

THE HOSPITAL-SCHOOL AND THE RESIDENTIAL SPECIAL SCHOOL;
WITH PARTICULAR REFERENCE TO TEACHING IN ORTHOPAEDIC
HOSPITAL WARDS

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Dedicated to
my pupils in a Scottish sanatorium

Stone walls do not a prison make,
Nor iron bars a cage.

'The following day, at noon, the students came in, hurrying up the great stair. At the first landing place, on a small well-known blackboard, was a bit of paper fastened by wafers and many remains of old wafers beside it. On the paper were the words, 'An operation to-day. J. B. Clerk.' Up ran the youths eager to secure good places: in they crowded, full of interest and talk. 'What's the case? Which side is it?'

'Don't think them heartless: they are neither better nor worse than you or I: they get over their professional horrors and into their proper work; and in them, pity as an emotion, ending in itself, or at best in tears and a long-drawn breath, lessens while pity as a motive is quickened, and gains power and purpose. It is well for poor human nature that it is so.'

Dr John Brown

Envoy

'I am a cripple in my limbs, but what decays are in my mind,
the reader must determine.'

Dryden

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VOLUME I

INTRODUCTORY

Valuation of the Physically Handicapped before 1900;
with some references to contemporary developments and
schemes for their welfare and education

Lest, in writing upon a theme which lies so close to one's heart, sentiment should outweigh one's judgment and purposefulness or power be weakened by the ineffectiveness of pity, it were better to make no deductions that have not been proven by experience. Where, then, has the experience, necessary for the pursuit of this survey, been obtained? Briefly, in the inner wards and open-air verandahs of a Scottish sanatorium and in the wards of an orthopaedic hospital: in visits to similar institutions and from correspondence with workers in the same fields in other countries. The sentimental eye had very soon to adopt the cold measuring scan of the assessor and after a period of difficult inward deflection try to keep within the focus of its orbit three facts concerning the living subject of the survey: (a) the fact that, for health reasons, the child or adolescent had been consigned for treatment to a long stay in a hospital; (b) that since all morbid or pathological conditions have a mental side, the mental state of the child must receive its share of treatment and consideration, along with the physical; and (c) that this treatment might take the form of preparation of an educational kind for his subsequent life.

In short, the writer had constantly to remind herself that the institutions in which she was particularly interested were not in essential schools, but hospital schools. The reader is also asked to bear this in mind since the pages to come may appear to contain much matter concerning the rise and administration of these institutions which is irrelevant to the main theme - the education of the infirm child. We must

remember that the area to be measured was that 'eternal triangle' of Body, Mind and Soul in the child patient; that triangle which, in this instance, is on an altogether abnormal plane conditioned by (a) the pupil's disease; (b) his mental capacity; (c) his reaction to his hospital environment in which, also, for the purposes of this survey, we must temporarily localise his soul.

It is therefore obvious from the start that a triple service is required from doctor, teacher and social worker. Each 'curator' may measure the pupil-patient separately; their findings, like the three sections of the foot-rule, must fit together if the gross measurement is to be exact. Hence it is surely permissible for the writer to plead that the measurements have been made inch by inch by the pedagogue, who nevertheless acknowledges that without the sympathetic encouragement of the doctor a much narrower field would have been covered.

It might be asked at the beginning, with reference to points (a) and (b) above: Since the child is diseased or disabled for a long period of time, or permanently, why educate him at all? To this we would answer with blunt brevity: Because he is a human being and has a Mind. (At the moment, we are not concerned with the quality or capacity of that mind.) With reference to point (c) which might provoke the question: Who or which authority is primarily responsible for the child in his hospital environment? we would answer: The complete staff of the institution, who, for the duration of his stay, are his foster-parents and are therefore responsible for his physical, mental and moral activities.

It must be admitted, however, that the nation's interest in the welfare of the physically infirm child has been of comparatively recent growth in the history of Western civilisation and culture. What is commonly described as 'state intervention' did not take place in England

till 1899 when, chiefly through the efforts of Mrs Humphrey Ward, an Act of Parliament passed in that year empowered Local Education Authorities to provide Special Schools and Classes for all children suffering from such physical defects as would make them incapable of profiting by instruction in the ordinary way. The first residential school for cripples to be recognised under this Act was the Heritage Craft Hospital-School at Chailey in Sussex, 1903.

Why this tardiness to recognise the mental claims of the 'impotent man' who has been with us since the beginning of time?

Historical

It is possible that the answer is to be found in the fact that our attitude to the invalid himself has changed. He is no longer the object of our pity, but of our concern and the State's concern. The Americans are beginning to speak of those who are in any way subnormal as 'deviates'. In the same spirit, therefore, while we speak of the early treatment of the cripple in particular, let us remember that what was meted to him was meted to most of the infirm.

Among primitive races he was from the practical point of view of no use: therefore he must go. The conscience of the savage lay in his appetites for war and food, the prime necessities for self-preservation: and so we find in the records of almost all primitive peoples references to infanticide. In his Studies in Ancient History, McLennan refers to three classes of persons who were systematically destroyed in this order: (1) the malformed; (2) the aged; (3) the female infant - in all cases the pressure of circumstances leading to their destruction coming from Want and War. It would be superfluous to enlarge upon these exigencies, but it is to our purpose to observe that as ethical consciousness dawned with the advance of civilisation, the order of the destruction of these classes was completely reversed - the killing of the

congenitally deformed being continued into the Golden Age of Greek civilisation. It may have been that traces of oriental influences lingered in these golden days of Greece and Rome: for amongst the primitive races of the East the cripple's 'karma' or doom was death. He was left ^{to} perish from neglect. The Indians threw him into the Ganges: the Persians left him to wander in the wilderness: the primitives of the Pacific Islands, Australia and the Gold Coast had abandoned, killed or buried him alive. The Caribbeans also destroyed their malformed infants, while the Aztecs sacrificed them to the gods on auspicious occasions. Exposure to the elements ended life for many among Indo-Germanic peoples; while in Northern Germany an early law permitted the destruction of congenital 'monsters' and deformed persons.

McLennan remarks with significance that Plutarch makes no reference to the practice of infanticide in Greece in his dialogue on the question whether the lower animals have the use of reason, making Gryllus point out 'that in several ways these animals live their lives more decently, respectably, and so to speak, more humanly than man himself.*' It should be observed also that Darwin makes comparatively scant reference to the practice of infanticide in his Descent of Man, recognising it, perhaps, as too obvious a necessity among primitive races in their struggle for self-preservation. Was not his belief of the survival of the fittest merely an early premise of political economy?

Spencer, in his Principles of Sociology, reveals the very significant fact that infanticide was seldom or never practised among certain uncivilised and semi-civilised nations, Samoans, Bodo, etc., that were wholly or predominantly industrial[†].

* John Ferguson McLennan, Studies in Ancient History. Second edition, chap. VII, p. 74.

† Herbert Spencer, Principles of Sociology. Vol. 2, section - The Status of Children.

McLennan considered it superfluous to comment upon this custom among the early civilisations of the Greeks and Romans except to say that Plato and Aristotle advocated infanticide and that Christianity finally stopped its general practice in the Roman Empire, where, however, in the century before and after the birth of Christ, certain legal measures governed the act of destruction. Parents were granted the right to destroy a deformed child, provided the child was shown to five witnesses and their assent secured.

It is related in the writings of Seneca (died 61 A.D.) that if the cripple was not put to death immediately he was born, later, if his deformities were spectacular enough, he might be sold into slavery where he might suffer further mutilations to enhance the gains of his masters. Seneca, and later, Epictetus, denied the right of one man to make another his slave and asserted the natural equality of all men. His commiseration of the cripple indicated that his rights also as a man and a citizen should be recognised. There is no need to dwell on this question of slavery except to say that, like the malformed, the slave was the out-cast of superior society, yet embodying in his trampled being the very symbol of the 'feet of clay' upon which the golden-headed idol of ancient Greek civilisation stood and crumbled.

The Greek Ideal of Manhood

De Quincey in his provocative, almost 'debunking' essay on Plato's Republic throws a parenthetical accusation upon the destruction of unwanted children. 'No party, therefore, known to the state (the italics are ours) being responsible for their maintenance they must die. And because the ancients had a scruple (no scruple of relenting conscience, but of selfish superstition) as to taking life by violence from any creature not condemned under some law, the mode of death must be by exposure on the open hills*'

* Thomas De Quincey, Author's Edition of Plato's Republic. (Pubd. Black) P. 259.

De Quincey failed to point out what is perhaps more obvious to the twentieth century observer, that there was no place for the unfit in the earlier system of education. That education, in the sense of a leading-out of abilities, existed among savage races is undeniable. The young aboriginal had to be taught to hunt, fish, cook, do simple crafts and train his body to fight in war. And, one might ask, how far were the Helots of Sparta beyond these savages?

The weak and the crippled could not do these things adequately and so they must die. But when, in Greece, the idea of culture as a leading out and upwards, an enriching of capacities, was added to the basic idea of education (and to-day the basic idea of education and the superimposed one of culture still exist), the weakling, especially if he were malformed, was still further beyond the pale; for, besides being non-utilitarian or non-economical, he offended the Greek's conception of the Ideal Man, a being in whom the perfect body mattered much, in whom mind was to be nurtured and in whom the immortal soul might exist. Since great emphasis was laid on the training of the body by Greek pedagogues and philosophers* in the gymnasia and palaestra, there could be small hope of the congenital cripple's redemption to health and worthy manhood. It ought to be stated, however, that something was done for acquired deformities. This is evident in the use of the word orthopaedic itself (orthos, straight, and pais, gen. paidos, a child), orthopaedia being at least as old as the Hippocratic Collection of writings in which (De Articulis) there is an account of **two** processes for correcting a deviation of the vertebral column.

We must add to this idea that the infirm child was not an asset to the state another one that is fundamentally Platonic: the aesthetic principle that the physical body was the mirror of the spiritual

* William Boyd, The History of Western Education. Pp. 1-77.

or supernal body: in more old-fashioned words, that a beautiful body betokened the presence of an equally beautiful soul; and correspondingly, an ugly body betrayed the ugly mind within*.

Perhaps it is no great digression from our subject to refer briefly here to the condition and treatment of one other type of the infirm - the leper. His deformities were acquired through his disease, but aesthetically his appearance became an offence to all Oriental and European notions of public decency and safety. It is true there were almshouses and 'spitals' or lazar-houses provided for him; but until the Church became permeated with real missionary zeal, his case was pitiful in the extreme. Legislative measures were taken against him: but we need not recount what we have all learnt in our school history books about his segregation and the precautions taken against contagion from leprosy.

The following verses by an obscure poet may serve to link this deviation with our reference to the Platonic ideal of physical man:

Within this brain He has lit fires
Who vilest made me:
And in my body strong desires
Most cruelly laid He.

'Unclean!' - Ah, why?
The wind by my bowed head goes by,
Backwards bearing each foetid sigh
From human kind that would come nigh
Th'accursed to spy.

Ah, why this student's will to think,
Philosophise on - what?
Believe they that my soul must stink
With agony? - And why not?

* Note the influence of this belief on examples of mediaeval allegorical literature: on Langland's Piers Plowman and Spenser's Faerie Queene.

Was fellow Plato wise to say
 That fair soul in fair body lay?
 Then woe unto the leprous lout
 Who, driven 'gainst the wind about,
 In reeking flesh, in reeking clout,
 If, for such life, his only pay
 Be 'Foul mind in foul body stay!'^{*}

In Greek and Roman civilisation, therefore, the objection to the survival of the infirm man was not primarily an utilitarian one; it was even more an aesthetic one since he offended the conception of the ideal man. Further, if the bone, the skeletal structure was malformed, there was nothing to be done about what Fate had decreed de utero.

The Christian Influence

It was not always broadmindedly humane, for there persisted through the early and late Middle Ages, and right to the early eighteenth century, a stern Judaical attitude towards the abnormal, copied from the Old Testament laws concerning transgression and punishment, whereby the 'sins of the fathers' were very visibly visited upon the children even to the third and fourth generation. 'Monsters' and 'naturals' were to remain as they were born. Nothing might be done for them since their fate had been predestined by the unalterable will of God.

In the Middle Ages the cripple might rise or sink to positions that were glorious or inglorious. We shall merely refer to the peculiar position of the hunchbacks or dwarfs in the Middle Ages. Drama, poetry and the later novel have depicted them serving in the courts of monarchs like Louis XIV, of barons and of **churchmen**, where often they were the official fools and jesters. Many of them had outstanding artistic gifts; for example, the ill-fated, dwarfish Rizzio in music, - which compensated for their physical deficiencies. Peter the Great had so

* From The Leper by Gabriel Rivers.

many that they were divided into categories of dwarfism.

In the latter part of the Middle Ages, the cripple was regarded superstitiously as a devilish monster, a victim of the wrath of God, and as such was often condemned to death by ignorant people and scholars alike. Sir Thomas Browne - who knew that there were witches - also confessed in his Religio Medici that he believed in changelings, in the usurpation at birth of an innocent body by an alien and generally evil spirit. But Browne was speaking from the high plane of metaphysics: his ideas of medicine were bound up with the dualities of good and evil: yet, in the lower plane of popular credence, there is some analogy to be found in the common belief that the crippled child, the rachitic and the cretin were regarded as changelings. The idea also prevailed that if such deformed children were maltreated sufficiently their diabolical mothers might come again to get them and leave the rightful children.

Thus, despite the gentle ministrations of Christ (the scriptural text of which penetrated but slowly into the reformed churches of Europe) to the lame and the palsied, the leper and the maniac, the amelioration of the impotent man's condition was still slow in the seventeenth and eighteenth centuries; but it must be remembered that, outwith the care given to the sick by several mediaeval religious orders, the treatment and care of other classes of the diseased had been spasmodic and unorganised. The almshouse, maison dieu, God's House or 'hospital', attached to the monasteries were by no means administered as hospitals in the modern sense, being merely shelters for the old, the needy and infirm and in some cases, as in Christ's Hospital, London, for fatherless children. Hospitals as places restricted to the sick only came later. As indicated previously, some brief reference to the growth of these hospitals is not irrelevant since the nature of the institutions to be considered more fully is a dual one of sanatorium-and-school which is primarily a place of healing, though, as will be seen, we have given to healing a wider sense than that of merely physical therapy.

The Rise of Hospitals

The hospitals as such came with the revision of the Poor Law Acts made by Elizabeth in 1601, when the nation had been roused by the crying need of the poor and diseased caused by the cataclysmic dissolution of the monasteries with their 'free' almshouses attached. These Acts amended the situation somewhat by ordering for the reception of the poor, sick and impotent the provision of convenient houses which would be maintained partly by Royal Grant and partly by private endowment. These houses, administered by overseers appointed by Justices of the Peace, gradually spread over the country. It must be noted, however, that organised houses for the sick had arisen, as was to be expected, even in pre-Reformation times in the University cities of Europe. These were the training centres and demonstration schools for the medical students in Paris where the Hôtel Dieu dates from the seventh century; in London, St Bartholomew (1546) St Thomas (1553), both for the sick, and Bethlehem or 'Bedlam' (1547) for lunatics; and later in Edinburgh, the Royal Infirmary (1730). Into such asylums as Bedlam would go, it is to be feared, many wretched, but perfectly sane, unwanted cripples, who, if destitute, were classed with the vagabonds and beggars of the period. Fielding, in his Causes of the Increase of Robbers (pp. 45-6), makes mention of multitudes of lame beggars who used their crutches as weapons of offence upon unwilling almsgivers. In Germany such vagrant and diseased poor were confined in disused monasteries which had become, as in England, the orphan asylums, madhouses and penitentiaries of the period. In all these places, however, it has been admitted* that little constructive effort was made to better the condition of the inmates. One had to become, for example, a confirmed cripple in order to qualify for entrance to one of those institutions. Impotent one was: impotent one had to remain.

* Board of Education, New York, Orthopaedically Handicapped Children.
Introduction. (1941)

It must be said that in none of these almshouses or 'hospitals' was there any elementary or industrial education provided specially for the sick or 'simple' child; nor in the parish schools organised from mediaeval times by various religious bodies and charitable societies such as the Philanthropinum schools of Basedow in Prussia*; (though in the latter physical exercises were to be emphasised for their influence on public wellbeing); in the Jesuit schools and the Little Schools of Port Royal; the Trade Schools, the Charity Schools and Workshops in Britain; the schools of Bell and Lancaster; the Robert Owen's School, partly open-air; the first nursery and infant schools organised by Oberlin, Princess Pauline of Lippe, Buchanan, Wilderspin and Stow[†] was there any particular attention paid to the weakly child. That 'unfortunate bairn' sat by the ingle-neuk at home, or was set to bird-scaring in the fields, though doubtless he was visited and perhaps taught his letters by catechists and good women of the Dorcas type. Nor can we imagine that the monks and friars in the older monastic schools would leave the infirm, if they were sane, quite untaught. Their education might be manual, confined to work in the kitchens and gardens of the almshouses and colleges. Indeed, it must be stated that the ulterior and utilitarian motives behind the early education of infants in the spinning-factory schools of England, and even in Robert Owen's model school at New Lanark, which were to prepare the child to be a wage-earner at five years, and ten years respectively, were almost criminal in their neglect of the child's freedom and right to an unforced development and growth towards physical, mental and social responsibility.

* William Boyd, The History of Western Education. Pp. 325-8.

† Robert R. Rusk, History of Infant Education.

