in the findings as reported in the litera-

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4 Michigan Crippled Children's Commission, Report, cited by Pintner, loc. cit.

5 New Jersey State Crippled Children's Commission, Report, cited by Pintner, loc. cit.

6 John E. Bentley, Problem Children, p. 2.

ture. The shortcomings of available research will be mentioned in Part II. In this study, an attempt has been made to employ techniques toward which the same criticism cannot be strongly directed.

II. CAUSES OF DISABILITY AND AGE AT ONSET

Table I, listing the main causes of childhood crippling in a distribution, indicates that infantile paralysis ranks first in number of victims of any single illness, followed by cardiopathy and bone tuberculosis.[7] It should be noted that infantile paralysis has about three times as many victims as the next highest aetiological factor. These statistics are based on more than 6000 cases, covering 30 public and private day class teaching centers.

Consistent findings have been reported on the prevalence of a greater percentage of crippling among boys than among girls, ranging from 52% to 55% of the total.[8] The age at which these children become crippled also varies somewhat. The same source studied a group of 1277 crippled children in New York City and found that 33% were disabled at birth by cerebral palsy or congenital deformities; 49% of those with disease other than infantile

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7 White House Conference on Child Health and Protection, op. cit., p.64.

8 New York City, Commission for the Study of Crippled Children, The Crippled Child in New York City, cited by Pintner, loc. cit.

TABLE I

MAIN CAUSES OF CRIPPLING

Cause	Percentage
1. Infantile Par.	35.8%
2. Bone Tubercul.	12.7%
3. Spastic Paral.	10.4%
4. Congenital	8.0%
5. Cardiac	13.1%
6. Accidents	4.6%
7. Other	18.0%

paralysis were disabled before their fifth birthday, and 91% before their tenth birthday. This is suggestive of the need for early discovery and diagnosis, and for sound mental hygiene measures.

III. DEFINITIONS OF TERMS USED

Crippled Child. There appears to be no single, universally accepted definition of a crippled child, but rather, a variety of definitions which differ in content and in emphasis. Some are rather vague; some describe in terms of physical defect alone; others include educational and vocational aspects. The cardiacs, harelips, and cleft palates are accepted by many as entering the realm of the cripple.

The White House Conference's definition is quite acceptable: "The crippled child, in the orthopedic sense, is a child that has a defect which causes a deformity or an interference with normal functions of the bones, muscles, or joints. His condition may be congenital or it may be due to disease or accident. It may be aggravated by disease, by neglect, or by ignorance."[9]

Personality - "the most characteristic integration of the individual's structures, modes of behavior, interests, attitudes, capacities, abilities, and aptitudes."[10]

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9 White House Conference on Child Health and Protection, op. cit., p. 23.

10 Norman L. Munn, Psychology, p. 457.

Somatopsychopathology - mental abnormalities brought on by a diseased body.

Scoliosis - a lateral curvature of the spinal column.

Osteomyelitis - an inflamation of the bone marrow.

Cardiopathy - a diseased heart, usually a result of the after-effects of rheumatic fever.

Spina Bifidia - a congenital cleft of the vertebral column, with a protrusion.

Torticollis - a contracted condition of the cervical muscles.

Epiphysis - the separation of a piece of bone from a long bone by cartilage.

Perthe's Disease - a disease of the thigh bone.

Polyneuritis - the inflamation of an area of nerves.

In summary, the problem is to detect any characteristically significant deviations in the personality structure of crippled children as a group. This problem of emotional reactions to physical crippling is widespread indeed. Few studies have been made in this area. Extensive experimental verification is lacking in most of those existent at present.

The causes of physical crippling are many and varied. Infantile paralysis, cardiopathy, and bone tuberculosis are the three main causes, in the order named. About 90% of all victims are struck before reaching the age of ten. Finally, in defining the crippled child, no single, universally accepted definition exists, but rather, a variety which varies in content and emphasis.

PART II

HISTORICAL SURVEY AND RELATED LITERATURE

Our present day conception of the aetiology of crippling centers either about the retardation of the child's natural development by some disease, or some unnatural environmental stress bringing on disfigurement. In the days of the past, however, popular superstitution caused the lame and the limping to be perceived in a very unfavorable frame of reference. The "hunchbacked organism with the humpbacked soul" was the victim of social ostracism and censure from ancient times through the time of the Crusades and Medievalism. It was not until quite recently that the plight of the cripple was recognized in its true perspective, whereupon an interest developed in understanding and abating the indigency of these neglected children of God.

I. HISTORICAL PERSPECTIVE

It takes little effort to understand the slowness with which social approbation extended itself to the crippled, after

reading the Third Book of Moses of the Old Testament. This is from the passage to the Levites, written about 3500 years ago:

> "And the Lord spake unto Moses, saying: ... Whosoever he be of thy seed in their generations that hath any blemish, let him not approach to offer the bread of his God. For whatsoever man he be that hath a blemish, he shall not approach: a blind man, or a lame, or he that hath a flat nose, or anything superfluous, or a man that is brokenfooted, or brokenhanded, or crookbackt, or a dwarf, or that hath a blemish in his eye, or be scurvy, or scabbed ... he shall eat of the bread of his God ... only he shall not go in unto the veil, nor come nigh unto the altar, because he hath a blemish; that he profane not my sanctuaries: for I the Lord do sanctify them."[1]

This outlook is also reflected in the Second Book of Samuel: "David said on that day ... whosoever smiteth the lame and the blind, he shall be chief and captain. Wherefore they said, the blind and the lame shall not come into the house."[2]

The word "cripple" is derived from the Angle-Saxon word, "creep"; the word "dwarf" is closely akin to the Sanskrit word "dhvaras", meaning "evil one incarnate".[3] The psychological concomitants of this evolution in diction are obvious.

Horwitz[4] gives four causes for the traditional dislike of the physically handicapped:

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1 The Old Testament, The Holy Bible, Leviticus 21:17-23.

2 Ibid., II Samuel 5:8.

3 A. Horwitz, "The Cripple's Place in Society Through the Ages", 5; 511-512, The Nation's Health, August, 1923, cited by Henry E. Abt, The Care, Cure and Education of the Crippled Child, p. 7.

4 loc. cit.

1. a dislike of the imperfect
2. the knowledge that the cripple would be a burden upon the community, as well as a poor soldier.
3. an imperfect body was necessarily thought to harbor an imperfect mind.
4. the fear of an evil spirit.

If a simple superstition like walking under a ladder, or crossing the path of a black cat, has been passed down through the ages to the extent that it not uncommonly inhibits such action, how much more profound must be this stigma in its repercussions on the adjustment of today's cripple! --He is an individual of the same genus and species as they who were feared, ostracized, sacrificed to the gods, and abandoned in infancy.

The growing interest of observers in the psychological effects of physical handicap was manifest in the wisdom of Sir Francis Bacon, as early as the Seventeenth Century:

> Deformed persons are commonly even with nature for, as nature hath done ill by them, so do they by nature, being for the most part (as the Scripture saith) void of natural affection, and so they have their revenge of nature. Certainly there is a consent between the body and the mind, and where nature erreth in the one she ventureth in the other.... Whosoever hath anything fixed in his person that doth induce contempt, hath also a perpetual spur in himself to rescue and deliver himself from scorn; therefore, all deformed persons are extreme bold.... Also, it stirreth, in them industry.... Again, in their superiors, it quencheth jealousy towards them, as persons that they think they may at pleasure despise, and it layeth their competitors and emulators asleep, as never believing they should be in possibility of advancement till they see them in possession; so that, upon the matter in a great wit, deformity is an advantage to rising.... they will, if they be of spirit, seek to free themselves from scorn, which must be either by virtue or malice; and therefore, let it not be marvelled if sometimes they prove excellent persons.[5]

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5 Roger G. Barker, Beatrice A. Wright, and Mollie R. Gonick, Adjustment to Physical Handicap and Illness, p. v.

II. REVIEW OF RELATED LITERATURE

1. Theoretical Considerations

A number of theories exist today in regard to the way in which physical disability influences behavior and adjustment. Most of them border on inadequacy and speculation, and none is stated in a way which would permit experimental verification. The general character of these theories tends to support the contention that the crippling affects the child's intellectual, social, and emotional development, which in turn tends to disorder the personality.