Towards Intellectual Freedom

In nations where there had been an almost simultaneous movement towards spiritual freedom, in the spread of Lutheranism in Germany, Calvinism in Switzerland, Scotland and France, Puritanism in England, there was bound to follow sooner or later an enquiry into the domination by several factors over the other two states of man's being, his mental state and his physical. It became apparent that they were interdependent and could not be separated. So, in the wake of great preachers, both Catholic and Protestant, came the educationists and the social reformers. The very greatest exponent of each sphere could quite correctly be said to contain within himself the attributes of all three. John Knox, for example, was preacher, educationist, and, at Court at least, meddler in the social and moral customs of others. There were Erasmus, Bacon, Milton, Rousseau, and others less exalted, though more practical in experiment; for instance, seventeenth century exponents of educational systems, like Hartlib, Durie, Woodward and Petty, who devised schemes of education which would also be means of social betterment.

In the spheres of Church, Home (or Society) and School, we might find philanthropic champions of the blindly misled, the neglected, and the oppressed. The newly acquired spiritual freedom contrasted with the enslavement of women and children in factories and mines was like a heavenly dome of light above an infernal pit of darkness.

Radicalism sprang up in the breasts of old and young in Parliament. It ran to fury in poets and politicians, with the outbreak of the French Revolution, and, influenced by the cautious constitutionalism of Edmund Burke, subsided to a period of conservative but smouldering calm, that broke out again in the year of social reforms, 1834. The phials of purification had been broken upon the nation's life and slowly but surely the cleansing streams were pouring into its veins. After the depletion of the national strength by the Napoleonic Wars, the nation was, or had to be, born again.

It had begun to be realised that in one generation was being born the civilisation of the next. Wordsworth's line,

The child is father of the man

was no cry in the wilderness of literary theory. If the conditions of life were to be improved for the next generation, the improvements had to be begun in the present. From the cradle to the grave, in the home and in the workshop, man's life was to be scrutinised. If healthy children were to be born, the benefits of pure air, good homes, and sufficient nourishment must be given to the mothers. Men and women arose who, through their single-minded service, taught these truths to the public. There was 'Parson Malthus', as he was nicknamed by Cobbett, who was about a century ahead of his time in his prevision of the disasters awaiting a swelling population produced on Poor Law doles and diminishing supplies of food. The doctrines of his essay, On the Principle of Population as it affects the Future Improvement of Society (1798), inspired the commissioners of the Poor Law Amendment Act in 1834; and though his theories, reduced as they were to practice in that Act and in the first Public Health Act, 1847, promoted by Edwin Chadwick (1800-1890), disciple of Bentham, are now considered to have hampered the growth of 'preventive medicine' for about a hundred years, they made contemporary legislators in their different spheres think seriously and constructively about the future of man. The lesson had yet to be learned, however, that too tight swaddling-bands about the infant would prevent its growth. Too well-regulated workhouses were to replace all forms of outdoor relief; and despite the fact that the 1834 Act aimed at abolishing the eighteenth century system of subsidising wages from the rates, (thus, its authors believed, securing self-help and rising wages), low wages and pauperism continued with their attendant results of disease and ignorance till the rise of the Trades Unions and the National Health Insurance system.

There was amongst the zealous reformers, also, the then young Lord

Shaftesbury (1801-1885), friend of the Ragged Boys and the chimneysweeps, the factory hands and the unfortunate inmates of asylums. He was like an evangel with a knotted cord in his hand, purging one 'temple' after another of injustice. It was through his efforts that there was finally formed in 1867 the Metropolitan Asylums Board which became the greatest hospital-owning and managing body in the world.

Then there was Florence Nightingale, to whom it has been customary to give the adult adulation of the wounded soldiers and a reorganised Army medical service, but without whose initiative and administrative power no army of trained nurses would have been available to staff the children's hospitals that began to spring up at the beginning of this century.

These plans for the social and physical amelioration of the nation's conditions were well under way before similar scrutiny was turned upon the intellectual requirements of the rising generation. There was a grant made by Parliament to Education in 1830; but forty years were to elapse before further grants were given to establish schools in every parish where none existed and at which attendance was to be compulsory. By 1879 Edinburgh Royal Blind Asylum was providing education and treatment for blind children; by 1893 the Education Act (Blind and Deaf Children) permitted the education and treatment of these types; but not till 1899 were similar provisions made for the defective and epileptic child. Why were the claims of the latter to those rights which surely belong to all children so late in being recognised? How did it come about that perhaps three-quarters of the population of cripples in the last quarter of the nineteenth, and the first quarter of the present, century were living in a state of deplorable idleness and illiteracy? *

* In Scotland alone, in 1939, it was estimated that more than half of the estimated 13,000 adult cripples were living on Public Assistance, 'although many might have been made self-supporting if they had been given suitable training in youth.' (From Dr Seymour's contribution to the Scottish Youth Advisory Committee's Report.)

Physiology and Education

As we have indicated briefly already, the early Greek gymnasts and rhetoricians believed that a normal man could educate the tripartite states of his being, his body, mind and soul. Not until the middle of the nineteenth century did the answer to this question come: If, then, the man is abnormal, if one, or other, or all of these states are not perfect, if the body is infirm or distorted, and the mind impaired or almost lacking, how can he improve them by education?

While Britain was still developing social consciousness, in Europe men of a more contemplative genius had evolved principles of philosophy and education which would quickly set mankind on the road to perfection in all its faculties if men would but take that road. In the early seventeenth century, Descartes, mathematician and man of contemplation, had said that 'if it were possible to perfect mankind, the means of doing so would be found in the medical sciences.' (Note, not in the Church.) But, then, Descartes' belief in man as a being perfectible in body and soul was linked up with his belief in the existence of God. That was a profound and a bold doctrine that in a later century affected the men of Seguin's school, doctors and teachers, urging them to get through the seemingly impenetrable barriers of deafness, blindness, idiocy and palsy to the hidden mind. They got through and the whole human race has benefited by their joint discoveries on the nature of mind.

Seguin and the Infirm Child

It was Seguin, foremost among the world's medical pedagogues, who made one of the best summaries of Herbert Spencer's method of education. 'Education is the ensemble of the means of developing harmoniously and effectively the moral, intellectual and physical capacities as functions

in man and mankind*.' If man is to continue being an animal while he inhabits this planet, then he can be a noble one only if he be fully developed in all his faculties - not just in one or two at the expense of the remainder: and if by fate or the fault of his age's civilisation any of these faculties has been impaired, the great laws of compensation discovered by men like Itard (teacher of the blind), Pereire (of the deaf), and Seguin will act to restore the balance.

'That idea,' wrote Seguin, 'of finding modes of training, natural and yet powerful enough to bring into physiological activity impaired functions, and even atrophied organisms, did not come directly into the human mind. Like nearly all discoveries it came by side-views of the problem, till a man looking at it full face solved it by a mighty effort'†.'

What Seguin modestly calls 'side-views of the problem' entailed an intimate and wonderfully patient study of the child's whole make-up, as we now call the psychological, physiological and psychical complexities of the individual human being.

For the purposes of this survey the methods of Seguin would have made a good text if one had been dealing with a few particular types of disability; for, though he is known as the father of the teaching methods employed specifically among idiots, it is not so generally recognised that the institutions inaugurated by him in America from 1850 onwards were for the training and curing of many types of infirm children. In his book, Idiocy, he describes spastic cases which from details given of their educational attainments could not, according to modern methods of investigation^x, have been imbeciles or idiots. Later in this thesis some references will be made to details in Seguin's physiological

* Edouard Seguin, Idiocy. P. 32.

† Ibid., p. 16.

^x That is, as the intellectual capacities of these subjects are now measured by standardised intelligence tests.

methods of teaching. It is sufficient to point out at this stage that from out, or along with, the ideas of such doctor-teachers which were leavening the solid lump of an over-intellectualised educational system still mainly theological and humanistic, were being born the science of dynamic psychology and the measurement of human intelligence, fields in which Freud, Jung and Binet in their different ways are the leaders of our age.

Friedrich Froebel (1782-1852)

Reverberations of another voice, contemporaneous with Seguin's, were reaching Britain during the awakening of the nation's social conscience, that of Froebel, philosopher, natural scientist and self-made teacher. Reference in greater detail is made later to his teaching principles: but it is necessary to point out at this stage that his main concern in education was to develop the child's individuality in an atmosphere of freedom, and to cultivate in him a sense of unity with nature, man and God; only so could his individual freedom be acquired. It was a doctrine that must have sounded like an accusation in the ears of men and women who were responsible for the exploitation of little children in industry and saw, as a result, the warping of their minds and bodies. One wonders if they paused to exclaim, on hearing that one of the salient features of Froebel's educational system was the fostering of the child's natural instinct to play, 'Why, these little chimneysweeps and lace-spinners never have time to play! As for the sickly and the deformed, they had just better never have been born.' - But they would continue to be born until the evil conditions of their age had been removed, and one evil in particular, the employment of women, of potential mothers, in the then unhealthy environment of mines and factories. The removal had begun roughly about the year 1800, when through the making of a new census, the first since the Domesday survey

of 1086, the Government showed an interest in the nation's welfare. It revealed, though incompletely, the social, cultural and economic conditions of the whole people. The Age of Statistics had begun; the specialist investigators, the Boards and Committees began to report on various sections of the social structure. In 1832 the statistical department of the Board of Trade was established. In 1836 was opened the Registry of Births, Deaths and Marriages. Special hospitals were springing up for notifiable diseases. In 1833 the Manchester Statistical Society, with the London Society in 1834, interested itself in the education of the masses. And so on We have already referred to the political reforms affecting the nation's social structure in 1834 and 1847, and have retraced our steps a little in order to show that what Seguin called the 'social medium' for every reformer's ripe idea was being, or had been, prepared. Even the ethical consciousness of the nation had undergone a change. Men realised, through infiltration of the principles of Locke, Rousseau, Froebel and Spencer, the potentialities of the child first as a child, later/a ^{as} citizen - surely the exact opposite of Plato's valuation of the individual. There came also an alteration in what De Quincey had felicitously called our 'primary conscience', that being no less than a changed conception of man's relationship to God and God's relationship to man, with all the subtle implications thereto. The message of God's love for man; the raising of man to the status of sonship of God; the realisation that man was verily made 'in the image of God', enhanced the human individual with a new sacredness that attended him from birth till death.

In order to show concisely the steady rise in social consciousness of the British legislator, the accompanying chart on p. 19 may be useful. The various measures quoted are pointers to the great consummation of social services which has taken place in 1943-1944.

From 1800 onwards what Seguin had called the social medium was being prepared by law and statute; the nation's primary conscience was being stirred by the reforming zeal of poets and novelists like Dickens, Mrs

<p>1940</p> <p>1920</p> <p>1900</p> <p>1880</p> <p>1860</p> <p>1840</p> <p>1820</p> <p>1800</p>	<p>1944 Medical White Paper</p> <p>1929 Local Government Act by which services of Poor Law and Public Health were fused into single system</p> <p>1918 Maternity and Child Welfare Acts, being the culmination of services since the beginning of the century</p> <p>1872 Public Health Act by which was established a complete system of Health Authorities independent of the Poor Law</p> <p>1847 First comprehensive Public Health Act</p> <p>1834 The Poor Law Act</p> <p>1800 Census of nation's resources</p> <p>H E A L T H</p>	<p>1944 White Paper on Social Security Tomlinson Report Beveridge Plan</p> <p>1937 Juvenile Contributions to National Health Insurance and Young Persons' Act</p> <p>1924 Declaration of Geneva</p> <p>1911 National Health Insurance</p> <p>1908 The Children's Act, code covering protection of child-life in home, school and industry</p> <p>1875 Employers' and Workers' Factory Acts</p> <p>1833 The Factory Act regulating hours of employment of children in factories</p> <p>1802 Factory Act</p> <p>I N D U S T R Y</p>	<p>1944 Education Act, England</p> <p>1921 Education Act, provisory powers of 1918 Act become a duty of Local Authorities</p> <p>1918 Education Act extended to physically defective children</p> <p>1914 Promotion of health and physical education</p> <p>1907 Provision of meals in schools</p> <p>1906 Education and medical treatment of crippled children</p> <p>1899 Education of defective and epileptic children</p> <p>1893 Education of blind and deaf children</p> <p>1872 Education Act, Scotland</p> <p>1870 Education Act, England Schools established in every district where none existed. Attendance compulsory.</p> <p>1830 Parliamentary Grant to Education</p> <p>E D U C A T I O N</p>
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Chart showing activity of social consciousness in the constitution of the British people from 1800 to 1944

Gaskell, Mrs Browning, Charles Kingsley, George Gissing, Mrs Humphrey Ward, and by philanthropists like Lord Shaftesbury, Dr Barnardo and John Ferrier; and by doctors like Sir Robert Philip, Sir Pendrill-Varrier-Jones, and Sir Robert Jones who have promoted in practice Seguin's idea of compensation for the invalid through placing him in a sheltered environment. Furthermore, the social influence of woman had been recognised and she was enfranchised; the conditions of labour were investigated; the nation's purse was scrutinised; the schools were established and inspected; the conditions of the poor and the sick were passing from the responsibility of the philanthropist to that of the State - though whether that be altogether for good or ill cannot yet be foretold. It may be disputable that the 'child rather than the family is the unit of the state*.'

In any case, no child, especially the unfortunate defective child, is the object of pity he once was. The progress of the moral-mental-physical therapy of man anticipated by Descartes and Seguin will depend on whether the cause of man's defects lie in himself or in his environment.

Are our separate 'side views' on the problem of man nearing conclusions? Are these conclusions converging into the unity Froebel worked to achieve? Are we coming into 'full face' with man himself - with the child as he really is? (For we can only understand the sub-normal child if we understand the normal.) Shall we be able to bring to the disabled, broken child this healing sense of unity which is to be got only if we regard education as an alliance of hygiene, medical science, and philosophy? They are high-sounding slogans introducing the era of what bids to be the Age of Health - an all-round wholeness in the body, mind and spirit of man. It is part of the aim of this thesis to answer, in a humble way, these questions in so far as they are related to the infirm child whose eternal triangle of body, mind

* Herbert Spencer, Principles of Sociology. P. 738.

and spirit is, as we indicated at the beginning, on an altogether abnormal plane conditioned by (a) his disease, (b) his mental capacity, (c) his reaction to his hospital environment; and, we add a fourth, (d) his consequent life and work in the world.

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SECTION I

Scope of the Survey and Procedure

A questionnaire (see pp. 23-4) was drawn up by the writer and sent to every known Orthopaedic Children's Hospital, Children's Sanatorium, Residential Special (Open Air) School or Home in Great Britain, and to a few in overseas Dominions where an Orthopaedic Council or International Society for the care of cripples was known to be in operation. Where possible under war conditions, visits were made to hospital schools, curative workshops and rehabilitation centres.

The aim of the questionnaire was to discover as accurately as possible:

1. Statistical estimate of number of children receiving education in hospital-schools;
2. Types of diseases treated and approximate duration of treatment;
3. Number of teachers employed and qualifications of teachers;
4. Statistical estimate of hours devoted to (a) elementary education, and (b) secondary, if any; (c) to manual and vocational subjects; and details of methods employed;
5. The results of intelligence testing among hospital children;
6. The administration of a hospital-school with particular reference to ward teaching.

Questionnaire

1. Name and postal address
of hospital
 2. Controlling authority of hospital
(i.e., Local Authority or voluntary managers)
 3. Types of orthopaedic or other long-term patient for whom treat-
ment is supplied: e.g., surgical T.B., congenital deformities,
traumatic cases, etc.
.....
 4. Number of beds available for all resident patients
 5. Number of resident child-patients up to 16 years
 - (including any cases of poliomyelitis, T.B. kidney,
cervical adenitis, spastic paraplegia, etc.)
 6. Is an occupational therapist employed?
 7. How many teachers are employed? Resident Visiting
 8. How many of these are certificated teachers?
 9. What subjects other than the ordinary school subjects are taught
to the older patients, e.g., shorthand, bookkeeping, etc.?
.....
 10. Is special attention paid to manual occupations?
 11. Is the education of the children under the control of the Public
Health Department or the Education Department of the Local
Authority?
.....
 12. Does the controlling authority of the hospital supply
(a) books and educational apparatus?
 - (b) a cinema projector?
 - (c) a library? Are there books suitable for children?
- At what age do the children begin schooling?
- Are the children segregated according to age-groups?
- Is the teaching mainly done in (a) a schoolroom? ... (b) the wards?

Questionnaire (cont.)

- 12 (cont.) How many hours per week do the children devote to
- (a) basic school subjects?
 - (b) handcrafts?
 - (c) other activities?
 - (i) academic?
 - (ii) physical?
 - (iii) social?

13. Is any special teaching method applied?

If so, which?

14. Are Intelligence Tests applied (a) with some children?
- (b) with all children?

Name of Tests used

15. What proportion of the children discharged pass on to
- (a) ordinary day schools?
 - (b) special day schools?

Total number of child patients	1938	1939	1940	1941	1942

16. How many of the discharged patients have entered upon the Rehabilitation Training Courses at Technical Colleges?

17. How many are likely, from their medical prognosis, to enter upon these Courses within the next 3+ years?

18. Are there any special features about your work to which you would like to call attention? If there are any printed or duplicated reports, I should be very glad to have them.

Signature

Designation

Please return the form in the enclosed stamped addressed envelope.

SECTION I. PART 1. HOSPITAL SCHOOL ENVIRONMENT

Nowadays it is said, not indisputably, that every chronic disease and disability has its own psychosis, affecting for good or ill, not only the body, but the mind and character, of the patient. In later references to the hospital-pupil's temperament and mental capacity we shall return to this point, but it is sufficient meantime to recognise that the child or adult must be affected in greater or less degree by the environment of his hospital.

The accompanying spot-map shows the location of the main orthopaedic and sanatorium hospital-schools in the British Isles*. It will be observed that they are all within easy reach of cities that are the centre, or within the radius of a centre, from which the hospital and clinical services of the Orthopaedic Council or Tuberculosis Authority¹ operate. As in the days of the monastic almshouses and the isolated lazar-houses, they have sprung up where the winds blow clean and free: where the atmosphere is unpolluted by the smoke of industry: where the ozone of the sea is strong and the scent of the mountain pine: where the forces of nature, sun and air, are beneficent agents of healing.

Historical

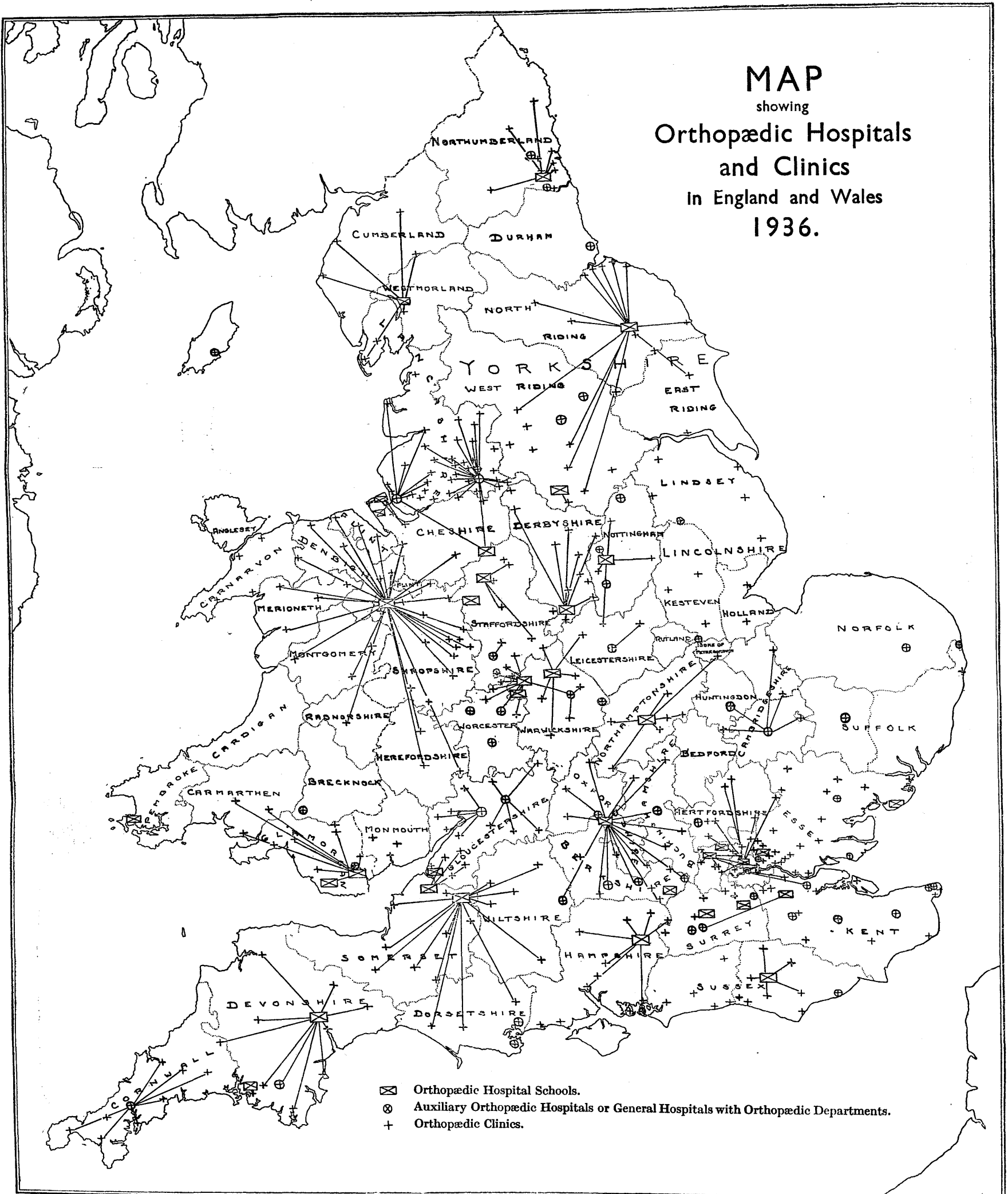
That the value of close proximity to nature was recognised by the educationists of the nineteenth century as well as by medical men is evinced by the conjoint development of 'Kindergarten', open-air schools, 'forest schools' for delicate children and sanatoria. The kind of physical or natural environment resolved to be the best for delicate children is the same for the three main classes of such children, (a) the tubercular, (b) the debilitated, (c) the crippled. But it

¹See later, p. 27.

*In view of the changes brought about by war conditions, some of which may be temporary, others more permanent, it has been decided to show here only the distribution of orthopaedic hospitals and clinics in England and Wales in 1936 to illustrate this point. The present distribution in Scotland may be deduced from the list given in the Appendix.

MAP

showing
**Orthopædic Hospitals
 and Clinics**
 In England and Wales
 1936.



The scale of the map does not allow space to show various other children's hospitals where orthopædic cases are taken, such as Great Ormond Street, Wray Crescent Hospital Home, &c.

See Appendix for position of other hospital-schools not shown on this map.

was considered to be best for the infant normal child also by Robert Owen in 1816 when he opened his 'Institution for the Formation of Character' at New Lanark. 'The school, in bad weather, is held in apartments properly arranged for the purpose; but in fine weather the children are much out of doors, that they may have the benefit of sufficient exercise in the open air.'

It was a fundamental doctrine of Rousseau and Froebel that a normal child should be bred and taught close to the joys and in view of the creative processes of nature: and thirty-five years before Froebel was born, in 1747, a Scottish physician wrote to friends in London that 'fresh air and the careful regulation of diet were more important than drugs¹.' The dawning of the day of 'preventive medicine' was delayed to some extent by the rapid growth of industrialism and the consequent need for schools in the midst of great towns. Only to-day in the projected idea of The School Base² which is an educational community established far from the confines of our cities, but not beyond the facilities of daily transport, are we returning to the Froebelian idea of the garden-school in its pristine closeness to nature and God.

In this respect the growth of Special Hospitals and hospital-schools has been more fortunate. Their sites have had primary consideration, chosen first and foremost for advantages of altitude, a dry subsoil, and air³. It should be added, however, that the sanatorium and hospital-school should not be too isolated, but be a unit among a chain of hospitals united to a city general hospital or a university of which the clinical services cover all.

¹Harley Williams, A Century of Public Health in Great Britain. P. 127.

²J. Howard Whitehouse, The School Base.

³G. R. Girdlestone, The Care and Cure of Cripples. Pp. 27, 42.

Europe: Sanatoria and Open-Air Schools

Some of the most famous early special hospitals in Europe were, and still are, among the most beautiful of mountain landscapes. There was the sanatorium at Göbersdorf founded by Hermann Brehmer in 1859; on the view that tuberculosis did not exist in high altitudes; the sanatorium at Falkenstein, 1876; the Nordrach, with its open-air methods in the Black Forest (1888). In these originated also the hydropathic treatment, extended to the hydrotherapy of to-day with swimming pools in adult sanatoria and children's orthopaedic hospital-schools.

In 1882 the tuberculosis bacillus was discovered by Koch and after 1890, the date of the preparation of tuberculin, which was then regarded as a remedy for tuberculosis, sanatoria were developed in practically every European country. In the nineties workmen's sanatoria were developed nearly all over Germany.

The necessity for the education of long-term ambulant patients became obvious. In 1894 an open-air forest school for debilitated children was founded at Charlottenburg, a suburb of Berlin, antedated by pioneering efforts at Padua, Vienna and Berlin itself, with outdoor classes for tubercular children.

In America

It was in the years following 1850 that Edouard Seguin did so much for idiot and delicate children in America, and in 1861 that the first hospital-school is recorded in New York at the home of a Dr Knight; but it was primarily for the tubercular and pretubercular child that segregation in a special environment was considered necessary. The Sea-Breeze Hospital School was founded at Coney Island in 1904. The children were suffering from T.B. of the bones, but it was held that they needed fresh air no less than did children with pulmonary T.B. Those children who could attend school were taught in classrooms, the others in beds on the verandahs.

By 1920 three different types of outdoor classes were provided in New York City by the Board of Education¹:

- (a) Day-camp classes, including classes on ferry-boats, piers and parks;
- (b) Classes upon roofs. Bedrooms practically in the open air;
- (c) Hospital outdoor classes for medical and surgical tuberculosis.

The lowest temperature recorded in these hospital outdoor classes in New York was 10°F. in the Vanderbilt clinic. The average temperature was 29°F., but these temperatures might be considered too low nowadays.

Sanatoria in Britain

The growth of open-air day-schools and hospital-schools in Britain soon followed the rise of sanatoria. In 1904 in Britain a national committee was formed for the establishment of sanatoria for workers suffering from tuberculosis and in 1913 the Metropolitan Asylums Board authorised the provision of sanatoria for children. A few of the most famous early sanatoria were these: the Royal Sea Bathing Hospital at Margate, founded in 1791 by a Quaker, Dr Lettsom 'for the relief of the poor whose diseases require sea-bathing;' the Brompton Hospital for Diseases of the Chest, 1899, which further developed the open-air ward; the Royal Victoria Hospital, Edinburgh, 1894, which grew from the Tuberculosis Dispensary which was started by Dr (later Sir) Robert Philip in 1887. It was he who was among the first to realise that disease was a wide social problem, the causes of which might be medical, social and economic. The tremendous relief programme which he initiated, and in which the importance of environment took first place, included an open-air school for primary-tuberculous children attached to his dispensary about 1895; a sanatorium for treatment of the early stages of the disease;

¹Board of Education, City of New York, The Education of Children with Tuberculosis. (1941)

a hospital for the advanced cases; a farm-colony, 1908¹ for the training of convalescents, and an open-air school at the sanatorium².

The dispensary open-air school at Edinburgh and one at Woolwich, started in 1892 by a Co-operative Society, therefore preceded the permissive statute of the Elementary Education Act, 1899, in which tubercular children were included among the 'defective' children cited. At Paddington, the first dispensary-school in England was started in 1910.

It has been considered germane to this survey to note the development of the dispensary and its attached school; for the dispensary has always been regarded as the out-patient, we might say the nucleus of a prospective hospital. From it also have arisen the modern clinics of various types and one can visualise, in future days, the spread of clinic-schools, like the school for spastic cases attached to the Neurological Institute, New York.

The Orthopaedic Hospital

Mention must now be made of the growth of the orthopaedic hospitals which were instituted for the treatment of bone-tuberculosis cases for whom fresh air, sunlight and nutritious diet were needed no less than for the pulmonary patients. Indeed, special institutions for bone-tuberculosis came to the forefront before the sanatoria, but not, as we have seen, at all early in the annals of organised treatment of the cripple. Constructive treatment began with the rise of orthopaedics as a special branch of medicine, the 'mechanics' of medicine as it has been called.

Historical

In 1780, a medical practitioner Venel, skilled in mechanics and

¹See pp. 209 et seq.

²Harley Williams, A Century of Public Health in Great Britain, chaps. IV and VII.

medicine, founded an institution for the deformed at Orber, Switzerland. His theories, and those of Jorg, were put into practice in many similar institutions in the first decades of the nineteenth century. In 1832 at Munich Johan Nepomuk founded the first comprehensive institution for the care and education of cripples. The principles exemplified there have been followed in general by most other institutions¹.

In this country the three names most closely associated with the foundation of institutions for the care and education of cripples are Dame Agnes Hunt, whose open-air home at Boschurch, founded 1900, and Derwen Cripples' Training College, founded 1927 at Oswestry, became world-famous; Sir Robert Jones, orthopaedic surgeon, one of the originators of the Curative Workshops in military hospitals (1916); and Sir Henry Gauvain, founder of the Lord Mayor Treloar Hospital and College at Alton, 1904. Other names connected with legislative measures for cripples will be mentioned in due course; but in order to indicate the vast amount of interest taken by philanthropic bodies in the disabled prior to the Education Act of 1899, it has been thought more convenient to present it in tabular form on p. 19.

By the end of the nineteenth century, then, the open-air hospital-schools had come, those buoyant, active places of healing where outwardly there is little manifestation of the air of depression that is reputed to hang so heavily over all sanatoria. In the sun and air, the patients rise above themselves. 'As one approaches such a hospital,' writes the medical superintendent of the Wingfield-Morris Orthopaedic Hospital, 'one becomes aware of its presence by eye and by ear - an attractive sight and a most cheerful sound. One sees wards open to sun and wind, one hears happy shouts and laughter. Gaiety and fun seem to be distilled unendingly out of these children.'²

¹ See p. 78.

² G. R. Girdlestone, The Care and Cure of Crippled Children. P. 26.

There are other than purely therapeutic reasons, mainly educational ones affecting the curriculum, for the environment of a hospital-school being a rural rather than an urban one, and these will be discussed later.

The day has almost arrived when every city general hospital for children has its convalescent home (and in some cases, school) in the country or by the sea; and the lay-out of these hospitals and homes becomes more and more ideal. The requirements specified by Florence Nightingale in an article for Chambers' Encyclopedia in 1908, that 'children's hospitals must be provided with establishments for bathing, playing indoors and out, large garden-grounds, gymnasia and halls in and out of doors', and also: 'Every child's hospital ought to have a convalescent branch at a distance, if possible by the sea,' are fully met in such hospitals as, among others, the seaside East Park Home and School at Largs, the St Andrew's Home at Millport, Isle of Cumbrae, the Jewish Fresh Air Home and School at Delamere, Cheshire, and the Margaret Beavan Hospital at Leasowe. As indicated above, it may come that all schools for the normal children will be like those for the subnormal, if the aims of preventive medicine are to be realised to the fullest extent of their purpose. The weakness of the system of segregating delicate children from vulnerable surroundings has long been apparent, since the good of the therapeutic measures has been almost entirely counteracted on their return to their native soil or environment. Further convergence of schemes for social welfare will have to be devised if the discharged child-patient is to continue to live in the conditions that have effected his cure. There is need for extended adult and juvenile education in hygiene; compulsory pasteurisation of milk to prevent spread of bovine tuberculosis; improved housing; compulsory mass-radiography; economic security to ensure an adequate standard of nutrition; and specially prepared environments in factory, shop and farm for the 'below-par' worker. As seen from our chart on p. 19, the target for all these improvements has been set by the statutory and proposed measures of 1943 and 1944.

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European	British	American
1780 Venel's Institution		
1784 School for P.D. Children, Paris		
	1817 Royal Orthopaedic and Spinal Hospital, Birmingham	
1823 Prussia: 1,179 cases treated: 151 cured		
1830 Italy: Institution for care of rickets		
1832 Munich: Care and edu- cation of cripples Hamburg: Care and edu- cation of cripples	1832 Royal National Ortho- paedic Institution founded, Stanmore, Middlesex	
1838 Vienna: Care and education of cripples		
1839 Paris: Seguin working		1850 Seguin in America
	1851 Marylebone Cripple Girls' Home and School	
	1861 Alexandra Hospital for Children with Hip Dis- ease, Swanley	
		1862 Home and Hospital for Crippled Children, New York
		1863 Hospital and School for Ruptured and Crippled Children
	1866 John Groom's Cripple- age and Flower-girls' School	1866 New York Orthopaedic Hospital
	1872 The Children's Hos- pital (Cripples), Sevenoaks, Kent	
	1875 Marley Common Hospital School, Haslemere Cheyne Hospital for Children, Chelsea	1882 Home and Hospital for Crippled Children, Minnesota
		1884 Hospital Scheme at Philadelphia
	1888 W. J. Sanderson Ortho- paedic Hospital, Home and School	
	1893 School for Crippled Children, London Univ- ersity Settlement	1893 Institution of day schools for defective and cripple children, New York
	1899 Open-Air Orthopaedic Hos- pital at Heswall, Cheshire	
	1900 Robert Jones and Agnes Hunt Orthopaedic Hos- pital, Oswestry	
	1901 Bradstock Lockett Hospital Home, Southport	
	1903 Heritage Craft Schools, first to be recognised by Board of Education	
	1904 Biggart Memorial Home School, Scotland Memorial Home for Crippled Children, Bangor	1904 Sea-Breeze Hospital- School for Crippled Children, Coney Island
	1906 Treloar Cripples Hospital and College, Milton	1906 Appointment by Board of Education of Teachers for cripples

Chart showing
International Development
of Orthopaedic Institutions

SECTION I. PART 2. THE MAINTENANCE OF A HOSPITAL-SCHOOL

The hospital-school may be defined as an institution provided for the treatment, board and education of sick or disabled children. It is of modern growth. The only link between it and former establishments for children is in a similarity in many instances between the methods of maintenance. That was, and still is in 1944, by the means of (a) funds of charitable societies; (b) bequests; (c) funds of state or civic authorities.