Adler's[6] theory of the organic basis of neurotic behavior is particularly applicable to the background of this problem. His earlier writings assumed a direct neurological connection between inferior body organs and the compensatory mechanisms of the central nervous system. In his later writings, the theory centered about a complex and purely psychological drive for mastery or protest against inferiority, though reference was still made to the organic basis of inferiority feelings. The theory defined no specific criteria of organic inferiority or compensatory behavior, and is thus subject to fluctuations in testing.

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6 Ibid., p. 84, citing Alfred Adler, The Neurotic Constitution, and A Study of Organ Inferiority and its Psychical Compensation.

Meng,[7] one of Freud's disciples, found that even in cases of extreme physical disability, a distorted personality does not necessarily ensue. He found that although there are numerous environmental influences which tend to produce distortion of the personality, there are counter-balancing factors present which reduce the probability of its occurrence. He concludes:

> We do not think that the normal human being is the one whose motor and mental abilities function effectively, but he is the one whose psychological activities run in a harmonious way; he conquers life anew each day. This is possible for the handicapped in his own way, and it can be aided by mental hygiene. 'Everyone must carve his life out of the wood he has.'[8]

Wile[9] believes that crippling affects intelligence, stability, and social equilibrium. Mental functioning is primarily influenced by a disturbance in man's "emotional evolution". Whatever interferes with normal development is bound to have a marked influence on personality. Physical limitations, he believes, may cause shame, fears, doubts, prejudices, truancy, theft, vagrancy, neuroses, and even psychoses, by thwarting normal development.

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7 Ibid., p. 85, citing H. Meng, "Zur Socialpsychologie der Korperbeschadigten", Schweizer Archir fur Neurologie und Psychiatrie, 40:328-344, 1938.

8 Ibid., p. 85, citing Meng, loc. cit.

9 I. S. Wile, "The Relation of Orthopedics to Personality", Journal of American Medical Assoc., 84:1623-1627, 1925.

Horwitz[10] similarly contends that:

> Physical weakness or inferiority in an individual creates a peculiar state of mind, a mind on the defensive and desiring to obtain by other means that which a poor physique renders impossible. The unfortunate seems always imbued with the idea that he has been unfairly treated in the distribution of bodily favors, that society is opposed to him, regarding him as a useless being with no place in the economic structure. He becomes touchy, spiteful, vindictive, and even malignant.

Schilder[11] proposes a theory to account for some of the psychological disturbances which accompany somatic distortions. He considers the awareness of one's own body(image) to be one of the most immediate and basic facts of mental life and to involve quite different processes from one's awareness of the outer world. Discrepancies are thought to be introduced between the body image and the body structure by peripheral and central neural lesions, and by somatic disease. During somatic disease, the body image normally changes as the body is changed. However, modifications may occur in the body structure without corresponding changes in the body image. This arises in cases of slowly developing chronic diseases which gradually change the body structure.

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10 A. Horwitz, loc. cit., cited by R. C. Kammerer, "An Exploratory Study of Crippled Children", The Psychological Record, 4:48, 1940.

11 Barker, et al, op. cit., p. 87, citing P. F. Schilder, The Image and Appearance of the Human Body.

Bender[12] considers the behavioral results of this tendency mentioned above. When it occurs, there is a thwarting of the social, vocational, and heterosexual behavior which is appropriate for the body image, but which cannot be realized by the distorted body structure. This leads to conflict, emotionality and fantasy, and delusional processes. There may also be a failure to comprehend the nature of the insidious disease which has not been observed by the patient in anyone but himself. This leads to paranoid symptoms and systems of delusion. In extreme cases, psychotic symptoms may be exhibited.

Wurtz[13] claims that interference with neural integrity and natural movement affects the basic personality of the individual, unless substitutes are developed. The most important factor in the adjustment of the cripple is the development of freedom of movement which will substitute or compensate for that which is restricted.

Curti[14] points out that the inability of crippled children to acquire the ordinary motor skills may leave them with a sense of weakness and inferiority which may cause "mental crippling".

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12 Loc. cit., citing Lauretta Bender, "Psychoses Associated with Somatic Diseases that Distort the Body Structure", Archives of Neurologie and Psychiatry, 32:1000-1029, 1934.

13 Ibid, p. 89, citing H. Wurtz, Zerbrecht die Krucken.

14 M. W. Curti, Child Psychology, cited by Kammerer, loc. cit.

Elliot[15] points out that the behavior of a crippled individual cannot be adequately understood without knowing the attitudes of those with whom he associates. He believes the child's mental attitude toward his defect is determined by the way others look upon him.

Anderson[16] emphasizes the importance of family attitudes in influencing successful adjustment. He maintains that the way in which the whole family meets the situation determines to a large degree how far the child can go in adjusting himself to the problems of later life. The children should be kept away from being objects of pity, should not be spoiled, and should be encouraged to do everything possible for themselves.

Wallin[17] considers the problem dependent on the subject's attitude toward his defect. He may have developed a morbid consciousness which can often be traced to the attitude that parents, playmates, or teachers have shown toward the defect. The abnormal sensitivity toward his defect may produce such unhealthy reactions as fears, timidities, secretiveness, shamming, seclusiveness, withdrawal, emotional outbursts and conflicts, repressions, hypersen-

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15 C. M. Elliot, "Psychology of the Crippled Child", Journal of Education, 110:137, cited by Kammerer, loc. cit.

16 E. D. Anderson, "The Family and the Handicapped Child", Hygeia, 12:308-311, 1934, cited by Kammerer, ibid, p.49.

17 J. E. W. Wallin, Personality Maladjustments and Mental Hygiene.

sitiveness, introversion, fears of inadequacy, despondency, malingering, sullenness, behavior disorders, self-pity, brooding, fear of early decreptitude, efforts at compensation or over-compensation, daydreaming, or suspicion of dullness. He contends that these mental sequelae of the victim's attitude toward his handicap often constitute a far more serious obstacle to the child's ability to adjust himself satisfactorily to the social and vocational demands of society than does the physical defect itself. The child often becomes a victim of self-pity and self-glorification because of the pampering and spoiling processes to which he has been subjected. Unless wisely guided, he may become a shirker or a tyrant and insist that the world owes him a living.

Allen and Pearson[18] believe the crippled child's difficulties arise from the proneness of the parents to over-protect or to reject him. The parents are believed to act in such a manner either from genuine sympathy, guilt, resentment at the trouble or social stigma that the child brings, or a combination of these. These feelings give rise to inconsistent, conflicting, and emotional behavior in the parents. They advocate that mental hygiene should therefore begin with the attitudes of the parents at the time of occurrence of the disability in the child.

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18 F. H. Allen and G. H. J. Pearson, "The Emotional Problems of the Physically Handicapped Child", British Journal of Medical Psychology, 8:215-235, 1928, cited by Barker, et al, op. cit., p. 89.

Lowman[19] claims that a strong tendency to judge personality on the basis of physique exists. This leads to evasion, self-deceit, and attempts at compensation on the part of the cripple in order to gain the recognition which cannot be achieved in reality and to avoid the social ostracism that cannot be accepted.

Kanner and Lachman[20] approach the problem by way of a multiplicity of factors. The following factors are all given as considerations in understanding the effects of disease upon behavior:

1. the nature of the illness
2. the child's personality
3. parental attitudes
4. influence of the physician
5. a great variety of specific factors

Clark[21] contends that the ego is the central organizing and directing unit, and that the whole body structure must be considered a major part of the ego. The ego's response to a loss of part of its organic structure involves some emotional compensation and some sense of weakness and inferiority.

Kubie[22] proposes an interplay of at lease three aspects of

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19 C. L. Lowman, Survey of the Vocational, Education, and Social Status of Poliomyelitis Patients, cited by V. Barker, et al., ibid., p. 90.

20 L. Kanner and S. E. Lachman, "The Contribution of Physical Illness to the Development of Behavior Disorders in Children", Mental Hygiene, 17:605-617, 1933, cited by Barker, et al., loc. cit.