Historical

Even in the first days of the religious almshouses and lazar-houses which were often 'hospitals' (for many distinct diseases were all defined as leprosy), it was found that philanthropy and the country's rulers had to join forces in the care of the sick. An edict of the Council of Orleans about the beginning of the sixth century required that a part of the revenues of the clergy and the monastic orders should be set apart for charitable institutions and that the funds required for the support and relief of the sick be supplied as far as possible by the bishops. Most hospitals which had been founded by private contributions had sooner or later to find regular means of maintenance. These were supplied by 'charity briefs', that is, by church collections or funds raised by domiciliary visits authorised by Royal Letters Patent; by bequests, legacies and endowments. Some almshouses attached to colleges were supported by the fees of medical students. It is interesting to note that in 1546, by Act of Common Council, the three ancient London hospitals, Bethlehem, St Bartholomew's and St Thomas, bound themselves to find 500 marks yearly for the payment of 'phisicians, surgeons and appotycaryes¹.'

¹B. Kirkman Gray, A History of English Philanthropy. P. 128.

It must be recalled also that by the Elizabethan Poor Law Act of 1601 the institutions for the sick and poor, administered by overseers appointed by the Justices of the Peace, were to be maintained partly by Royal grant¹ and partly by private endowment. It was mostly in London, however, and the great cities that organised provision was to be made for the sick.

Yet, at a simultaneous rate of progress, great hospitals continued to be founded by private contributions. In 1734 was founded the Charitable Society of Westminster whose object was to provide for the sick and needy persons who were destitute of proper assistance. They started the Westminster Hospital (1734), the first of its kind to be supported entirely by private subscription.

So during the nineties of last century and up to the present day have been founded dispensaries, sanatoria, farm-colonies, clinics, village settlements. We might recall the £50,000 that flowed to meet Florence Nightingale's request for a sum to provide a training school for nurses at St Thomas's Hospital.

Nowadays, in the disbursement of such funds as the Nuffield Fund for Cripples (1936)² we see how philanthropic and statutory measures for the maintenance, treatment and education of the sick and disabled can co-operate. It would appear that the compensatory services rendered by each are necessary to the successful administration of welfare schemes; and the efforts of each system, voluntary or state-controlled, can be national in the fullest sense, though it is outwith the purposes of this treatise to discuss their respective merits and demerits.

¹There was an assessment on property for the relief of the poor and impotent.

²The aims of the trustees of the Nuffield Fund are the establishment of complete orthopaedic schemes in areas where such provision is lacking; and the development of such schemes in areas where the present provision is incomplete.

Maintenance of Hospital-Schools

What has been said, briefly, of the maintenance of hospitals applies also to hospital-schools. They are maintained or controlled by (a) voluntary managers, board or private proprietor, (b) charitable societies and trusts, (c) County Council, borough or municipal authorities. Hospital-schools which have been 'approved' by the Board of Education are in the same category as Special Schools and therefore, like the latter, come under the provisions of the Education Act, 1921, and the Local Government Act, 1929, by which the Public Authorities were made responsible for all types of physically defective children.

Under the Education Act, 1921, these are the duties laid upon all local Education Authorities¹:

- (1) To discover all physically defective children in their areas, either by routine medical inspection or otherwise, and to ascertain which children, owing to special defects, can only be properly instructed at Special Schools for Physically Defective Children;
- (2) To make proper arrangements, to be approved by the Board of Education, for attending to the health and physical condition of all children in public elementary schools. Under this section, the Board will approve arrangements for sending crippled children for treatment at orthopaedic hospitals and clinics;
- (3) To provide for the education of physically defective children, local Education Authorities are empowered to send crippled children to voluntary hospital-schools, or to provide such schools themselves.²

¹ Abridgments made from p. 23 of Central Council for the Care of Cripples, Disabled.

² Fees Payable

(a) As regards children sent by the local Education Authorities, the institution may charge these Authorities a fee agreed between them, subject to the approval of the Board of Education, to cover the maintenance, treatment and education of the children. The expenditure so incurred by local Authorities is taken into account for the purposes of the Board's grant.

(b) As regards children sent by private persons or voluntary associations, the Board makes grants to residential institutions.

The Public Authorities made responsible for physically defective children under the Code of the Local Government Act, 1929, are these:

Category	Public Authority
Children under 5	Maternity and Child Welfare Authority
Children 5 - 14 (and children up to 16 if they are in a Special School for the Physically Defective)	Education Authority
Tubercular persons of any age	Tuberculosis Authority
Necessitous persons of any age (e.g., orphans, foundlings)	Public Assistance Committee

TABLE I. Hospital-Schools in Great Britain

Hospital-Schools	England and Wales		Scotland	
	Number	Percentage	Number	Percentage
Under voluntary management (i.e., those reviewed by this survey)	91	52	13	59
Under local Authorities (i.e., County Councils, Boroughs, City Corporations, Education Authorities)	84	48	9	41
Total	175		22	

As in the annals of the endowed institutions of the sixteenth century, such as the Bluecoat School at Guildford, Christ's Hospital, and others at Bristol, Bedford and Penrith; and in Scotland, Mr Andrew Gardner's school for neglected children in Edinburgh, 1727, we see that the number of approved hospital-schools under voluntary maintenance schemes (and to these might be added a considerable number of uncertified

sanatoria-schools) is greater by a narrow margin than that of those under civic authorities. It is interesting to observe, however, that the number of sanatoria, orthopaedic hospitals, and general hospitals with tuberculosis blocks which are maintained by local Authorities is now greater than that of those under voluntary management. How long this position will continue it is impossible to conjecture; though, at the moment, the figures in Table II are a significant result of the Local Government Act, 1929, by which certain functions relating to Poor Relief, Lunacy and Mental Deficiency, Education and Public Health were transferred to County Committees (such as the Tuberculosis Committee) and Town Councils of larger burghs.

TABLE II. Maintaining Authorities of certain Sanatoria and Hospital-Schools

Sanatoria and Orthopaedic Hospitals	England		Wales*		Scotland		
	Number	Percent	Number	Percent	Number	Percent	
Voluntary	203	42.9	22	100	31	34	
Local Authorities	270	57.1			59	66	
Total	473		22		90		585

*Almost the entire hospital-system of Wales is under unified control. Out of the 22 hospitals listed above, 1 is specified as under voluntary management, 2 under private proprietor or proprietors, 19 under the control of the King Edward VII Welsh National Memorial Association which in accordance with a scheme made by the Minister of Health under section 102(3) of Local Government Act, 1929, deals with tuberculosis on national lines. Its object has been to provide hospitals and hospital-schools, sanatoria, dispensaries, visiting stations, clinics and care committees.

It should be stated, however, that no matter what may be the position of hospital-schools should they cease in the future to be

under voluntary management, new developments will grow out of the old conditions. There will merely be a closer amalgamation of resources, as there has been in the past, between the voluntary societies and public or state authorities.

The Position in America

So it has proved in America where co-operation of the social services is closest of all and where voluntary agencies still play a large part in maintaining and administering clinics and hospitals. Some of these agencies are: the American Red Cross Society; the Russell Sage Foundation (1901) with an endowment of £2,000,000, engaged in a campaign against poverty which is one of the causes of disease; the Rockefeller Institute for Medical Research (1913), with endowment of £2,500,000, pledged to fight for the cause of public health; the National Society for Crippled Children, founded in 1921 by Mr Edgar Allen, devoted to medical and educational interests; the Frontier Nursing Service, whose units penetrate to the remotest parts of the Kentucky mountains; the Society of the Shriners, a collateral mystic body contributing annually one million dollars to orthopaedic hospitals for children; and 1,500 Rotary Clubs, contributing largely to schemes for the welfare of the crippled child. Since Mr Frederick Watson made his survey of the American scheme in 1930¹, the Social Security Act of 1935 has now made possible a nation-wide programme of medical, surgical and educational treatment and after-care service of the cripple, made comprehensive by the compilation by official state agencies of registers of crippled children including those under care and those awaiting care. By this Act both Federal and State funds are available for the services of cripples. That these funds serve to aid the extension and improve-

¹ Frederick Watson, Civilisation and the Cripple, chap. IV.

ment of schemes already being administered by public and private agencies and organisations is shown in the following statement made by Colonel Rex L. Diveley, Senior Consultant Orthopaedic Surgeon to the U. S. Army, 'A summary of the State plans in operation for the fiscal year ending June 30, 1943, shows the programme administered in 29 States by the department of health; in 10, by the department of welfare; in 5, by a crippled children's commission; in 5, by the department of education, and in 3, by State university medical school or hospital.'

The Position in Britain

The position in Britain in regard to hospitals for tuberculosis has been shown in Table II, but it should be borne in mind that a similar stage of development will be realised in Britain when the schemes of the Beveridge Plan and the Tomlinson Report are in full operation; further, that the regular medical treatment and inspection of elementary school children under the Education Act, 1918, the development of Nursery Schools since 1902, and the Maternity and Child Welfare Scheme have practically placed the names of all delicate, 'defective', or crippled children on official registers.

It remains now to refer briefly to the names and activities of the chief British voluntary societies whose work must form the basis for any future state schemes for the physically handicapped.

1. The Shaftesbury Society (incorporated with the Ragged School Union). This now venerable society, founded in 1844, bears the name of the seventh Earl of Shaftesbury (1801-1885), a man in whom was a remarkable combination of shrewd statesmanship and strong, if gloomy, evangelical humanitarianism. During the bulk of Queen Victoria's reign he was the public and private champion of the oppressed child, his name, from 1833, being closely associated with the 'salvaging' of children from conditions of hard labour and want - the factory hand and the chimney-sweep, whose hours of work were regulated by the Factory Acts of 1833

and 1875; the ragged and the barefoot child, whom he shepherded into mission halls and Sunday schools.

The activities of the society in the present day follow exactly the ideals of Shaftesbury. They are to maintain Mission Centres and Sunday Schools, Cripple Parlours and Clubs, Holiday Homes and Camps, Residential Homes and Schools for Cripples, Day Nurseries, Nursery Schools and Medical Missions, Fresh Air Fund Centres, Benevolent Fund, Christmas Treats, the Guild of the Good Samaritan, and to supply garments, shoes, etc. to needy families and surgical appliances and invalid chairs to cripples.

The society maintains 5 residential schools for cripples and 1 for 'defective' children, accommodating 208 children. The most ambitious of those schools is Hinwick Hall, Wellingborough, a school for severely disabled boys. It is planned to open a similar institute for girls.

In May 1943, the number of cripples on the society's registers was 6,409. Of these, 2,774 were cripples under the age of 16.

2. Dr Barnardo's Homes. The aims and activities of these world-known institutions are practically the same as those of the Shaftesbury Society. At present they have under their care about 81 children who would definitely come within the category of cripples requiring teaching in special schools. Of these 81, 49 attend elementary schools, while 32 are at the two Barnardo Homes in Harrogate. In these two Homes are about 68 children suffering from other than orthopaedic disabilities.

3. The Invalid Children's Aid Society. This society was founded in London in 1888 by Mr Allen Graham with the object of ameliorating the conditions of children, crippled and invalid, in their homes. Through its investigations the almost total illiteracy of crippled children was revealed, a situation which urged Mrs Humphrey Ward to start a class for crippled and invalid children at the Women's University Settlement in Southwark in 1893. Later, she organised the Passmore Edwards

Settlement where handicrafts were taught to crippled children in 1898. Her Play Centre for invalid children was opened in 1897, and, in 1899, she organised the first public day school for crippled children. Mainly by her efforts, also, a clause was added to the Education Bill of 1918 providing that the power hitherto possessed by local Education Authorities to arrange for the education of crippled children be converted into a duty - but only at a future date not then fixed. The compulsory clause was inserted in 1921.

These details have been given at this point because the Invalid Children's Aid Societies have all shown interest in the education of the children on their registers. The specific aims of these agencies are all very similar. Those of the Edinburgh Cripple and Invalid Children's Aid Society, founded in 1902, are:

- To visit them in their homes;
- To teach those who cannot attend school. This has been done by peripatetic teachers since 1902¹;
- To lend spinal carriages, invalid chairs, etc., at a small charge. In some cases this enables a child to attend a Day Special School;
- To provide artificial limbs, surgical boots, and appliances;
- To assist with nourishment and clothing;
- To send children to the country and convalescent homes;
- To provide a Residential and Remedial Home and School;
- To organise sales of work done by the more helpless;
- To teach boot-making and repairing by lads;
- To try to find employment for older boys and girls.

These also are the objects of such well-known societies as the Glasgow Cripple Children's League, the Dundee Cripple Children's Aid Association, the Devonian Association for Cripples' Aid, the North Staffordshire Cripples' Aid Society, the Cardiff Poor Cripples Aid Society, and others

¹For methods employed in the teaching of the home-bound invalid, see pp. 190 et seq.

in Leeds, Liverpool, Bristol, Birmingham, etc., the Church of England Waifs and Strays' Society, etc. All of these maintain well-known hospital-schools and homes.

4. The National Association for the Prevention of Tuberculosis, or the N. A. P. T. This important society was formed in 1898. Its objects are the prevention of tuberculosis, mainly pulmonary, by means of propaganda and educational methods. For this purpose it holds annual conferences, publishes leaflets, reports, etc. Until the outbreak of war it maintained the Burrow Hill Sanatorium Colony, Trimley, for the treatment and education of tuberculous boys from 13 to 19 years¹. The activities of the N. A. P. T. (now a well-known contraction) received great impetus from the findings and proposals made by the Departmental Committee on Tuberculosis, usually called the Astor Committee, appointed in 1912. This Committee advocated a national scheme for the extension and foundation of Tuberculosis Dispensaries, Sanatoria, and tuberculosis hospitals, all with open-air schools attached, working colonies for patients requiring prolonged treatment, yet capable of useful work, and village settlements where various industries are run by tuberculous persons under medical supervision. They live there with their families and are a self-supporting community². Finally the Committee advocated Care Committees, some of which may receive grants from local Authorities for the prolonged after-care and vocational training of adults up to 40 years³.

¹See pp. 66 et seq.

²See pp. 224 et seq.

³See pp. 217 et seq.

5. The Central Council for the Care of Cripples, or CCCC. This council might be called the twin-brother of N.A.P.T. doing for the potential cripple who might be a tuberculous or non-tuberculous orthopaedic patient what the latter does for the victim of phthisis. It also laid down the basis of a national scheme in 1919 which was to follow the lines of the work done by Dame Agnes Hunt and Sir Robert Jones round Oswestry, that is, to establish orthopaedic hospitals with open-air wards, vocational training centres and employment bureaux. Branches or local voluntary associations were to be formed, if possible, in every county. By the end of three years schemes were in operation in seventeen counties in England and Wales. Similar societies since 1939 are now working in Scotland in the southwest, southeast and northeast regions. Belfast is the centre of a similar scheme in Ireland.

The aims of the society, which are those of every similar society for the care of cripples in the world, and therefore worthy of being quoted in full here, are these:

- (a) To investigate the causes of crippling and promote measures for their elimination;
- (b) To encourage the formation of local associations to carry out the following objects:-
 - i. The provision of facilities for the early discovery and prompt and efficient treatment of those who would otherwise become cripples;
 - ii. The preparation and maintenance of a complete register of all cripples.
- (c) To act as a central co-ordinating body for all organisations working for the welfare of cripples; to keep in touch with public authorities and Government Departments, especially the Ministry of Health, the Board of Education, and the Ministry of Labour; and to press for legislation where necessary in all matters connected with crippled children and adults;
- (d) To maintain touch with the progress of work in aid of the crippled all over the world; and to act as a central bureau of information in all matters concerning the treatment and welfare of cripples.

Great impetus has been given to these schemes by the grant to which we have already referred made by Lord Nuffield in 1936 of £86,000; but of

even greater consequential aid has been the formation of the Orthopaedic Council in England (1919) and in Scotland (1942). The aims of this council added to those already set in operation by clause (c) in the constitution of the CCCC quoted above almost bring us into line with the American scheme as crystallised by the Social Security Act, and with legislative measures for cripples in Germany and Denmark. The object of the Council is to extend programmes already started by CCCC and to establish them in areas hitherto untouched, so that ultimately there will be chains of orthopaedic hospitals with specialist staffs, the necessary equipment for physiotherapy and handicraft workshops for occupational therapy and, of course, open-air ward-schools for the children.

These are the main voluntary societies in existence for the welfare of physically handicapped children and adults in Great Britain. Other societies, such as the British Red Cross Society and the British Legion have promoted schemes which, though noteworthy, are scarcely relevant to this survey. At this point mention should be made of the international Save the Children Fund, that remarkable contribution towards social amelioration inaugurated in 1919 by the late Miss Eglantyne Jebb and with it the text of what has become known as the Declaration of Geneva, now called the World's Charter of Child Welfare, promoted also by Miss Jebb's efforts, and endorsed by the Fifth Assembly of the League of Nations on September 26, 1924. The text is as follows:

Par la présente Déclaration des Droits de l'Enfant dite Déclaration de Genève, les hommes et les femmes de toutes les nations, reconnaissant que l'Humanité doit donner à l'Enfant ce qu'elle a de meilleur, affirment leurs devoirs, en dehors de toute considération de race, de nationalité et de croyance.

I. L'Enfant doit être mis en mesure de se développer d'une façon normale, matériellement et spirituellement.

II. L'Enfant qui a faim doit être nourri; l'enfant malade doit être soigné; l'enfant arriéré doit être encouragé; l'enfant dévoyé doit être ramené; l'orphelin

et l'abandonné doivent être recueillis et secourus.

III. L'Enfant doit être le premier à recevoir des secours en temps de détresse.

IV. L'Enfant doit être mis en mesure de gagner sa vie, et doit être protégé contre toute exploitation.

V. L'Enfant doit être élevé dans le sentiment que ses meilleurs qualités doivent être mises au service de ses frères.

(Official text)

Under this charter or declaration, made by what was, before its tragic dissolution, the most potent voluntary international social agency in the world, there are two clauses which assert that orthopaedic clinics should be established and that care and education should be organised for the children of every nation.

Such potential legislative proposals bring us to the more vital questions of our thesis - these dealing with the need for the education of physically handicapped children and with the type of education given to such children and adolescents in the wards of hospital-schools or in the training centres attached thereto.

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SECTION I. PART 3. DESIGNATION OF THE HOSPITALS

As we have endeavoured to show, the provision of measures for the amelioration of normal as well as of handicapped persons has been for a century a sociological rather than a medical problem. The services of local Authorities have had to unite to supply these provisions. What has been said of the founding of hospitals can also be applied to hospital-schools.

Number of Institutions covered by Survey

The number of institutions and charitable societies to which the questionnaire was sent was 289. The number of replies received was 260. Blanks can be accounted for under these heads:

Institutions suspended	3
Institutions evacuated or amalgamated	8
No educational facilities provided	22
No children under 16 years of age	18
Duplicate forms sent to hospitals with auxiliary branches	12
Possibility of hospital or mail having been blitzed	

Out of these 289, there are 197 institutions which are known as Hospital-Schools, Sanatoria and Residential Special Schools; 7 are Village Settlements; 20 are Training Centres. The remaining 92 institutions include some city general hospitals or borough hospitals with pulmonary tuberculosis or surgical tuberculosis blocks, in which education may or may not be provided. The number of institutions certified or approved by the Board of Education is 175. This list was supplied by the Secretary of the Board of Education and represents the status quo as in February, 1944.¹ Before the receipt of this list by the maker of this survey

¹See Appendix, p. 258.

a previous list had been made of Orthopaedic Hospitals, Sanatoria and Convalescent Homes in England, Wales and Scotland, from the following sources:

The Hospital Year Book, 1939

The Directory of Orthopaedic Institutions, published in 1935
by the Central Council for the Care of Cripples

The N.A.P.T. Handbook, published in 1943 by the National Association
for the Prevention of Tuberculosis.

It was found that this list of 121 hospitals included the names of 99 orthopaedic institutions in which educational facilities are provided and which are included in the Board of Education (England) Circular. To this total of 99 must be added the 22 Scottish hospitals and homes in which elementary education is given. The remaining 76 institutions included in the above Board of Education (England) Circular are either temporary schools for evacuated children or hospitals for special diseases, for example, Heart Hospitals and Hospitals for Debilitated Children. It is therefore the returns from the hospitals in these two lists which are relevant to this survey. Thus forms were sent to these institutions where education was provided:

Orthopaedic Hospitals and Sanatoria

England and Wales	99	
Scotland	22	
Special Hospitals	76	
		197
Total		institutions

Of these 121 are orthopaedic institutions or sanatoria, revealing that 61 per cent of hospital-schools are mainly for non-pulmonary and pulmonary tubercular children.

It should be remembered that outwith the above lists there is a considerable number of borough hospitals and sanatoria which have not applied for certification of the educational facilities which they provide. It was nevertheless considered that a review of the recognised hospital-schools was sufficient for the purposes of this survey.

The 197¹ Hospital and Residential Special Schools reviewed are divided into the following categories:

- C Schools for Cripples, that is, for the education of children suffering from crippling defects for which no specific treatment is provided.
- C₁ Hospital-Schools for the education and treatment of children suffering from crippling defects due to non-pulmonary tuberculosis and other causes.
- C₂ Schools for the education and general care of children subsequent to the surgical treatment of crippling defects.
- D Open-Air Schools for the education of delicate and debilitated children.
- H Schools for children suffering from heart disease.
- T Sanatorium-Schools for the education and treatment of children suffering from tuberculosis (mainly pulmonary).
- M Miscellaneous. These schools make provision for the diseases of eye, ear and skin.

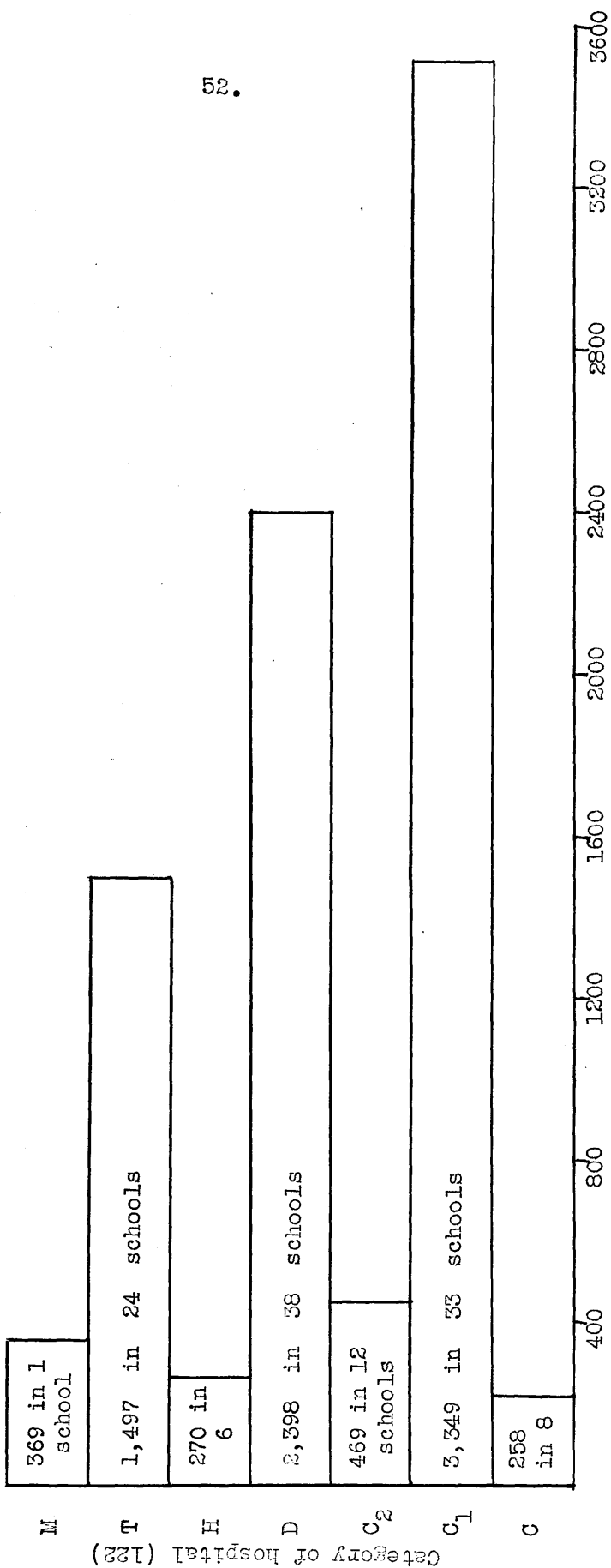
The diagram on p. 52 accounts for 122 of the 175 schools in the Board of Education (England) Circular. The remaining 53 schools make provision for a combination of cases, for example, C C₂; C D; C₁ T; C₁ H; etc.

Scotland

The 22 Scottish schools covered by the survey provide in every instance for a combination of two or more of these groups, for example:

Hospital	Cases
Mearnskirck, Glasgow	C C ₁ C ₂ T
Strathblane Home	H T C etc.
Stonehouse Orthopaedic Hospital	C C ₁ C ₂
Astley Ainslie (suspended)	C D etc. medical and surgical cases
Rudolf Steiner School, Milltimber	D C M

¹ This total includes 2 Epileptic Colonies in England and 1 Epileptic Colony for 100 children in Scotland.



Number of children receiving education in hospitals

Diagram 2. Population, schools, and Categories of Cases

Child-Patient Population

The estimate of the population in these 197 schools is made on the quota of beds reserved for children of school age. Since there is, alas, always a waiting list for these, it has been considered adequate to deal with the figures relating to resident patients rather than to the annual number of admittances and discharges. Later, also, in dealing with the numbers in ward-classes, we shall consider only the average size of class taken over a period of four years.

Total Hospital-School Population

England and Wales	14,423
Scotland	1,838
Total	16,261

TABLE III. Schools and Accommodation according to Sex

Sex	Number of Schools	Accommodation
<u>England and Wales</u>		
Mixed	121	10,730
Boys only	23	1,316
Girls only	14	714
Boys' Block)		781
Girls' Block)	12	688
Boys or Girls	1	50
Girls and Junior Boys	2	110
Infants	2	34
Total	175	14,423
<u>Scotland</u>		
Mixed	22	1,838
<u>Great Britain</u>	Total	197
(Total Mixed)	143	12,568

To the total population of 16,261 above we might add 436 epileptic children receiving education in 3 colonies, making the total of pupil-patients reviewed 16,697.

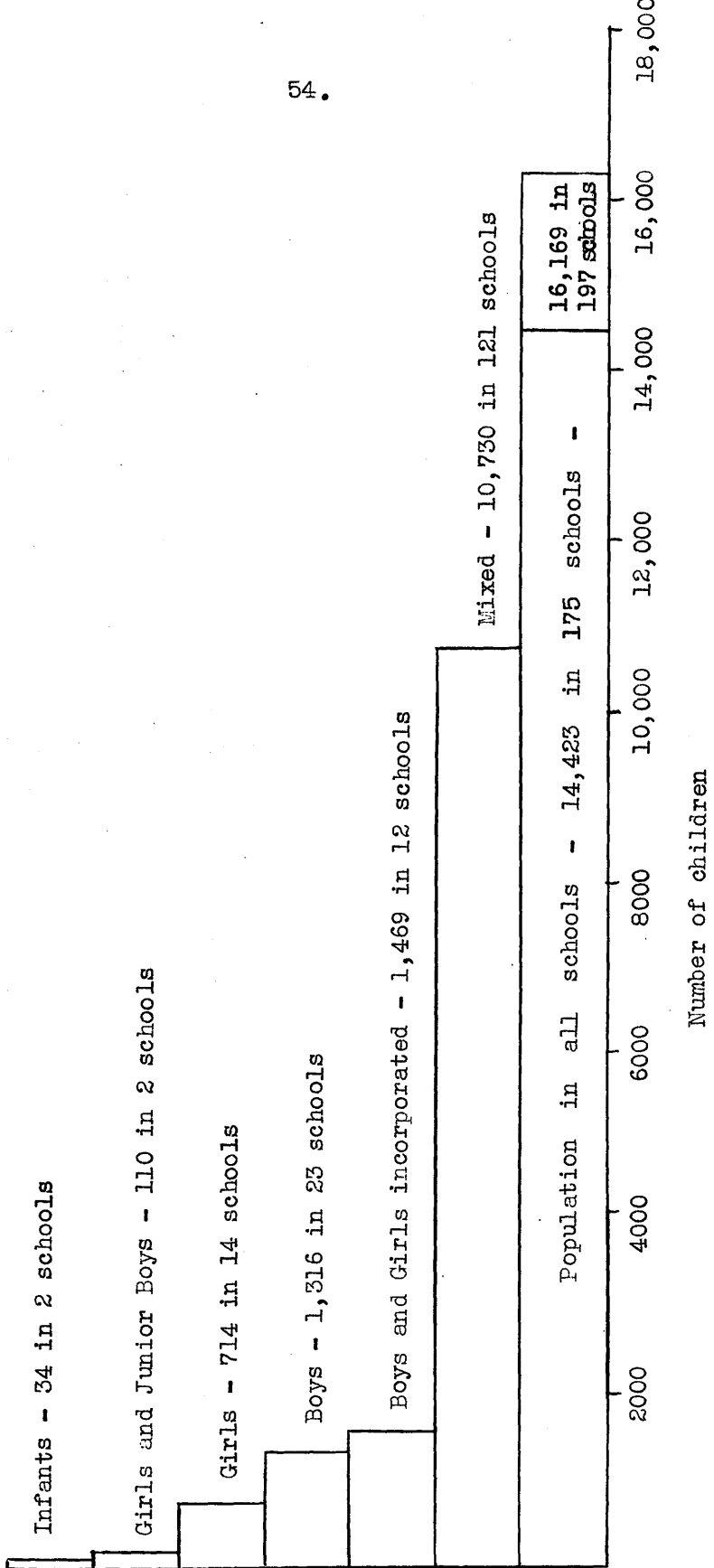


Diagram 3. Schools and Accommodation according to Sex

We must now consider in detail the differing categories of disabilities for which treatment is provided in hospital-schools. Taken all over, the largest number of hospital-school pupils falls into the three groups, C, C₁, C₂, of crippling diseases. The comparatively greater incidence of these shows the necessity for special educational programmes for the orthopaedically handicapped child. It will be shown later how such points as the doctor's prognosis of the case, the posture of the child and the duration of his treatment affect the provisions for his instruction.

Population of Cripples

In 1935 the Central Council for the Care of Cripples estimated the number of adults and children in England and Wales who were crippled or in immediate need of receiving orthopaedic treatment, the latter section being classed as 'potential' cripples. We have not abridged the table, since it should be remembered that all schemes affecting the physically handicapped child ultimately affect the adult. There should be no break in the continuity of his course of treatment or instruction from childhood to adulthood.

TABLE IV. Estimate of Total Number of Cripples
in England and Wales

Age-group	Population	Cripples per 1,000 of same age	Estimated number of cripples
Children under 5	2,934,000	8.71	25,555
Aged 5 to 16	7,198,150	9.93	71,477
Adults over 16	30,217,850	3.25	98,208
Total	40,350,000	4.83	195,240

It was pointed out that the actual number of cripples and potential cripples in England and Wales is very much larger than the estimate.

We may presume that a very large proportion of the 71,477 cripple children between the ages of 5 and 16 attend Day Special Schools. It should be noted again that this total includes children from the three categories C, C₁, and C₂ which cover all diseases causing crippling, except crippling caused by affections of the heart.

Figures supplied for this survey by the courtesy of the Department of Health for Scotland reveal the estimate of non-pulmonary tubercular children between ages 5 and 15 as 3,785. This total is got from the following abridged table.

TABLE V. Non-Pulmonary Tubercular Children in Scotland, 1943

Age	Under 5	5 - 10	10 - 15	15 - 25
Number	918	1,861	1,924	2,802

National Population of Notification of Non-Pulmonary Adults and Children in Scotland as at 31st December 1943:

Male	Female	Total
1,408	1,465	2,873

It is estimated with reservations that the total number of adult and child cripples in Scotland is 13,000.

In industrial Lanarkshire alone, the Cripples' Welfare Association estimated the total of cripples in 1942 as 1,268.

Lanarkshire County Population	Pre-School	School	Adult	Incidence per 1,000
300,847	54	356	858	4.03

The Teacher and the Case

Only with the sympathetic co-operation of doctor, ward-sister and teacher can educational provisions among orthopaedic or other patients achieve any measurable success. The pathology of the disease, that is, the sum of what is known about it; its aetiology, that is, the scientific cause of the disease; its therapy, that is, its surgical and medical treatment, are the sole business of the doctor. But in planning the occupational and vocational therapy for the patient, the teacher may largely share the doctor's responsibility. She can only do so fully when she has grown accustomed to the hospital environment and has some knowledge of the patient's physical, psychological and social record, many of which latter particulars may be obtained from the hospital almoner. It is essential that she should know at least the nature of her pupil's disease and something of its symptoms and morbid changes; the doctor's prognosis of the case; or at least some indication of the patient's term in hospital; otherwise she may expend much valuable time in preparing schemes of work for very temporary admissions; or, with more permanent cases, encounter what are to her inexplicable and almost insurmountable difficulties.

The Diseases

A great many people still think of tuberculosis as a disease called phthisis or consumption, which attacks the lungs only. We occasionally hear the phrase, 'to fall into a decline', which occurred frequently in the literature of the Victorian era. Unfortunately, the tuberculosis lesion may occur in any part of the body and its symptoms be so violent and its effects so corrosive that it has been called truly 'the white man's scourge'. All human beings have the tuberculosis bacillus in their

bodies, but it remains inactive until it is stimulated by certain conditions. The time of the onset of the disease and its sites, which in children are generally the ends of the bones and the lymphatic glands, will depend upon the health and environment of the subject. The germ's corrosive work may begin in a state of poor health due to bad hygienic conditions; scarcity of food, malnutrition or bad feeding; too little sleep and rest due to successive 'late nights' and excess of exercise in adolescents; to overwork and worry; as the aftermath of an accidental fall or injury when the bacillus may attack the bruised bone or joint or severed nerve; as the 'accidental' result of human or bovine infection, that is from the inhaled sputum-dust from an open pulmonary case or from infected cow's milk.

The C Groups in America

In view of what has been said and will be said about the C and other categories of hospital-schools, it may be of interest to refer at this point to the position in America in regard to the population of cripples, numbers of schools, specifications of crippling conditions, etc. On the national registers of crippled children in the 48 States, Alaska, the District of Columbia, Hawaii and Puerto Rico, the names of 347,001 children under 21 years of age had been enrolled by June 30, 1942. These include those awaiting and receiving treatment. As social-welfare services continue to co-ordinate, more and more cripples are being located. This explains the increase on the registers as seen in these figures:

1940	289,342 children
1941	328,277
1942	347,001

*Through tabulation of reports from State agencies, it has been estimated that 97 per cent of the children so registered are suffering from orthopaedic or spastic conditions, and 3 per cent from other types

of crippling conditions.