21 L. P. Clark, "What is the Psychology of Little's Disease?", Psychoanalytic Review, 21:134-145, 1934, cited by Barker, et al., loc. cit.

22 L. S. Kubie, "Motivation and Rehabilitation", Psychiatry, 8:69-78, 1945, cited by Barker, et al., ibid, p. 91.

experience in determining the importance of a disability: the reality level, the level of conscious fantasy, and the level of unconscious fantasy and feeling. In every experience all three levels play some role in varying proportions.

Lastly, Lowrey[23] gives a terse compendium of the modus operandi involved in the personality integration of the crippled child. He contends that two ways exist in which physical handicaps may react upon the personality: the direct effects established by the loss, and the indirect effects, which represent the reaction of the individual to the deprivation in self-expression.

The direct effects take the individual into consideration as a physical and mental organism, reacting constantly to a series of environmental influences. The direct loss in the reacting mass, continues Lowrey, means a direct loss in social relationships which result in a decreased efficiency in the latter.

In regard to the indirect effects, he maintains that there are two fundamental drives in the personality entering into conflict. These are: the drive for self-expression, by which the individual attempts to set himself up as a complete, independent personality; and the drive to conform to group standards, which is an expression of the disputed herd instinct.

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23 L. G. Lowrey, "The Effects of Physical Handicap on Personality", Hospital Social Service, 13:237-239, 1926.

If the conflict is a severe one, Lowrey believes that socially unacceptable behavior may ensue. When the drives reinforce one another, socially acceptable behavior results, since the individuality follows group standards. The handicapped individual is handicapped both, in the drive for expression of his total invididuality, and in the drive for conformance to group standards. Several types of reaction may then be elicited.

By compensatory development in fields of activity other than those proscribed by the physical handicap, he believes that the individual may become a self-respecting, self-supporting social entity, who makes his own way despite, or because of, the impediment.

When considering the socially objectionable behavior of the physically handicapped, a different situation is encountered, though the same reaction is directed in another channel. The same feeling of inferiority to the group is present, but there is also a determined drive to overcome the handicap; the methods, however, are not socially acceptable. This only increases the feeling of group difference, and leads to further compensation. Only too often this compensatory effort results in over-compensation; --over-compensation in the psychological field to feelings of inferiority usually results in socially unacceptable behavior.

So it is when he cannot accept the reality of difference from the group without ego striving. When there is combined with

over-compensatory striving a revenge motive, an emotional drive to repair the damage to the ego by damaging other egos, the anti-social nature of the behavior becomes increasingly marked.

It must therefore be remembered, reminds Lowrey, that the crippled child has the same drives for recognition and acceptance, for pleasure and enjoyment, for love, affection, and security as the non-cripple, and that the consciousness of inferiority in competition in one or all of these fields is a powerful psychological factor in his life.

This survey of the theories that have been propounded to account for the psychological concomitants of physical disabilities leaves much to be desired in the realm of theory. Most of the opinions support the contention that the crippling does have some effect on the social and emotional development of the child, which in turn causes a disordering of the personality. Numerous contradictions exist as to just what this effect is, and how it comes about. The interaction of the cripple with the environment, and also with those who constitute his psychological field, appears to have a profound influence in the personality integration and adjustment to the handicap.

The lack of definite criteria and precise definitions has been a serious shortcoming to a few of the better theories. Some are incomplete in certain respects, others are mere speculation. A good number of the inadequacies could be avoided if they were stated in such terms as would permit experimental verification.

2. Experimental Studies

A number of experimental studies have been carried on with crippled children, but most of them have centered about the measurement of intelligence. Of those that have attempted to measure maladjustment or personality integration in cripples, the findings have tended to contradict one another.

Perhaps the most extensive and significant study that has been conducted is that of Kammerer[24], who attempted an exploratory study to obtain information regarding the influence of crippling on the child's general adjustment, as well as to examine and appraise various methods of approaching the problem.

Thirty children hospitalized with osteomyelitis and fifty hospitalized with scoliosis were subjected to a series of interviews, and underwent an extensive testing program consisting of the following tests: Stanford-Binet Intelligence Test, Porteus Maze Test, Kent Oral Emergency Test, Vineland Social Maturity Scale, and the Rogers Test of Personality Adjustment.

He concluded that the crippling has no unique influence on the Child's behavior. The personality tests indicated essentially normal behavior, as did the ratings of personality adjustment. Little evidence of any consistent influence of crippling on inferiority, social maladjustment, or compensation was available. Whether maladjustment occurs seemed to depend on the number and

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24 R. C. Kammerer, op. cit., p. 47-100.

severity of problems with which the child was confronted, and not alone on the presence of the crippling. He also found that the impairment of various members and the cosmetic appearance are of much more significance than the aetiology of the disorder. The combination of statistical and clinical approaches commands considerable confidence in his conclusion that maladjustment does not inevitably result from crippling.

Gates[25] set about to determine whether or not crippled girls and boys differ significantly from non-crippled girls and boys in their social and emotional adjustment by administering a group of tests and analyzing the autobiographies of eighteen cripples. A control group that has been equated for age, sex, intelligence, and socio-economic background was used. She found no significant difference between the crippled and the non-crippled subjects on any of the tests. A study of the autobiographies suggested that cultural background and personal-social relations in the home may affect adjustment more than crippling.

Newell[26] studied a set of fourteen year old identical twins, one of whom had been partially paralyzed at the age of two by poliomyelitis, and the other being in no way handicapped. He con-

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25 Mary Frances Gates, "A Comparative Study of Some Problems of Social and Emotional Adjustment of Crippled and Non-Crippled Girls and Boys", Journal of Genetic Psychology, 68:219-244, 1946.

26 H. W. Newell, "Differences in the Personalities in the Surviving Pair of Identical Triplets", American Journal of Orthopsychiatry, 1:61-80, 1930, cited by Barker, et al., op. cit., p.57.

cluded that the marked differences in the personalities lie largely in the social psychological background.

When contrasted with the non-disabled twin, the disabled one was found to be childish, to crave affection and attention, and to feel inferior to her twin, physically, intellectually, and socially. She was nervous, high strung, unpopular, incapable of lasting friendships, suspicious of people, and very unhappy.

Newell attributed the retardation in her development to the paralysis, which in turn caused a psychological handicap through her mental retardation and reading disability. The constant contrast of her physical, social, and scholastic inferiorities with her twin by the family members resulted in marked feelings of inferiority and jealousy.

Nage and Sayler[27] administered the Newmann-Kohlstedt Test for introversion-extroversion to 144 physically disabled high school students enrolled in a school for crippled children. When the scores were compared with those of a physically normal group that had been equated for age, sex, and race, no significant differences were found, nor was there any correlation present between the degree of introversion and duration of disability.

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2 27 J. W. Nagge and R. H. Sayler, "Physical Deficiency and Extroversion-Introversion", Journal of Social Psychology, 4:239-244, 1933, cited by Barker, et al., ibid., p. 59.

Rosenbaum[28] administered the Thurstone Personality Schedule to 43 crippled girls in a charity camp, their ages ranging from 16 to 25. He found them to fall within the classification, "emotionally maladjusted", the older girls indicating a slightly greater degree of maladjustment than the younger girls.

A serious shortcoming of this study lies in the difference in selection between a group of crippled girls at a charity summer camp and a group of girls who are non-crippled college freshmen; this latter group was used in standardizing the schedule. Another limitation lies in the greater than normal proportion of Jewish girls in the sample, totaling 75 percent, since Jewish students have been reported to score more neurotically than Gentile students on this test.

Von Baeyer[29], in studying the case histories of 20 crippled children, has segregated three main effects of crippling on the individual:

1. the basic disease permanently or temporarily damages the biological substratum of mental life.

2. the condition of being a cripple threatens free development of mental capacities.

3. the emotional tension caused by the experience of being

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28 Betty R. Rosenbaum, "Neurotic Tendencies in Crippled Girls", Journal of Abnormal and Social Psychology, 31:423-427, 1937.

29 W. von Baeyer, "Zur Psychologie verkruppelter Kinder und Jugendlicher", Zeitschrift fur Kinderforschung, 34:229-292, 1928, cited by Barker, et al., op. cit., p. 113.

a cripple may manifest itself in neurotic phenomena.