Poliomyelitis accounts for	18.9 per cent
Cerebral palsy (cerebro-spastic paralysis)	10.2
Clubfoot	7.4
Osteomyelitis	5.4
Tuberculosis of bones and joints, only	3.5 per cent.

Of these various crippling conditions 85.7 per cent are in whites and 8.2 per cent in coloured, and 6.1 per cent in other races.¹

Number of American Hospital-Schools

It is conservatively estimated that the number of American hospital-schools for all categories of cases is 300 to 400. In Britain it may be about 200 institutions for bed-pupils, excluding a considerable number of 'unregistered' hospital- and sanatorium-schools supplying education.

The population in hospital-schools in New York is numerically comparable with that in Scotland. In New York City, approximately 1,460 children were in hospital-classes in 1941; in Scotland, 1,838 children in 22 hospitals or homes.

In New York City, 23 hospitals receive miscellaneous cases, while 25 institutions are devoted to cardiac (H), crippled and convalescent (C and D) and tuberculous patients (T).

Size of Classes in America

The average American hospital-class contains 19 pupils with an age-range of 6 to 17. It has been recommended that the class be reduced to 15 bed-pupils per teacher. The largest age-group was between the ages of 6 to 13 years. 'Data were not available to make it possible to determine the average length of stay of pupils in hospital-classes².'

¹ CCCC Newsletter, July 1944, "The Problem of the Crippled in America".

² Board of Education, New York, The Education of Children in Hospitals and Convalescent Homes. (1941)

The C Groups in 75 Schools in Britain

Non-pulmonary tuberculosis is a disease of which the foci in the bones and glands are but local manifestations; but no permanent cure can be achieved unless the general infection of the body be defeated. The disease occurs oftenest in children of phlegmatic temperament who are poorly nourished and in whom, therefore, organic changes are slow and defective. The majority of the lesions run a long course and the child must submit to prolonged immobilisation which in itself can aggravate the delay in organic changes. In the non-pulmonary T.B. or orthopaedic hospital the children may be divided into two main groups.

- (1) Tuberculous
- (2) Non-tuberculous.

Group (1) comprises cases of T.B. of bones and joints which may be attended by crippling and deformity, the latter defined as a congenital or acquired fault of position in the skeleton or motor apparatus.

The following table taken from the 1940 Annual Report of a well-known Open-Air Hospital for Children, and showing in detail the results achieved from the treatment of 60 cases of all ages and severity of disease, will introduce the teacher to types of C₁ cases with which she must become familiar. The average duration of stay is significant.

Site of Disease	Discharged Disease quiescent	Discharged Improved	Died	Average duration of stay in days Quiescent cases
Spine	13	8	2	1037
Hip	15	2	1	1144
Knee	6	1		818
Ankle	4	1		1200
Shoulder	1			508
Multiple	1	1	1	2518
Dactylitis	1			482
Sacroiliac		1		997
Os Calcis	1			620
Total	42	14	4	

From a similar report issued by the same hospital in 1938 we take this list of diseases which are typical of the non-tuberculous or orthopaedic group (2).

Congenital Deformities	Number of Cases
Dislocation of the hip	3
Deformities of spine	3
Talipes equinovarus (Clubfoot)	3
Spastic Paralysis	13
Acquired Deformities	
Rachitic	17
Anterior Poliomyelitis (Infantile paralysis)	12
of spine	3
of feet	2
Other Diseases	
Osteomyelitis (Disease of bone)	9
Infective Arthritis	5
Perthe's Disease (hip)	5
Calve's Disease	1
Bursitis	2
Syphilitic Osteitis	1

These cases have almost without exception a very prolonged treatment. Amongst the congenital deformities, the spastic paralysis (mainly due to birth injuries) and the acquired deformities groups, the duration of stay may range from 2 years to 10 or more years. (The writer knows of one lad, an amyloid case - that is, chronic suppuration - who has been for 18 years in an orthopaedic hospital.) It is therefore obvious that some children will receive all their elementary education in the hospital-school. It should be stated here that an increasingly large number of orthopaedic cases fall into the 'fracture' group as the result of accidents in industry or in the street. Permanent and severe crippling may ensue. In spite of all that is being achieved by preventive measures in the field of 'natural' diseases, we shall always be faced by the problem of the 'accident' and the 'industrial' cripple for whom long immobilisation in hospital will be required.

Many school-wards contain a child who has been 'run over by a bus'.

Duration of Stay of Groups (1) and (2)

The following table (abridged) taken from the Annual Report, 1924, of the same hospital-school shows a marked difference in the duration of stay of cases. To the lay mind, the longer ^{quoted for 1940 on p. 60} terms may be explained by the lower vitality of the child due to war-strain, increased malnutrition, and delayed treatment owing to shortage of beds, etc. It is stated, however, from the medical point of view, that it is impossible to draw any

TABLE VI. Duration of Stay of Groups (1) and (2)

Disease	Total discharged	Non-tuberculous	Tuberculous	Disease quiescent	Disease improved	Average duration of stay in days
T.B. of spine	318	21	297	183	8	587
hip	311	33	278	224	3	574
knee	112	4	108	93	1	470
T.B. Osteitis	285	5	280	222	10	359
Adenitis	219	9	210	190	3	233
Peritonitis	267	8	259	199	7	214
Lupus	15		15	9		461
Totals	1527	80	1147	1120	32	413

consequential conclusions from these figures regarding the duration of stay necessary to render a disease quiescent because many of the cases have been under treatment for a considerable time before admission to hospital, and for the above reasons no attempt has been made to compare the durations of stay for the different categories of diseases by any of the standard methods of deducing measures of variability. 'Again, even if the actual date of onset of the disease could be ascertained, the number of days required to produce quiescence in any two cases would vary considerably. The resistance of the patient and the virulence of the infecting germs are two variable factors, and on their interrelation

depends the time required for treatment to be successful. Each and every case must be considered separately, and all the known tests must be applied before such a case can be considered quiescent¹.

But, as we shall see, even after the period of hospitalisation, the child-patient must not pass outwith the interest of either the doctor or the teacher. The question of after-care must be considered medically, educationally and vocationally, not only for the C groups but for very many in the D and H groups.

The D Group in 38 Schools

Next in numerical importance in the category of cases are the Delicate and Debilitated Children who, in the sub-acute stages of their illness require education in hospital. Some of the D group fall into the tuberculosis categories and very frequently are admitted to orthopaedic hospitals. These are:

Disease	Duration of stay in days
Peripheral Lymph Glands	
superficial	approx. 104
major cervical glandular	365+
Abdomen	352
Renal Tracts (kidney, etc.)	110+
Lupus (extreme cases)	569

Other D cases may be treated in homes and wards of general hospitals where teaching facilities are provided. Some of these are:

Cardiac or Rheumatic Heart	231
Chorea	79
Bronchiectasis	721
Malnutrition and Debility)	
Post-operational)	256

¹ Annual Report, 1924, Open-Air Hospital for Children, Leasowe.

The H Group in 6 Schools

The majority of H cases are treated among the D cases quoted above; but as we have seen, there are 6 hospital-schools in England and Wales for children suffering from heart disease, one notable one being the Downs Hospital, Sutton, Surrey, and in Scotland, the Children's Home Hospital, Strathblane. The duration of stay varies from terms of six months to well over one year.

The T Group in 24 Schools

Next in numerical significance to the D cases come the pulmonary-tuberculosis cases which are treated

- (1) in sanatoria, mainly for bed-cases
- (2) in residential open-air schools for ambulant cases.

The duration of stay is from 1½ to 2 years or longer.

TABLE VII. Pulmonary-Tubercular Children in Scotland, 1943

Age	Under 5	5 - 10	10 - 15	15 - 25
Number	202	629	863	6,408

National Population of Pulmonary-Tubercular Adults and Children in Scotland as at 31st December 1943:

	Male	Female	Total
Notifications	3,730	3,485	7,215

The national population of pulmonary-tubercular adults and children in England and Wales, 1945, was 42,458 notifications. The total number of patients, adults and children, receiving treatment in sanatoria at 31st December 1943 was 27,987. There was a waiting list of 3,281. As will be observed later, these notifications of pulmonary tuberculosis in the adolescent and adult group are of significance in view of educational schemes for adults which are at present under consideration.

The M Group in 1 Special Hospital-School

These cases form a very small group of three classes for

- (1) Ear, for example, mastoid; post-operational
- (2) Eye, for example, congenital cataract, conjunctivitis, etc.
- (3) Skin, for example, chronic eczema; scleroderma; syphilitic infections; extreme cases of impetigo and scabies.

It will be realised, however, that many of these M cases are to be found, owing to skin epidemics or as additional stigmata in cases which are primarily classified in the C or D groups. In the orthopaedic school-ward there are frequently cases of mild eczema and impetigo isolated behind screens, or better still, removed to an isolation ward.

The Epileptic Group in 2 Schools

These are not specified in the Board of Education Circular referred to in this survey, but there are two well-known Epileptic Colonies in England where educational facilities are provided for children who suffer from frequent and major epileptiform seizures. These are at Lingfield, Surrey, where 256 children receive elementary education and vocational training, and at Chalfont Colony, Buckinghamshire, where 80 children are taught. These are specified as sane epileptics. In Scotland there is one charitable institution housing about 100 epileptic children.

The education of the sane epileptic group, like that of the Cerebral Palsy or spastic group, is still a comparatively unexplored field. Indeed there is occasionally some confusion in diagnosis since a considerable number of cases of epilepsy or 'convulsive seizure' have evidence of signs of central nervous-system pathology.

In 1941 the Board of Education, New York, with the Department of Health, were 'incompletely informed as to the total number of children enrolled in the New York City Public School system who were subject to epileptiform seizures¹. ' It was found, as is doubtless the case in

¹ Board of Education, New York, Epileptic Children. P. 55. (1941)

Britain also, that parents seldom notify that children are subject to fits. The institutional education of this small but most unfortunate group of handicapped children will be discussed in a later section¹.

The After-Care Hospital-School

The enforced wartime evacuation of many physically defective children to the country has proved the worth, in a spectacular way, of the Residential Special Open-Air School, or Home of Recovery, as some are called. But in 1924 an enterprising medical officer of the Open-Air Hospital for Children, Leasowe, wrote: 'A small number of children, although they recover, are so weakened by their fight against ^{the} disease, that they never become robust again. To send either of these two classes of children to their homes is to court disaster. But an Open-Air Residential School, to which the children could be transferred from the Hospital would meet the requirements. It would prolong the period of convalescence, keep the child at school in the most ideal surroundings, inculcate a love of an open-air life During the stay in such a school instruction could be given to prepare the child for some occupation for which its physical capacity fitted it².'

A Typical T and D Residential School

The specification of cases taken by the Highland Moors Convalescent Home, Llandrindod Wells, Radnorshire, illustrates these proposals so well that we quote it fully.

'This institution provides treatment for 60 boys from 5 to 15 years of age who are, although definitely tuberculous, afebrile,

¹ See pp. 137.

² Annual Report, 1924, Open-Air Hospital for Children, Leasowe.

ambulant and non-infectious. The cases treated are:

- (a) Boys suffering from intra-thoracic tuberculosis; e.g., tracheo-bronchial glands, old or quiescent pleurisy, pulmonary infiltration without symptoms of overt clinical disease;
- (b) Boys suffering from non-pulmonary tuberculosis; e.g., peripheral glands, tuberculous peritonitis in the convalescent stage, tuberculous bones and joints in the quiescent, ambulant stage of treatment;
- (c) Boys about the age of puberty who are contacts to open cases and are themselves infected with a probability of an early breakdown in resistance.

Strictly speaking, children admitted to the Institution should have such symptoms and physical signs as to make the diagnosis of tuberculosis so probable as to justify notification. In actual practice, a good many children are admitted for observation and quite a fair proportion of these turn out to be non-tuberculous.

The institution is not meant for such debilitated or physically defective children as would normally be catered for in residential schools under the aegis of the Board of Education.'

The Highland Moors Sanatorium is maintained by the King Edward VII Welsh National Memorial Association and appears to be doing a fine piece of work in preventive measures.

Unclassified Hospital-Schools

Miscellaneous cases are treated in these schools which are for those unfortunate children for whom there is no betterment, or who are so disabled as to be in constant need of supervision and aid. Examples of these cases are:

- Epileptic
- Cerebral Palsy, various groups
- Spina bifida (fusion defect)
- Muscular dystrophy
- Hypertrophic neuritis
- Friedreich's Ataxia

Occasionally mental deficiency or degeneration is the sequel or accompaniment of some of these diseases, but education is continued as long as possible and as far as is practicable with each case. Typical of such unclassified special residential schools are Hinwick Hall, Wellingborough, maintained by the Shaftesbury Society, Cowdenknowes, Earlston, Berwickshire, maintained by the Girl Guides' Association and the Rudolf Steiner Schools for Delicate Children at Milltimber, Aberdeenshire, which are maintained by a charitable trust.¹

Short-Term Cases

Education in General Hospitals

At this point something ought to be included about the position of children in general hospitals and in some infirmaries. That educational facilities are provided in some American hospitals for children who are recognised as acute cases is apparent from the following statement in the report by a Sub-Committee for the Board of Education, New York, on Education in Hospitals and Convalescent Homes (1941).

The subjects reviewed were crippled children; children with cardiac pathology, tuberculosis, with miscellaneous sub-acute and chronic illnesses who were in general hospitals and convalescent homes for varying lengths of time. It was agreed that 'distinction between types of hospitals was important because it should determine the type of education to be offered. In hospitals specifically for acute illness, corrective operations, or diagnosis, with few exceptions the important thing to give the child during treatment was entertainment.'

¹ If readers desire more medical details regarding the history and treatment of the various categories of diseases they should consult the books specified in the Bibliography. The teaching methods are invariably affected by the methods of treatment which restrict not only organic change or metabolism in the child but also his posture. Some brief references to the latter will be made in the next section of this treatise.

'For children in convalescent homes, that is, short-term cases, rest, controlled out-of-door exposure, regulated gymnastics and diet were more important than school instruction. The probabilities were that hospital-classes for short-term cases were an expensive form of supplementary therapy.'

This conclusion appears to be founded on a commonsense view of the child's immediate, rather than prospective, condition.

Other observations and recommendations expressed in the same booklet are both constructive and provocative.

A short-term illness is defined as one of duration less than six months; a long-term illness as one of six months or more. Of the latter, recovery will be complete so far as the patient's ability to take his place in society is concerned. Educationally it is important that he be kept in his age-group in school. It is suggested that 'instruction for daily periods of less than one hour covering a period shorter than one month is of doubtful value.'

It was recommended that institutions having ten or more children should be provided with teachers, if the children were pronounced able to profit from instruction. The opinion was expressed by a teacher, however, that 'there was no need for an elaborate educational program in a hospital class for acute cases.'

The General Hospital in Britain

With these points in mind, the writer drew up and sent forms (see p. 70) to a few English general hospitals and some Scottish infirmaries and general hospitals. With only four exceptions the medical superintendents indicated that since the cases treated were all of an acute nature no educational facilities were provided. The following quotation from a letter sent by the Directors of a well-known Scottish Hospital for Sick Children is typical of those received from other sources:

Questionnaire for General Hospitals, Children's
Hospitals and Poor Law Institutions

1. Name and address of hospital

.....

2. Controlling Authority of Hospital (i.e., Local Authority or
voluntary managers)

.....

3. Number of beds available for children up to 16 years

4. Child Patients

Nature of Disease	Number of Cases	Average Length of Stay
(a) Cardiac
(b) Pulmonary
(c) Renal
(d) Bone-Joint
(e) Rheumatic
(f) Nervous
(g) Endocrine
(h) Other conditions

5. Total Number of Child Patients 1938 1939 1940 1941 1942

.....

6. Is there an Occupational Therapist employed? Resident?

7. How many teachers are employed? How many of these are certificated..
teachers?

8. Is there a hospital-library? Are there books suitable for
children?

9. Are there any forms of recreation for children?

(a) Cinema-projector

(b) Handcrafts

(c) Visits from Boy Scouts, Girl Guides, Sunday School, etc.

10. Number of hours devoted to education

'I (the secretary) am instructed to say that the patients in this hospital are all under 13 years of age and 50 per cent are under 5 years of age; that the Hospital is strictly for the treatment of children suffering from acute diseases who are sent to Convalescent Homes as soon as possible. We have therefore practically no long-term patients and the question of education does not arise. To a certain extent the matter of keeping the children amused is governed by the same circumstances and this is certainly one of the provinces of the nurses who are all young girls, each ward having for this and other purposes a larger staff than is customary in adult hospitals.'

Against such replies one might suggest the need for more organised entertainment for the convalescing child who, as every mother knows, can be very fractious, full of demands for attention and craving something to do. The two matrons and two medical superintendents who were in favour of some organised scheme for brief recreational and occupational courses for the children in the sub-acute stages of treatment revealed that, in the first instance, a part-time teacher came for one hour daily to instruct seven children; in the second, that the local Education Authority sent along a teacher if there were fifteen children in a group; in the third, that a lady came voluntarily to amuse or teach the children if they desired to revise their lessons; and in the fourth, that a Play Supervisor was employed to interest the children.

The latter experiment has been tried in the Royal Infirmary, Manchester, where the scheme has proved highly successful. Putting aside the question of economy, it seems a plan well worthy of emulation.

Another suggestion is that teachers or Nannies who have taken Day Nursery-School training might be employed with great advantage in nursery-wards in such hospitals and infirmaries. The reasons will be discussed in the paragraphs on the Hospital Nursery-School¹.

¹See pp. 165 et seq.

In the course of this survey of the special hospitals it was made clear to the writer from personal inquiries and by a statement voiced in a letter by a prominent Professor of Hygiene that the question of supplying some form of educational occupation in general hospitals should not be allowed to lie dormant. The statement was: 'In my experience throughout the country there are a great many general hospitals, as well as Poor Law institutions which retain children for long periods without any attempt at education, and in some cases without any occupation or recreation at all. Quite recently I was in an institution of this kind in -----shire where a number of children were sitting with their hands folded day after day and becoming rapidly artificial imbeciles. Unfortunately the Annual Reports of hospitals give only the average period of treatment; this offers no indication of how many children remain for considerable periods in these institutions without educational facilities.'

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2. Children with Tuberculosis
3. Epileptic Children
4. Open-Air Classes and Care of Below Par Children
5. Orthopaedically Handicapped Children
6. The Education of Children in Hospitals and
Convalescent Homes

(All 1941)

Services to the Orthopaedically Handicapped: Report by Trustees of
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Handicapped Children. London, National Special Schools Union (1943)

SECTION II. PART 1. EDUCATIONAL PROVISIONS

The Teaching Staffs

The right of physically handicapped children to receive education in hospital-and sanatorium-schools is now taken for granted. Before discussing the nature of the education that should be given, we shall consider the distribution of the teaching staffs which are already provided. It should be noted that though this survey covers statistically four of the World-War years, it has been revealed that the existing supply of hospital teachers has scarcely been affected. When coast hospital-schools were evacuated inland, or when two or more hospitals and homes were amalgamated, the teaching staffs went with the children except in a few isolated cases. Indeed, the need for more Residential Special Schools has drawn more recruits to the teaching staffs. Three new hospital-schools in Scotland alone have been opened since the outbreak of war, at Philipshill, Glasgow, for a C group, at Earlston, Berwickshire, for C groups, and at Maybole, Ayrshire for D groups.

The estimate of the distribution of teachers per hospital has been made from details returned in the questionnaire. The medical superintendent, secretaries or head teachers supplied these from 147 institutions. The reader is asked to study the following frequency table and thereafter to note several significant points.

If one were to take the totals 604 and 14,022 and divide the latter by the former, the resulting arithmetical mean of 23 pupils per teacher would give an utterly false impression of the real state of affairs. Statistically, one might say, the table means nothing. However, a glance at the figures in columns (2) and (4) shows that in the case of isolated hospitals towards the foot of column (1) and the group of 1 to 5-teacher

TABLE VIII. Teachers in Hospital-Schools

Number of Hospitals	with	Teachers ⁽⁶⁾	Accumulated Frequencies of Teachers	among	Accumulated Frequencies of Pupils	Mean Number of Children per Teacher
43	×	1	43		1,327	31
22	×	2	44		1,380	31
21	×	3	63		1,982	26
21	×	4	84		1,684	20
13	×	5	65		2,031	31
7	×	6	42		543	13
2*	×	7	14		197	14
2	×	8	16		405	25
2	×	9	18		300	17
1	×	10	10		260	26
2	×	11	22		528	24
6	×	12	72		1,333	18
1*	×	14	14		370	26
1*	×	17	17		200	12
1*	×	18	18		100	6
1	×	19	19		482	25
1*	×	43	43		900	21
147			604		14,022	

TABLE IX. Quartiles showing Scatter of Pupils in One-Teacher Hospital-Schools in England, Wales and Scotland

	Number of Pupils	Number of Hospital-Schools
	70 - 79	1
	60 - 69	1
	50 - 59	1
	40 - 49	10
Median	-----	
	30 - 39	11
	20 - 29	13
	10 - 19	4
	0 - 9	2
		<u>43</u>

Upper quartile 44 pupils per teacher

Lower quartile 21

Quartile range 23

Semi-interquartile range 11

Median 33 pupils per teacher

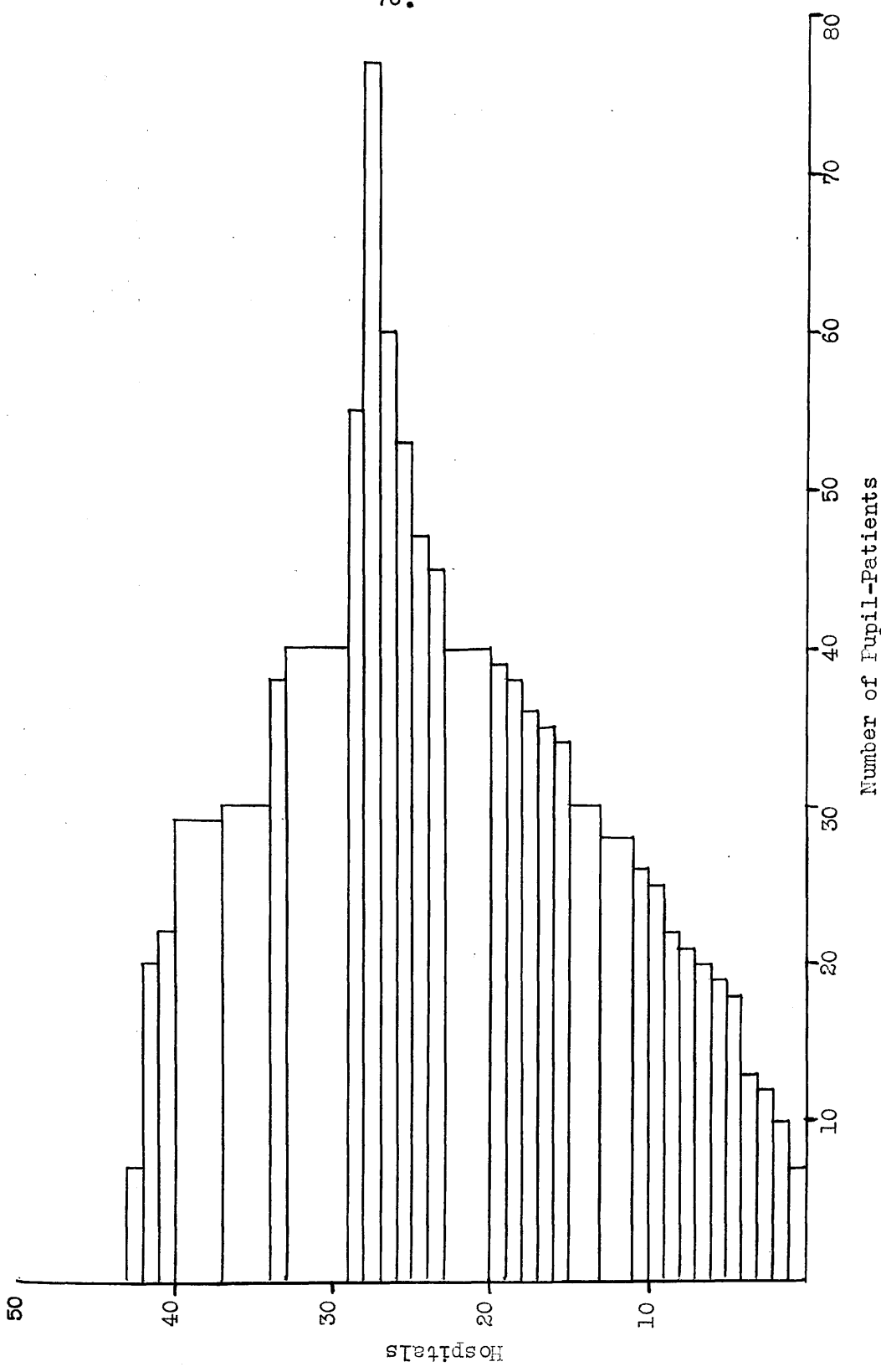


Diagram 4. Scatter of Pupils allocated to 1 Teacher in 43 Hospital-Schools

Diagram 5.

Scatter of Pupils allocated to 2 Teachers in 22 Hospital-Schools

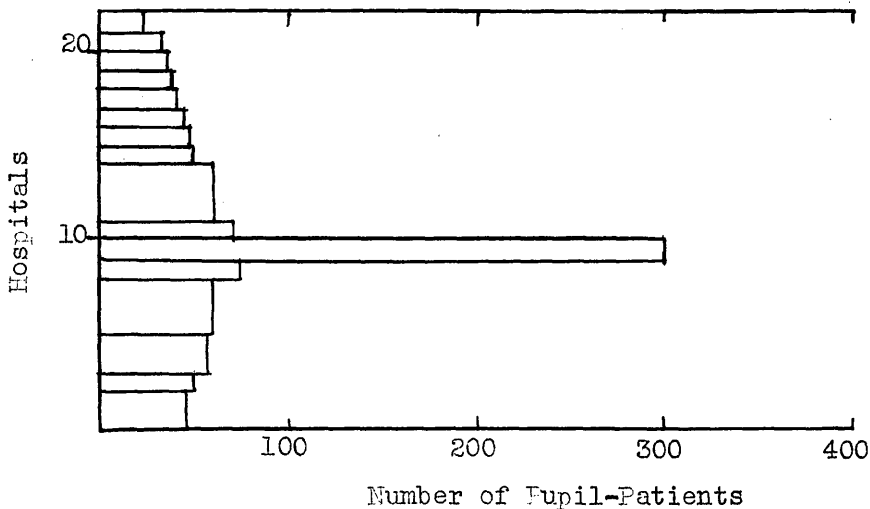


Diagram 6.

Scatter of Pupils allocated to 3 Teachers in 21 Hospital-Schools

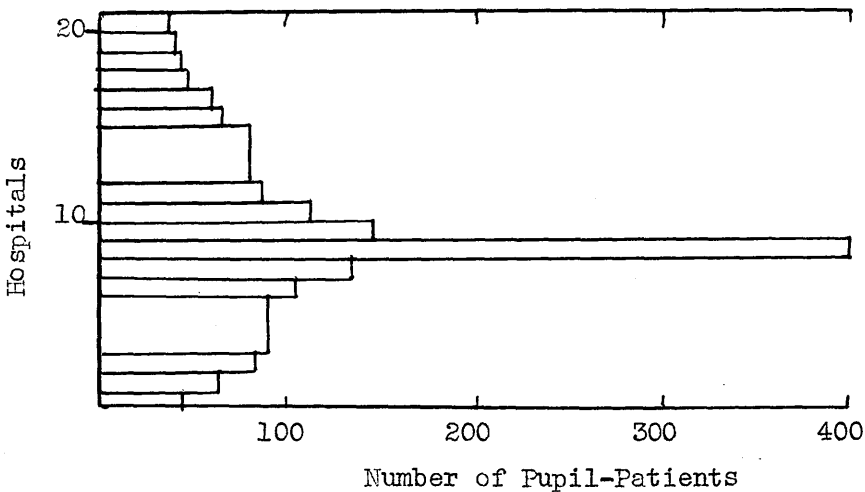
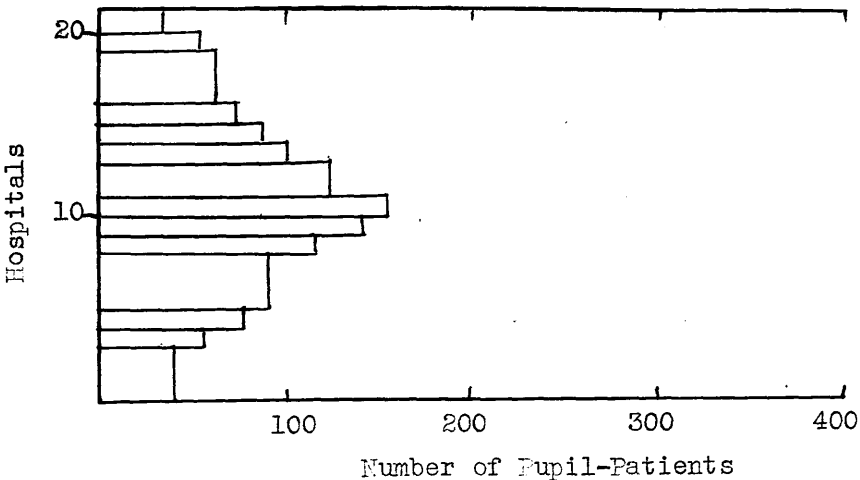


Diagram 7.

Scatter of Pupils allocated to 4 Teachers in 21 Hospital-Schools



schools at the top, the variability in distribution of teachers and of pupils is great. The range in both cases is wide. There is a disturbing fluctuation in the whole distribution¹. Now by glancing at Diagrams 4, 5, 6 and 7, which show the scatter of pupils allocated to 1, 2, 3 and 4 teachers respectively, there will be seen the inadequacy of the range as a measure of variability.

One needs only to point to the unfortunate case of the teacher in Diagram 4 with 77 bed-pupils; of two teachers in Diagram 5 among 300 bed-pupils (surely an **isolated** example of wartime conditions), and to the three teachers per 400 bed-pupils in Diagram 6 for which - and for 5 also - no excuse should be accepted.

Since the 1-teacher hospital-school is the most common type in Britain (43 out of 147 instances), it has been considered sufficient to prepare only one table (Table IX) in quartiles for this group in order to deduce the average frequency distribution of pupils per teacher.

Some explanation appears due of the small allocation of pupils per teacher in the hospitals marked with an asterisk in Table VIII. The two instances of the 7- and 14-teacher schools are types in which great attention is paid amongst the older boys to vocational training. They have their own trade school in which manual training, such as boot-making, surgical-appliance-making, etc., is given. The number of instructors and technicians is therefore greater than in the schools where only elementary education in the basic subjects is provided.

In the case of the school where 17 teachers are employed, provision is made for some 200 boys. The questionnaire divulges that the pupils taken are a mixture of C₁, H and D cases, the latter including sufferers from conditions in air raid shelters. Much of the teaching is given out of doors. A great amount of gardening is taught, while handcrafts include tailoring and leatherwork. Technical education - book-keeping,

¹ See Table VIII, p. 75.

typewriting, etc. - is also provided. It is therefore apparent that in such an institution teachers of special subjects will be necessary, and it follows that the classes allocated to each will be small.

The 18-teacher school is one chiefly for those sad progressive, but mostly ambulant, cases. It is an independent school, maintained by a charitable trust. The cases taken are mainly of the C₁ category. Some are crippled by nervous disorders; there are post-operational cases and some which might have been allocated to mental hospitals. A great deal of time is devoted to gardening, forestry, bee-keeping, etc., and many teachers are necessary because of the almost individual supervision required by each pupil.

The last one in the list, with 43 teachers among 900 bed-pupils, an average of 21 pupils per teacher, is included as an approach to what might be the ideal distribution of staff in Britain. It is an institution for C₁ and H cases, maintained by the London County Council, in which an adequate amount of time is devoted to both elementary instruction in basic subjects and to handicrafts.

The above points should therefore be borne in mind when considering the allocation of teachers in every hospital or Residential Special School. In grades of importance these are (1) the size of the hospital and the area it serves; (2) the nature of the pupil's disease; (3) the stage of the treatment; (4) the duration of stay; (5) the pupil's chances in life; (6) the various types of vocational training to be given. These points all cause the range or normal curve of distribution of teachers among pupils, or pupils among teachers, to fluctuate. Considering them, one begins to doubt if the American quotation of 15 - 19 pupils per teacher in hospital-classes is so ideal as it appears to be, since one is not always aware of the specific duties of the individual teacher. It might be said here, however, that no hospital-school, whether in America or in Britain, could approach the shadow of the ideal, if the solitary, or a solitary, teacher is expected to be a Jack-of-all-trades. Alas! There are still many such over-weighted pedagogues in

ordinary rural day schools as well as in hospitals.

The Qualifications of the Staff

It has been noted that, in the field of this survey, 604 teachers are at present distributed among 147 hospitals with an aggregate population of 14,022 children. Of these 604 teachers, 455 hold teaching certificates, leaving only 149, or 24 per cent, uncertificated instructors. From our Quartile Table (Table IX), we found that one teacher supervises an average of 33 children with a deviation above and below that number of 11. At any time that size of class is too high, because the majority of the pupils are bed-patients with an age-range of 5 to 16 years.

We may conjecture that official scrutiny of a person's fitness to teach in hospitals began only when teaching was 'recognised' by the Government, that is, from the Education Act of 1899 onwards. It will be recollected from earlier sections on the historical development of hospital-schools that teachers were appointed by local authorities such as School Boards to such institutions as the Heritage Craft Schools at Chailey, the Lord Mayor Treloar Hospital at Alton and the Biggart Memorial Hospital at Prestwick.

It should be clearly understood that (a) for this survey no attempt was made to classify teachers according to their qualifications to teach special subjects; and (b) at the moment of writing, no statutory secondary education is provided in any hospital-school in Britain, nor in America as late as 1941, though it was recommended by the New York Board of Education's Sub-Committee reporting on The Education of Children in Hospitals and Convalescent Homes that high-school as well as grade-school subjects be taught.

From the latter point it may be deduced that in Britain the majority of the above 604 teachers are teachers of elementary subjects, the three Rs with primary educational handwork in addition; and also it is surely clear that it is almost impossible or at least very diffi-

cult for an adolescent pupil-patient to compete in any of the professional matriculation examinations, bursary competitions or ordinary Higher Leaving Certificates. Only exceptional cases, by dint of much extra private tuition, or close application to study, guided by Correspondence Courses, have been able to do so.