He found the predominant psychological situation of the cripple to be a tension between his inferiority feelings calling for withdrawal and his compensating tendencies calling for aggression. The cripple can never reach a resolution between these conflicting drives and escape fully from the crippling situation. The twofold reactions are therefore resolved into either one of the following: a defensive withdrawal and negativism; or, some compensatory behavior, feelings of grandeur, and excessive activity.

Landis and Bolles[30] made a very complete investigation of the personality characteristics of 100 physically handicapped women based on interviews, subjective ratings, and medical history. Their general conclusions on this study were:

1. Different types of physical deviation are not distinguished by clearly marked personality manifestations.

2. Physically handicapped women exhibit hyposexuality approaching asexuality in some cases.

3. They were emotionally immature, showing great family dependence.

4. There is no evidence that auto-erotic or homo-erotic practices increase as a result of heterosexual frustration. This suggests that there is a general ratardation in psychosexual development, rather than an interference with its normal expression.

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30 C. Landis and M. M. Bolles, Personality and Sexuality in the Physically Handicapped Woman, cited by Barker, et al., op. cit., p. 61-65.

5. Age at onset, severity and stability of disability, and intelligence of subjects are related to kind and effectiveness of adjustment.

Lowman[31] studied the personal, social, and vocational adjustment of 437 former poliomyelitis patients by a strictly controlled interview. The data are meager in their indications of personal adjustment. The author concluded that personality and social or vocational adjustment are not greatly dependent on physical normality or degree of deformity.

Paterson[32] verified the hypothesis that organic inferiority is at the basis of feelings of inferiority by administering the Minnesota Rating Scale to all students entering the University of Minnesota. Significant correlations were found between inferiority attitude scores and degree of physical defect.

Allen and Pearson[33] made a case history study of 12 hospitalized children with severe physical disabilities, ranging from 4 to 15 years of age. They concluded that the personalities of some were not affected by their trouble, but that a feeling of inferiority had arisen in others which manifest itself in a wish

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31 C. L. Lowman, "What Becomes ofInfantile Paralysis Victims?", Hygeia, 23:24-25, 76-77, 1945, cited by Barker, et al., op. cit., p. 66.

32 H. F. Paterson, "Organic Inferiority and the Inferiority Attitudes", Journal of Social Psychology, 2:87-101, 1931, cited by Barker, et al., op. cit., p. 70.

33 F. H. Allen and G. H. J. Pearson, loc. cit., cited by Barker, et al., op. cit., p. 111.

to be the center of attention, a feeling of shame, inability to face difficult situations, or a desire to compensate by attempting to grow up quickly, actually or in fantasy. The feelings of inferiority were often found to have causes other than the physical defect.

Winkler[34] used a series of objective tests in a comparative study of 100 physically disabled children with a group of 100 physically normal children, aged 7 to 14. He concluded that the main personal difference is in connection with the drive for self-assertion. The two chief reactions shown by the crippled children were: (1) stubborness, aggressiveness, and self-conceit; (2) inferiority, apathy, and withdrawal. These reactions correspond closely to those mentioned by Von Baeyer on page 22.

Gesell[35] used the methods of testing and controlled observations to describe the motor control and personal-social development of a male cerebral palsy case, at intervals from 4 to 14 years of age. The personal-social integration was determined by an average of emotional control, affection, sociability, sense of humor, social insight, play interest, and story interest. He found that in spite of extreme motor dis-coordination, the personality was relatively well integrated, with well sustained and

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34 H. Winkler, Psychische Entwicklung und Kruppeltum, cited by Barker, et al., loc. cit.

35 A. Gesell, "Motor Disability and Mental Growth", Psychological Record, 1:87-94, 1937, cited by Barker, et al, op. cit., p. 113.

discriminating emotional attitudes toward the social environment.

Dresdner[36] found little evidence of warped personality development, even in cases of very early crippling. He used a questionnaire study on 23 adult orthopedic cripples

Meng[37] used the methods of interview, psychoanalysis, and questionnaire study on 30 adult orthopedic cripples. He concluded that crippling does not have to result in distorted personality even in cases of severe physical handicap, although family conditions frequently favor the development of neurotic behavior.

Tracht[38] conducted an exploratory study to investigate the existing personality differences between the cerebral palsied and non-handicapped persons. The results advance the hypothesis that there are significant differences between these two groups of persons in the matter of introversion, extroversion, and emotionality, the degrees of which increase in proportion to the severity of muscular involvements and degree of dependence on

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36 I. Dresdner, "Korperbehinderung und seelische Entwichlung"; Zsch. f. Angew. Psychologie, 44:399-437, 1933, cited in Barker, et al., op. cit., p. 115.

37 H. Meng, loc. cit., cited by Barker, et al., loc. cit.

38 Vernon S. Tracht, "A Comparative Study of Personality Factors Among Cerebral Palsied and Non-Handicapped Persons", Spastic Review, 9:2:3,12, Feb. 1948.

others.

Cruikshank and Dolfin[39] administered the Raths Self Portrait Test to two groups of children, one group crippled and the other non-crippled. In testing for the eight basic human emotional needs, they found no statistically significant differences prevailing between the two groups in their needs for belonging, achieving, economic security, freedom from fear, loving and being loved, freedom from intense feelings of guilt, sharing in decision making, and understanding the world.

Copellman[40] studied the behavior problems of 100 hospitalized poliomyelitics, aged 1½ to 15, on the basis of case histories. The findings showed young children as tending to become rather withdrawn and bewildered, and older children as becoming aggressive. Her opinion was that the severity of the psychological reaction was very often independent of the sewerity of the disease, and that crying and irritability in response to frustration was the most common early symptom.

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39 William M. Cruickshank and Jane E. Dolphin, "The Emotional Needs of Crippled and Non-Crippled Children", Journal of Exceptional Children, 16:2:33-40, Nov., 1949.

40 Fay S. Copellman, "Follow-up of 100 Children with Poliomyelitis", The Family, 25:289-297, 1944, cited by Morton A. Seidenfeld, "The Psychological Sequelae of Poliomyelitis in Children", The Nervous Child, 7:1:14-28, Jan., 1948.

Seidenfeld[41] undertook a study involving the performance of 110 school children on the California Personality Adjustment Scale, following an infection by poliomyelitis. He found a minimum of emotional and personality problems among the subjects. An amazingly high degree of similarity was found in the way they thought alike.

One final, and very significant contribution to this issue centers about the workof Barker, Wright, and Gonick.[42] They summarized our entire present day knowledge of the adjustment of the physically handicapped individual. They give a complete account in their book of the personality differences existing between Beverly and Marcia, two poliomyelitic patients of 20 years, in college, having the same IQ of about 118. Both had been stricken with poliomyelitis at about the age of eight. This comparative account is supported by case histories, written and oral questions, and informal interviews.

Marcia's extremely disabled condition and the accompanying serene and happy adjustment were in sharp contrast to the more favorable physical condition and unhappy adjustment of Beverly. An approach to understanding the dynamics behind this enigmatic situation was attempted by defining the different situations that

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41 Morton a Seidenfeld, "The Psychological Sequelae of Poliomyelitis in Children", The Nervous Child, 7:1:14-28, January, 1948.

42 Barker, et al., op. cit., 93-110.

arose through the interaction of their personalities with the imposed social and physical conditions.

They point out that "physically disabled persons are generally looked upon like Negroes and children, as occupying a role in the underprivileged minority". They found that with this attitude toward the physically handicapped, behaviorial incapacity and social rejection tend to place the handicapped individual in a subordinate position where many goals are inaccessible. They conclude that when a person is in a marginal position between a privileged and an underprivileged social position, conflict and maladjustment will result.

A number of conclusions may be attempted on the basis of these experimental studies of the effects of physical disability upon personality development and integration. The first and foremost is that a great deal of contradiction and disagreement exists between the results of these related studies.

The method of combining the statistical and clinical approches would seem to yield more reliable findings, though inconsistency is also prevalent here. Emphasis may be drawn upon the need for more carefully equated control groups, with as little variability in factors as possible.

A trend was manifest by way of the entente cordiale existing in regard to the importance of family influence and personal-social relations. These factors appeared quite prominent in the aetiology of personality maladjustment, in contrast to the un-

importance of the disability, per se, as a source of somato-psychopathology.

PART III

DESCRIPTIVE DATA AND PROCEDURE

Four tests were selectively administered to the experimental and control groups. These consisted of the Kent Oral Emergency Test,[1] the Brown Personality Inventory for Children,[2] the Revised Beta Examination,[3] and the Rogers Test of Personality Adjustment.[4]

The control group consisted of 24 non-crippled subjects who had been equilibrated with the 24 crippled subjects in the experimental group as to age, sex, race, intelligence, socio-economic status, and geographical distribution.

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1 Grace H. Kent, "Emergency Battery of One-Minute Tests", Journal of Psychology, 13:141-164, 1942.

2 Fred Brown, Manual for Brown Personality Inventory for Children, 4 pp.

3 C. E. Kellog and N. W. Morton, Manual for Revised Beta Exam., 11 pp.

4 Carl R. Rogers, "A Test of Personality Adjustment", Manual of Directions, 16 pp.

I. TEST MATERIALS

1. The Kent Oral Emergency Test[1]

This is a test of general knowledge, with a minimum of emphasis on previous schooling. It is short, requiring but a very few minutes to administer, and requires no elaborate data or materials. This made it particularly adaptable with some of the more severely immobilized patients. It is known to have a good correlation with the Revised Beta Examination.

2. The Brown Personality Inventory for Children[2]

This test gives a general measure of personality adjustment, determined by counting the total number neurotic (atypical) responses to 80 questions; five additional scores are computed as possible loci of neuroticism. These five categories relate to (1) the home, (2) school, (3) physical symptoms, (4) insecurity, and (5) irritability. By totaling the number of atypical responses to each of these five assorted groups of questions, and determining the mean for each group, a measure of the child's adjustment in that area is obtained.

This test can be administered orally and can be used with groups. The validity and reliability are within acceptable limits. It can be given to all children from about the fourth

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1 Kent, loc. cit.

2 Brown, loc. cit.

grade to the ninth grade. The total score is interpreted in quintile norms, giving a rating of total adjustment as either excellent, good, average, below average, and very poor.

3. The Revised Beta Examination[3]

The Revised Beta is also an examination of general intellectual ability. It was chosen as the main test for equating the intelligence of the two groups because it is independent of previous schooling, and because it can be given as a group test. It correlates very highly with the Wechsler Bellevue Intelligence Test.

4. The Rogers Test of Personality Adjustment[4]

This multiple-choice, group test was devised to measure the child's adjustment toward his fellows, his family, and himself. It is used with normal children aged about 9 through 13, though the limits can be extended when used as an individual test to 8 through 15. The reliability is fair, the validity low. When considering the intangible factor of personality integration, however, the comparatively low figures assume a higher significance.

Besides a total score of personality adjustment, four diagnostic scores are obtained. These are:

1. personal inferiority, indicating the extent to which the child thinks himself to be physically or mentally inadequate.

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3 Kellog and Morton, loc. cit.

4 Rogers, loc. cit.

2. social maladjustment, or the extent to which the child thinks himself to be physically or mentally inadequate.

3. family maladjustment, measuring the amount of conflict and maladjustment which the child shows toward parents or siblings.

4. daydreaming, or the extent of the child's fantasy life.

The total score is a numerical summary of the child's overall adjustment. These total scores are classified as either average, high, or low degrees of general adjustment.

II. GROUPS STUDIED

1. The Experimental Group

The crippled subjects consisted of 24 patients at the Crippled Children's Hospital in Richmond, Virginia. Their mean chronological age was 11 years-11 months, with a spread of from 7-9 to 15-11. They consisted of an equal number of white girls and boys; mean IQ was 95.9. The socio-economic status of the entire group ranged from average to below average, as determined by the hospital records. The patients came from towns and cities throughout the State of Virginia, and represented a combined population of suburban and rural backgrounds. The schooling retardation of the subjects was about two years; the, ranged from the second through the ninth grades. The aetiological distribution of their disabilities is shown in Table II.

2. The Control Group

This group consisted of 24 non-crippled, white children

from the Varina School, Henrico County, Virginia. This school was chosen for the selection of the controls after an evaluation of all the schools in this county for a representative group that would match the cripples in socio-economic status and geographical distribution. This small town is a few miles outside of Richmond, andwas estimated to consist predominantly of sub-urban and rural inhabitants of average and slightly below average socio-economic status.

The mean chronological age was 11 years-2 months, ranging between 9-4 and 13-3. The range of the cripples had a greater spread due to the fact that retardation in schooling necessitated using a few older subjects to fit the optimal grade placement for the personality tests. The sex distribution was even; mean IQ differed from that of the other group by about 4 points, centering at 100.4. The school placement ranged from the fourth through the seventh grades.

TABLE II

DISTRIBUTION OF CAUSES OF DEFECTS IN THE EXPERIMENTAL GROUP

Cause	Number
1. Poliomyelitis	3
2. Bone Tuberculosis	1
3. Osteomyelitis	2
4. Scoliosis	2
5. Perthe's Disease	1
6. Torticollis	1
7. Spina Bifidia	1
8. Cardiopathy	7
9. Congenital	2
10. Traumatic	4
	24 total

III. THE METHOD

The tests were administered with a time interval between each one whenever practicable. In order to insure a reasonable degree of equilibration between groups, 35 control subjects were at first given the tests, whereupon those who best matched the disabled in intelligence and age were retained as controls. This reduced the number of variables to a minimum.

Many of the crippled children were confined to bed or were harnessed in a cast. For this reason, many of the tests were given to the experimental group individually, or in small groups of 3 and 4. This is contrasted to the method of group administration used for the entire series of tests with the controls.

A few of the disabled were incapacited to the point of being unable to write. The Kent Oral Emergency Test and the Brown Personality Inventory were used with these patients, being given orally. It was deemed inadvisable by the author to give the Rogers Test in this manner because of the invalid responses that might easily have been elicited to some of the more penetrating questions, possibly in the form of a defensive or overcompensatory reply. The subjects would be more apt to act spontaneously if an examiner were not asking such questions directly.

PART IV

ANALYSIS OF RESULTS

1. Critical Ratios

An analysis of the variance of the children's scores was computed to establish the validity of any differences between the means. A Null Hypothesis was established, whereby there was assumed to be no difference between the true means of the two samples on any of the tests or subtests. Thus, they were temporarily assumed to come from the same population sample.

On this basis, the critical ratio and the level of confidence in terms of percentage was determined for each. These are listed in Tables III and IV. In analyzing these results, it was found that both groups scored within the accepted norms on the Rogers Test in regard to the total score, as well as for all the subtest scores, with the exception of one. Both groups received a slightly high rating on Social Maladjustment. The general score for both was at the upper end of the average

adjustment rating, indicating an average, though high, degree of general personality maladjustment for both.

On the Brown Test, both groups had a total rating of below average adjustment. Both rated well within one standard deviation of the mean on all the separate scoring categories, except in the area of physical symptoms. Both groups had a slightly greater than one standard deviation rating in this category.

An analysis of the critical ratios and percent levels of confidence of the two groups on each test, subtest and scoring category disclosed no statistically significant differences on any of the Rogers Test scores. The probability values ran high, all above the 11 percent level of confidence. Thus it can be said that, with the Rogers Test, the obtained differences cannot be regarded as significant. The obtained differences between the means can be accounted for on the basis of chance variation.

The total score of each group on the Brown Test also supports the Null Hypothesis regarding the high level of improbability of any difference between means of the two groups existing on the basis of any evidence other than sampling variations. Two scoring categories of this test did, however, reveal a statistically significant difference between the two groups. This occurred in the areas of home and physical adjustments.

The former fell within the 2.3 percent level of confidence, the latter within the 1.6 percent level. These figures provide

TABLE III

RESULTS OF PERSONALITY TESTS

Rogers: Brown Test Section	Mean		Stand. Deviation		Stand. Error	
	Exptl.Gp.	Cont.	Exptl.Gp.	Cont.	Expt.Gp.	Cont.
1. Rogers Test Tot.	42.6	43.3	9.69	9.98	2.22	2.08
a. Person. Infer.	13.3	15.7	5.45	4.15	1.25	.87
b. Social Malad.	18.6	16.4	4.97	4.59	1.14	.96
c. Family Malad.	7.1	8.3	3.54	3.40	.81	.71
d. Daydreaming	3.6	2.9	1.65	2.03	.38	.42
2. Brown Test Total	25.2	26.5	14.57	9.99	3.04	2.08
a. Home Adjust.	2.1	3.7	2.30	2.46	.48	.51
b. School Adjust.	1.3	1.1	1.26	1.14	.26	.24
c. Physical Symp.	7.9	8.2	4.98	3.34	1.04	.70
d. Insecurity	5.8	4.9	3.78	2.44	.79	.51
e. Irritability	4.0	3.8	1.78	1.45	.37	.30

TABLE IV

COMPARISON OF RESULTS ON TESTS

OF PERSONALITY

Test Section	Diff.	Stand. Error of Diff.	Critical Ratio
1. Rogers Test Total	.7	3.04	.23
a. Person. Inferi.	2.4	1.52	1.58
b. Social Maladj.	2.2	1.49	1.48
c. Family Maladj.	1.2	1.80	.67
d. Daydreaming	.7	.57	1.24
2. Brown Test Total	1.3	3.68	.35
a. Home Adjust.	1.6	.70	2.28*
b. School Adjust.	.2	.36	.56
c. Physical Symp.	.3	1.25	2.40**
d. Insecurity	.9	.94	.96
e. Irritability	.2	.48	.42

* 2% level of confidence

** 1.6% level of confidence

valid evidence for rejecting the Null Hypothesis in the two categories mentioned. Thus, it has been shown, with a high degree of probability, that a significant difference exists between the two groups in each of the two areas of adjustment. They would be said to come from a different population on the basis of these differences in the home and physical areas of adjustment, since the other variables were comparatively well controlled. (The hypothesis would be falsely rejected 23 times out of each 1000 in the former, 16 times out of each 1000 in the latter.)

The adjustment of the crippled child to his home environment was shown by the Brown Test to be significantly more favorable than that of the non-cripple. The Rogers Test also showed this to be true on the 11 percent level of confidence. Anomalously enough, the crippled children scored slightly more favorably in adjustment to physical symptoms than did the non-crippled group.

A discussion of this latter finding with the superintendent of the hospital disclosed that a definite effort was made by the staff to indoctrinate each patient with a wholesome, self-assured attitude toward his handicap. The more favorable rating of these children on physical adjustment might thus be attributed to this mental hygiene factor, or possibly to an over-compensatory effort by the child to deny any physical abnormality.

A determination of this sort is beyond the range of this investigation.

2. Ancillary Correlations

A correlation between the total scores on each of the two tests of personality failed to reveal a significant relationship between the various aspects of the personality that each measured. The Spearman Rank Formula Method of linear correlation gave a coefficient of correlation of +.08.

A dichotomy was set up in regard to the duration of disability. The criterion selected was the five year level. The mean total scores of the two divided groups of cripples were as follows:

TABLE V

RELATION OF MEAN TEST SCORES TO DURATION OF CRIPPLING

Test	greater than 5 yrs.	less than 5 yrs.	Difference
1. Rogers Test	M = 44.2	M = 41.0	3.2
2. Brown Inventory	M = 29.9	M = 20.5	9.4

The oldsters' rating of 9.4 points higher on the Brown Inventory, and 3.2 points on the Rogers Test, would tend to contradict the contention[1] of Kammerer that the duration of disability has very

1 R. C. Kammerer, "An Exploratory Psychological Study of Crippled Children", The Psychological Record, 4:63, 1940.

little influence on the total scores of the Rogers Test. He found a slight negative correlation in this respect, though his worst subjective ratings were characteristic of those with the longest crippling.

The author subjectively rated each of the 24 subjects of the experimental group as to cosmetic appearance, using the trichotomy of good, average, or poor. When the mean scores of the 12 least favorably endowed children were compared with the other twelve, a relationship was indicated as follows:

TABLE VI

RELATION OF MEAN TEST SCORES TO COSMETIC APPEARANCE

Test	the 12 most obtrusive	the 12 most favorable	Diff.[6]
1. Rogers Test	44.7	40.9	3.8
2. Brown Inventory	33.0	19.4	13.6

A difference of 13.6 points was found between the two groups on the Brown Inventory, the higher score belonging to those with the unfavorable cosmetic appearance. This group also scored 3.8 points higher on the Rogers Test.

This comparison indicates that as the cosmetic appearance becomes more obtrusive or unfavorable, the degree of personality maladjustment tends to increase. The study of Kammerer[2] is essentially in agreement with this conclusion. He found that: "No

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2 Kammerer, ibid., p. 94.

significant psychological difference seems to exist between disease classifications.... Degree of impairment and cosmetic appearance are of more significance than the aetiology of the disorder."

The patients were also subjectively rated by the author according to the severity of their disability, on the basis of a 4 point scale. The criterion was the limitation in their mobility as it affects the normal aspects of muscular activity, such as walking, writing, facial expression, and playing. Those with no limitation were rated 1; slight, 2; severe, 3; and very severe limitation, 4.

The mean test scores of those with slight, or no limitation were compared to those with severe, or very severe limitations, as follows:

TABLE VII

RELATION OF MEAN TEST SCORES TO SEVERITY OF DISABILITY

Test	none and slight	severe and very severe	Diff.
1. Rogers Test	40.9	44.4	3.5
2. Brown Inventory	20.4	31.0	10.6

Again, the Brown Inventory distinguished itself by rating the severely, and the very severely disabled, 10.6 points higher in personality disorder than the group with no, or only slight, disability. This finding suggests that the more involved the restriction to mobility, the more pronounced will the personality disorder be.

The results elicited by Kammerer[3] in his study give a similar indication. He found that the most severe cases of crippling obtained a worse subjective rating of adjustment than did the less severe cases. Thus, the poorest adjusted individuals had the most severe cases of crippling.

Though the samples chosen for this investigation were comparatively small, they were sufficiently large to reveal certain statistically significant differences that do exist between the two groups, particularly in the areas of physical symptoms and relations within the home.

The two individual tests were not found to correlate with one another to any significant degree. In searching for any further considerations which may influence the personality integration of the physically disabled child, the duration and degree of the impediment, as well as the concomitant cosmetic appearance, were all found to bear a slight positive correlation to the extent of the somatopsychological maladjustment. No extensive computations were performed in determining the accuracy of these correlations other than the mean test scores, because too large a possible subjective error was believed to exist in the quantification of cosmetic appearance, severity of disability, and relative duration of the handicap.

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3 Kammerer, ibid., p. 63.

PART V

SUMMARY, CONCLUSIONS, AND IMPLICATIONS

The problems of society's rejection of the crippled child, and the concomitant psychological implications, are as old as they are extensive. The ignominious heritage to which the crippled child of today is subjected does not paint a pretty picture. Some work has been done toward viewing him in the proper perspective. Much still remains to be done! This is especially applicable to experimental work for an understanding of his needs, motives, attitudes, and personality structure.

The purpose of this study was to determine whether or not any appreciable degrees of personality maladjustment exist in the realm of the crippled child. A group of 24 orthopedically handicapped children were used as the subjects. The range of their disabilities included poliomyelitis, osteomyelitis, scoliosis, spina bifidia, Perthe's disease, bone tuberculosis, epiphysitis, torticollis, cardiopathy, tumor, and traumatic injury. A control group of 24 non-handicapped children was

matched to them with respect to age, sex, race, intelligence, socio-economic status, and geographical distribution.

Two objective type tests of personality integration were administered to each group: The Rogers Test of Personality Adjustment, and the Brown Personality Inventory for Children. The former was designed to explore the areas of personality involved in personal, social, familial, and dream-world contacts. The latter was constructed to measure adjustment in general, adjustment in body, in the home, and in school, as well as the degree of irritability and insecurity of the subject.

The findings disclosed that a statistically appreciable difference exists between cripples and non-cripples in the adjustment at home, and the adjustment toward perception of physical status. The crippled child was found to be more favorably adjusted in his outlook on the somatic level and in his contacts with parents and siblings. No other significant differences were found to exist between the two groups.

Within the experimental group itself, no correlation was found to exist between the two tests of personality. In regard to the elements that effect a disorganization of personality in the child, three contributing factors were disclosed.

First, the duration of the disability was found to exert a positive influence in this direction. Second, the cosmetic

appearance of the child was found to contribute, in that the degree of personality disorder tended to increase as the obtrusiveness of appearance increased. Third, the prominence of maladjustment increased with a greater degree of restriction to personal mobility. It must therefore be noted that factors other than the physiological impediment are operant in unbalancing the established harmony of personality.

The following verse succintly contrasts the comparative unimportance of the shape, the form, or the beauty of the body when viewed in a realistic perspective:

"All Straight Inside"[1]

You call me "Cripple Billy",
And I guess that is my name,
But the cripple part
Is not my heart
My legs are all that's lame.

The Billy part is me, sir,
Just a lively, wiggling boy
'Cause a happy face
Doesn't need a brace
When bandaged up with Joy.

The inside isn't crippled
That's the Billy part, you know,
Just the body part
And not the heart
Is all that didn't grow.

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1 Allen A. Stockdale, "All Straight Inside", The Crippled Child, Nov., 1923, as cited by Henry E. Abt, The Care, Cure, and Education of the Crippled Child, p. 5-6.

On the basis of this investigation, it must be concluded that the disability, in itself, does not have any unique influence on the crippled child's personality integration, in toto. It does, however, influence certain areas.

It appears to reinforce the relations of the child with the parents and siblings. This could quite possibly be due to the characteristic over-solicitousness of the family toward a physically handicapped member, which in turn would alter the cripple's frame of reference so that the family would be a bounteous source of emotional gratification.

No conclusions as to the outlook of the cripple on his disability can be drawn without further research, other than its being more favorable in this particular group. These subjects had been exposed to a considerable amount of mental hygienic measures by the hospital personnel. In order to determine whether this factor had an a priori influence on the more favorable outlook, whether it was due to some over-compensatory mechanism on the part of the child, or whether some other influence prevailed would entail further study with cripples independent of the hospital situation.

The fact that this study attempted to equate a non-hospitalized, control group with a hospitalized, physically handicapped group would tend to decrease the validity of equilibration. Absolute accuracy in matching groups would demand that

both be either hospitalized or non-hospitalized groups.

Another shortcoming would lie in the assumption that the objective type test is assumed to elicit sincere and accurate responses. John Watson, et al., would undoubtedly oppose this exaltation of the introspective technique at the expense of the behavioristic doctrine, and with justification. These tests might be more aptly labeled "instruments for measuring any changes in social conformity resulting from physical disability". For, a crippled child would be prone to respond in the manner that he believes is socially acceptable, rather than risk the loss in approbation accompanying a socially deviant reply. This indicates the need for further research in the simultaneous use of clinical and experimental techniques, one supplementing the other, for a better understanding of the dynamics involved. This type of approach is beyond the limits of this investigation.

While this study suggests that the crippling, per se, does not necessarily presage personality disorder, certain other factors such as personal-social relations and cultural background are deeply tied in with this problem. The need for an investigation of this nature can well be said to have reached maturity.

BIBLIOGRAPHY

BIBLIOGRAPHY

1. Abt, Henry E., The Care, Cure, and Education of the Crippled Child, Ohio: International Society for Crippled Children, 1924.

2. Adler, A., Study of Organ Inferiority and Its Psychical Compensation, New York: Nervous and Mental Disease Publishing, 1917.

3. _____, The Neurotic Constitution. New York: Moffatt, Yard, 1917.

4. Allen, F. H. and Pearson, G. H. J., "The Emotional Problems of the Physically Handicapped Child". British Journal of Medical Psychology, 8:212-235, 1928.

5. Anderson, E. D., "The Family and the Handicapped Child", Hygeia, 12:308-311, 1934.

6. Barker, Roger G., Beatrice A. Wright, and Mollie R. Gonick, Adjustment to Physical Handicap and Illness. New York: Social Science Research Council, 1946, Bulletin 55.

7. Bender, Lauretta, "Psychoses Associated with Somatic Diseases That Distort the Body Structure", Archives of Neurology and Psychiatry, 32:1000-1029, 1934.

8. Bentley, John E., Problem Children. New York, W. W. Norton & Co., Inc., 1936.

9. Brown, Fred, Brown Personality Inventory for Children. New York: Psychological Corporation, 1946.

10. Clark, L. P., "What is the Psychology of Little's Disease?", Psychoanalytic Review, 21:131-145, 1934.

11. Copellman, Fay S., "Follow Up of One Hundred Children with Poliomyelitis", Family, 25:289-297, 1944.

12. Cruickshank, William M. and Jane E. Dolphin, "The Emotional Needs of Crippled and Non-Crippled Children", Journal of Exceptional Children, 16:2:33-40, Nov., 1949.

13. Curti, M. W., Child Psychology. New York: Longman, Green, 1938.

14. Dresdner, Irma, "Uber Korperbehinderung und seelische Entwicklung", Zeitschrift fur angewandte Psychologie, 44:399-437, 1933.

15 Elliot, C. M., "Psychology of the Crippled Child", Journal of Education, 110(6):137, 1929.

16 Paterson, H. F., "A Study of the Minnesota Rating Scale for Measuring Inferiority Attitudes", Journal of Social Psyclology, 1:463-493, 1930.

17 Gates, Mary F., A Comparative Study of Some Problems of Social Emotional Adjustment of Crippled and Non-Crippled Girls and Boys. University of Wisconsin, 1932. Thesis.

18 Gesell, A., "Motor Disability and Mental Growth", Psychological Record, 1:87-94, 1937.

19 Horwitz, A., "The Cripple's Place in Society Through the Ages," Nation's Health, 5:511-512, 1923.

20. Kammerer, R. C., "An Exploratory Study of Crippled Children", Psychological Record, 4:47-100, 1940.

21 Kanner, L. and S. E. Lachman, "The Contribution of Physical Illness to the Development of Behavior Disorders in Children", Mental Hygiene, 17:605-617, 1933.

22 Kellog, C. E. and N. W. Morton, "Manuel for Revised Beta Examination. New York: Psychological Corporation, 1949.

23 Kent, Grace H., "Emergency Battery of One-Minute Tests", Journal of Psychology, 13:141-164, 1942.

24 Kubie, L. S., "Motivation and Rehabilitation", Psychiatry, 8:69-78, 1945.

25 Landis, C. and M. M. Bolles, et al., Sex in Development. New York: P. B. Hoeber, 1940.

26 Lowman, C. L., Survey of the Vocational, Educational, and Social Status of Poliomyelitis Patients. Conducted for The National Foundation for Infantile Paralysis, 1942. MS.

27 _____, "What Becomes of Infantile Paralysis Victims?", Hygeia, 23:24-25, 76-77, 1945.

28 Lowrey, L. G., "The Effects of Physical Handicaps on Personality", Hospital Social Service Quarterly, 13:237-241, 1926.

29 Meng, H., "Zur Socialpsychologie de Korperbeschadigten", Schweizer Archiv fur Neurologie und Psychiatrie, 40:328-344, 1938.

30 Menninger, William C., "Emotional Adjustment for the Handicapped", Crippled Child, 27:4:4-7, Dec., 1949.

31 Michigan Crippled Children's Commission, Report. Michigan: State, 1934.

32 Munn, Norman L., Psychology. Mass.: Riverside Press, 1946.

33 Nage, J. W. and R. H. Sayler, "Physical Deficiency and Extroversion-Introversion", Journal of Social Psychology, 4:239-244, 1933.

34 New Jersey State Crippled Children's Commission, Report. Trenton: State, 1932.

35 Newell, H. W., "Differences in Personalities in the Surviving Pair of Identical Triplets", American Journal of Orthopsychiatry, 1:61-80, 1930.

36 New York City, Commission for the Study of Crippled Children, The Crippled Child in New York City. New York: State, 1940.

37 Kelchner, John Wesley, The Bible and King Solomon's Temple in Masonry. Penn: A. J. Holman Co., 1940.

38 Pintner, Rudolph, and Jon Eisenson, and Mildred Stanton, The Psychology of the Physically Handicapped. New York: F. S. Crofts and Co., 1941.

39 Rogers, Carl R., A Test of Personality of Adjustment, Manual of Directions. New York: Association Press, 1931.

40 Rosenbaum, Betty R., "Neurotic Tendencies in Crippled Girls", Journal of Abnormal and Social Psychology, 31:423-427, 1937.

41 Schilder, P. F., The Image and Appearance of the Human Body. London: Kegan Paul, 1935.

42 Seidenfeld, Morton A., "The Psychological Sequelae of Poliomyelitis in Children", The Nervous Child, 7:1:14-28, Jan., 1948.

43 Smith, G. M., A Simplified Guide to Statistics. New York: Rinehart & Co., 1946.

44 Stockdale, Allen A., "All Straight Inside", The Crippled Child, Nov., 1923.

45 Tracht, Vernon S., "A Comparative Study of Personality Factors Among Cerebral Palsied and Non-Handicapped Persons", Spastic Review, 9:2:3, Feb., 1948.

46 Von Baeyer, W., "Zur Psychologie verkruppelter Kinder und Jugendlicher," Zeitschrift fur Kinderforschung, 34:229-292, 1928.

47 Wallin, J. E. W., Personality Maladjustments and Mental Hygiene. New York: McGraw Hill Book Co., Inc., 1935.

48 White House Conference on Child Health and Protection, The Mentally and Physically Handicapped. New York: Century, 1931.

49 White House Conference on Child Health and Protection, Committee on Special Classes, Special Education: The Handicapped and the Gifted. New York: Appleton-Century, 1931.

50 Wile, I. S., "The Relation of Orthopedics to Personality", Journal of the American Medical Association, 84:1623-1627, 1925.

51 Winkler, H., Psychische Entwicklung und Kruppeltum. Leipzig: Leopold Voss, 1931.

52 Wurtz, H., Zerbrecht die Krucken. Leipzig: Leopold Voss, 1932.

APPENDIX

APPENDIX A

TABLE VIII

EXPERIMENTAL GROUP DATA AND TEST SCORES

Subject	Beta Age	Beta IQ	Kent IQ	Grd.	Rogers Test tot.	PI	SM	FM	DD	Brown Inventory tot.	home	sch.	phy.	ins.	irri
1	15-5	99		8	29	9	19	1.5	-	30	4	1	7	7	6
2	13-11	77		5	54	21	17	10	9	9	1	0	2	1	2
3	15-11	102		9	34	5	14	8.5	56	53	8	5	14	13	6
4	9-9	121		4	33	10	16	6.5	-	20	0	0	4	8	5
5	8-9	123		3	34	6	19	5	4	2	0	0	1	-	-
6	12-8	76		4	55	7	31	10.5	6	52	5	2	20	9	7
7	8-6	118		3	35	11	22	2	-	22	1	-	8	5	5
8	10-10	86		4	44	14	19	8.5	2	9	-	1	1	1	2
9	13-10	103		6	35	9	15	4	7	15	4	1	4	4	2
10	12-9	113		7	34	12	13	5	4	28	4	1	4	6	5
11	13-0	104		6	43	18	20	1	4	21	-	-	7	4	5
12	11-0	83		5	43	15	15	12.5	-	11	1	-	8	2	-
13	9-5	81		2	37	4	20	9	4	22	-	2	6	4	5
14	13-4	79		5	54	18	22	9.5	4	7	-	-	1	1	2
15	13-0	78		5	58	16	26	8.5	7	37	2	2	9	12	6
16	14-10	86		6	33	12	16	2	3	19	-	2	3	4	5
17	15-10	85		7	35	20	8	6	1	26	2	3	10	4	5
18	12-8	80		6	55	211	20	10	4	61	9	4	18	16	7
19	11-8	91		4	49	21	15	9.5	3	18	-	-	10	6	1
20	9-2	96		3	58	16	24	11	7	25	2	-	11	4	3
21	8-10	110		3						27	-	1	9	7	6
22	7-9	-	129	2						32	1	1	12	5	6
23	7-9	-	90	2						40	6	3	12	11	3
24	11-2	-	82	2						19	1	1	8	5	2

APPENDIX B

TABLE IX

CONTROL GROUP DATA AND TEST SCORES

	Beta		Kent	Rogers Test					Brown Inventory					
Subject	Age	IQ	IQ	tot.	PI	SM	FM	DD	tot.	hm.	sch.	phy.	ins.	irri.
1	11-5	102		21	10	6	5	-	3	-	-	1	-	2
2	13-3	78		45	16	22	-	7	41	3	2	14	9	7
3	11-6	89		57	21	19	11.5	5	42	10	5	11	3	2
4	9-9	99		40	15	14	7	4	10	2	-	4	1	3
5	10-3	91		41	15	18	8	-	19	3	-	10	4	1
6	10-9	74		49	18	15	14.5	1	38	3	2	12	7	5
7	10-6	99		39	20	12	3	4	13	-	1	4	3	2
8	10-2	119		55	22	21	8	4	23	-	-	8	6	5
9	10-11	103		49	16	17	11.5	3	26	-	1	12	1	5
10	10-7	102		58	18	21	8.5	10	30	4	2	10	5	5
11	10-7	112		47	17	18	6.5	5	22	4	-	6	3	4
12	9-9	103		32	10	9	9	4	24	2	1	8	5	3
13	11-4	84		47	15	16	12	4	38	5	4	9	9	3
14	11-1	109		25	8	14	3	-	26	6	-	2	8	4
15	13-1	107		39	7	19	10.5	2	20	5	-	7	3	2
16	10-4	126		57	22	20	13	2	28	11	-	7	9	3
17	13-3	114		43	11	18	13	-	17	2	1	6	1	4
18	10-6	94		60	21	19	17.5	2	32	2	2	10	6	5
19	11-9		102	32	15	7	10	-	28	4	1	10	5	3
20	11-6		113	38	18	11	3.5	5	40	9	-	13	6	5
21	11-2		98	49	15	24	4	6	28	6	1	6	6	4
22	9-9		103	36	17	12	7	-	19	2	-	8	2	4
23	10-4		97	38	17	14	5	2	39	3	2	12	9	6
24	13-0		92	41	13	19	8.5	-	29	4	2	7	7	5

APPENDIX C

TABLE X

FORMULAE USED IN COMPUTATIONS

1. Mean = $M = \frac{\Sigma X}{N}$
2. Standard Deviation: $\sigma = \sqrt{\frac{\Sigma x^2}{N}}$
3. Standard Error of Mean: $\sigma_m = \frac{\sigma}{\sqrt{N-1}}$
4. Standard Error of Difference: $\sigma_d = \sqrt{\sigma_{m_1}^2 + \sigma_{m_2}^2}$
5. Critical ratio: $t = \frac{M_1 - M_2}{\sigma_d}$
6. % level of confidence: from Smith[1]
7. Coefficient of linear correlation, by Spearman-Rank Formula Method:

$$\rho \text{ (rho)} = 1 - \frac{6 \Sigma D^2}{N(N^2-1)}$$

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1 G. M. Smith, A Simplified Guide to Statistics, p. 59.

VITA

The author was born in New York City on January 24, 1925. Having received his grade school education in the New York Public Schools, he attended the Bayside High School of Long Island. Finishing his work at Bayside High School in January of 1942, he managed to complete his freshman year at Queens College, New York, before meeting the needs of the existent national emergency.

Three years of active service with the United States Air Force followed. Upon returning to civilian pursuits in 1946, he enrolled at the Virginia Polytechnic Institute, graduating with a B. S. in Biology in June, 1949. Enrollment in the Graduate School of the University of Richmond followed that same year, studying Biology the first year, and majoring in Psychology the second.

Upon completion of his graduate studies in June, 1951, he will begin the study of medicine at the McGill University Medical School, where he is registered to begin in September.