Training of Teachers

Of the 67 teachers employed in Scottish hospitals and homes, only three or four are uncertificated. The rest are graduates. Some have in addition a Froebel Certificate, Nursery School training, or Montessori Diploma. A few hold the English Certificate of the Parents' National Educational Union, while teachers of technical and vocational subjects such as book-keeping, horticulture, dressmaking, etc., hold diplomas from Technical and Commercial Colleges or other recognised Training Centres and Courses. It may be assumed that the situation is similar in England and Wales.

Is the position entirely satisfactory? Surely it cannot be if, in answer to the question, 'What should be taught to a child in hospital?' one should say, as has been said elsewhere by the present writer¹: 'Everything that is offered to pupils and students in all Scottish, or English, schools and colleges'; and that 'The same rigid continuity in instruction that is applied to the blind and the deaf-mute child from the age of two be copied at every stage in the educating of any long-term or orthopaedic patient, the latter so often the potential cripple, with a view to his vocational activity in post-hospital life.'

To supplement these words and also the idea expressed in the introduction of the need for a curative education that will develop a wholeness in man, be he physically normal or sub-normal, we might quote an extract

¹In an article, "Teaching in an Orthopaedic Hospital Ward", in The Scottish Educational Journal, July 23, 1943.

from what has been called the Crippled Child's Bill of Rights, or the Children's Charter, adopted by twenty-six nations at the Second World Conference on the Problem of the Cripple.

'In brief, not only for its own sake, but for the benefit of Society as a whole, every child crippled has the right to the best body which modern science can help it to secure, the best mind which modern education can provide, the best training which modern vocational guidance can give, the best position in life which its physical condition, perfected as best it may be, will permit, and the best opportunity for spiritual development which its environment affords.'

The need for special training for the teachers of physically defective children has long been recognised by the National Special Schools Union and also by the Central Council for the Care of Cripples, both of which have organised conferences and lecture-courses for this purpose for teachers and social workers.

In line with the planned efforts of these two bodies are the recommendations made by the Committee appointed by the Board of Education to consider the Supply, Recruitment and Training of Teachers and Youth Leaders, known as the McNair Report. The main recommendation in the section, 'Other Important Matters for the Training of Teachers for Special Schools' - which of course include hospital schools and residential special schools - is 'that the training, except in special circumstances, should be taken subsequent to a normal course of training and that, in general, teachers should have had some experience of teaching normal children before taking a course for Special Schools work¹.'

Already courses for the training of teachers of physically defective children have been begun at Moray House Training College for Teachers, Edinburgh. Thus, if the hospital-child in the past has not had the

¹ Extract from "The McNair Report", The Special Schools Journal, vol. xxxiii, Summer 1944.

best teachers for the superlative 'best' education advocated in the Charter, he ought certainly to have them in the future. Only those who know the difficulties attached to the administration of a hospital-school can appreciate the urgent need for such preliminary intensive training. One must become familiar with the appearance, routine and 'contents' (that is, the kind of cases) inside an orthopaedic or sanatorium-school ward.

There, as in the remote rural schools, the teacher must be prepared and trained to meet all types of children of all ages and at all stages of progress. What Education Authority would now presume to appoint to any class a 'handy' person with a desire, probably a quite noble one, to teach; or one who would be content with a 'pound per week' in wages; or a young inexperienced teacher fresh from College? Yet such, one suspects, was, and still is, the type of person employed in some small schools in hospitals and homes. The physically handicapped child is worthy of a wider education than the mere rudiments of the three Rs can give, and of more than the simplest unprogressive and almost uneducative types of handwork. The fact is so obvious that one needs not labour it further, but indicate by the accompanying charts on pp. 84 and 85 the difficulties which confront the teacher in a hospital-ward. The example chosen was of a small Boys' ward in a 1-teacher orthopaedic hospital-school. The corresponding Girls' ward held very similar cases. It is not to be assumed that the age-grouping of the patients is the ideal one - far from it; but, in certain small hospitals, the conjunction of children of widely diverse ages is scarcely avoidable.

Chart 3 on p. 84 indicates mainly these points concerning the patient:

- (a) Duration of stay, showing need for special educational provisions;
- (b) Posture of the patient which requires adjustment of teaching methods and provision of special educational apparatus;
- (c) Age of the patient, requiring from the teacher ability to teach in various grades.

A Boys' Orthopaedic Ward

Case and Appliances	Age	Stage	Resident years (approx.)	Case and Appliances	Age	Stage	Resident years (approx.)
1. Extension	21	Adult	8	18. Strait-jacket, iron frame	18	Secondary	10
2. Leg splint	17	Junior Second.	2	17. Hip spica	17	Secondary assignments	5½
3. Spinal jacket and iron frame	4½	Nursery	3	16. Hip spica	6	Primary retarded Mongolian	3
4. Spinal jacket and iron frame	11	Junior	10½	15. Hip spica	7	Primary	2½
5. Spinal jacket and iron frame	10	Junior	9	14. Hip plaster	8	Primary	4½
6. Plaster. T.B. spine and complications	15	Very retarded Junior	5	13. Knee splint Sitting posture	6½	Primary	1½
7. Spinal jacket and celluloid collar	10	Junior	4	12. Knee splint Sitting posture	15	Junior very retarded	2½
8. Spinal jacket	9½	Junior	4	11. Extension	12	Junior	4
9. Strait-jacket and elbow splint	11	Junior	4	10. Extension	16	Very retarded Junior	7

Cases with Additional Defects

Case	Sex	Date of birth	Site of disease	Age at onset of T.B.	At school in hospital months	Notes
1.	M	26.4.1936	T.B. Knee. Head sinus. Hand sinus. Hypo-thyroidism	$3\frac{6}{12}$	13	Characteristics of cretinous child. Inferior intelligence. Very affectionate, gentle.
2.	M	16.8.1935	T.B. left knee-joint.	$1\frac{2}{12}$	25	Classified high-grade imbecile. Very retarded mental development. Very excitable, occasionally vicious. Twin.
3.	M	1934	T.B. hip joint.	3	12	Mongolian stigmata. Speech defect.
4.	M	1931	Bilateral branchial fistulae (congenital)	10	12	Partial deaf-mute. Very intelligent.
5.	M	26.3.1935	T.B. at knee-joint and bilateral congenital cataract	$3\frac{7}{12}$	24	Admitted from Eye Infirmary. Two operations performed; now wears spectacles. Average intelligence.
6.	M	31.12.1936	Spastic paraplegia. Cerebral.	Birth	16	Admitted from orphanage. Does not respond to intelligence tests.

Some Typical Orthopaedic Patients

10
of
p.

Case	Sex	Date of birth	Site of disease	Age at onset of T.B.	At school in hospital months	Notes
A	M	6. 8. 1934	T.B. both hip-joints	2	55	Time in plaster $2\frac{1}{2}$ years. Time in extension 1 year. Average intelligence, IQ 98.
B	F	18. 2. 1937	Congenital dislocation of right hip.	Birth	24	Time in plaster probably 2 years. Makes slow progress though eager to learn. IQ 98
C	M	20. 12. 1926	T.B. left hip-joint	11	66	Time in plaster $2\frac{1}{2}$ years. Superior intelligence. Studied by the Dalton Plan.
D	M	3. 10. 1918	T.B. right hip-joint, with chronic osteomyelitis of right femur and right humerus	14	96	Superior intelligence. Continued his studies by aid of technical correspondence course. IQ 122.
E	M	1923	T.B. Dorso-lumbar with transverse myelitis	Birth	120	Has never walked. Very superior intelligence. Skilled in handwork. Has taken London University Matriculation Course and Wolsey College, Oxford, Correspondence Course. Discharged 1941. IQ 118
F	M	13. 10. 1932	T.B. spine, Cervical	$5\frac{6}{12}$	48	Average intelligence. Excellent handwork. Time in extension 1 year. Time in celluloid collar $1\frac{1}{2}$ years. IQ 105.
G	F	9. 10. 1928	T.B. right hip-joint	7	72	Inferior standard of intelligence due to disease history. IQ 48

Chart 4 on p. 85 reveals a coincidence of 'double defects', that is, children who are both mentally and physically defective, and cases with additional stigmata, which occasionally come under the charge of a single teacher, indicating beyond all dispute the absolute necessity for some special training for hospital teachers. These cases were simultaneously pupils of the writer of this treatise.

It cannot be deduced, however, that tubercular or epileptic or spastic children (to cite a few specific categories) are a priori feeble-minded, or, as they are classed on the borderline, 'backward'. On the contrary, many are exceptionally bright, avid for information, retarded only in achievement by continued illness and lack of schooling, and at adolescence may flower into mental brilliance approaching genius. But it must be remembered that when a blind, partially blind or a deaf-mute child; a mentally deficient child; or any one of these unfortunate mongolian, cretinous, hydrocephallic or microcephallic subjects, develops tuberculosis or any other infectious, lengthy illness, he or she must be removed from his home or institution to the ward of a sanatorium or hospital. The conscientious teacher will not be content to pass him over or regard him as a nuisance, though he demands a greater amount of individual attention than the others. Indeed, in America it was recommended by the committee reporting on The Education of Orthopaedically Handicapped Children that the single teacher be asked to supervise only one case of Cerebral Palsy in her class.

This by no means infrequent problem of the 'double defect' cases in hospital-school wards may be solved in future days by sending all such cases and those with additional stigmata to a Residential **Special** School or Neurological Clinic with school attached.

Ward Routine

Added to these difficulties, there is that of fitting in the school routine with the medical routine of the ward. This difficulty only exists in hospital-schools where there are no school-rooms apart from

the wards. In many hospitals it is still almost impossible for the teacher to have a sufficiently clear field for her task since certain medical activities and the daily routine of the nursing staff must go on. It has been agreed in most wards, however, that the teacher should have at least $1\frac{1}{2}$ hours every forenoon and 1 hour each afternoon in which she may conduct lessons with few, if any, interruptions. Where there is enthusiastic co-operation between the medical and teaching staffs in all that concerns the children's welfare, the daily surgical dressings, doctor's visits, toilet attention, etc., are completed as far as possible before the teacher's arrival. In some instances, where dressings are still in progress after school has begun, the patients are removed to side rooms to have them completed there; but where this is not possible, the teacher need only move quietly among the others, teaching individually or giving out equipment. The doctors' visits do not last long, since any consultation between Sister and physician takes place in the adjoining duty room; and every minor and major operation, except occasional inoculation and immunisation, is performed in the operating theatre.

Open-Air Teaching

There are few children's hospitals which do not have some form of verandah or balcony on to which the beds may be wheeled on fine days. Indeed, in some sanatoria, the children live on the verandahs during the entire summer. Thither the teachers follow with their blackboards and easels and everyone, except when the winds play havoc with the leaves of books, enjoys the exuberance of learning in the open air.

The School Ward

Of the orthopaedic hospitals and sanatoria reviewed in our survey 37 per cent can provide ward teaching only, with, of course, the use of the balconies in summer. Some orthopaedic hospitals and most sanatoria

for pulmonary tuberculosis have a separate school-room to which the ambulant cases may go, or those on invalid-chairs and carriages be taken. This separate school-room proves a great advantage to teacher and pupil alike, giving a welcome change of environment, a chance of more variety in educational activities, and opportunities for real play which is restricted in the ward. On its walls, also, may be hung the decorations, pictures, instructive friezes, etc., which are forbidden in the general wards. There, too, the cinema-screen may be elevated, small concerts held, and occasional group or individual tests given in peace.

Twenty-one per cent of orthopaedic hospitals and sanatoria make provisions for teaching both in ward and school-room. If there is only one teacher, she generally visits the up-patients in the school-room in the morning and the ward-patients in the afternoon; or she may reverse the procedure and visit ward and school-room on alternate weeks.

Since the existing Residential Special Schools are not hospitals in the strict sense of the word, it may be deduced that except in very few cases, all teaching is given in the ordinary type of class-room.

It must be realised that the custom of teaching in the ordinary treatment-ward is far from ideal and even far from practicable. The ward is seldom too small; it is mostly too large, and if so, acoustics may be bad. Group lessons become difficult and constant removing and setting up of such apparatus as blackboards, reading charts, maps, etc., becomes exasperating. Unless adjustable mirrors are attached to each bed some pupils may see but little of the teacher's doings.

If all the teaching must be done in a ward, it has been generally expressed that a group of 20 to 24, or fewer pupils, is quite sufficient for one teacher to manage.

It has not yet been decided which shape of ward out of four existing shapes offers the best facilities for teaching. There is the oblong ward; the small square, or the very large square with central supporting pillars, the latter a hindrance during the visual methods of instruction;

the circular; and the oblong or square, open on one side to garden or seashore.

A suggested Plan for a Hospital-School

On p. 90 is a suggested diagrammatic plan of a hospital-school to accommodate 200 patients. It has many points to commend it, the chief being that there are day-school-room-wards apart from the general treatment wards; the covered alleyways between ward and school-rooms; the play-room for the 'about-to-be-discharged'; and the Residential School quarters.

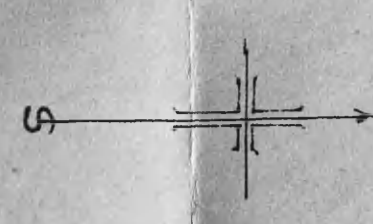
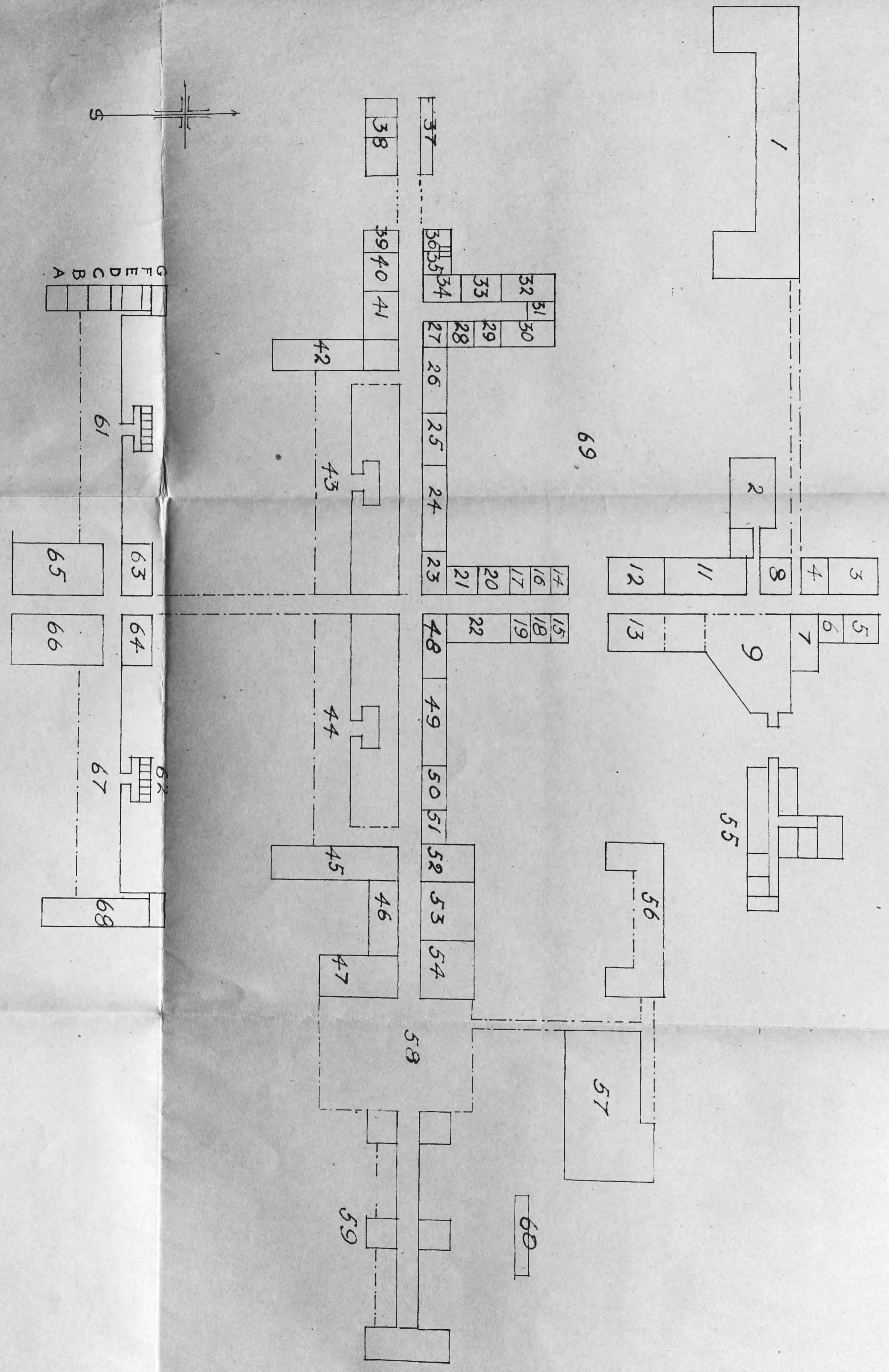
Mr Girdlestone says of this plan, 'The main school lies to the east of the site and is surrounded by the workshops, residential school quarters, covered playground, reading and play-rooms. The main school block would be attended by 'walkers' and chair cases from the central block of the hospital, as well as by the children in the residential school quarters. The school-rooms in the centre of the south block are so placed that the children confined to bed in this ward can be pushed to school easily, bed and all.

'The residential school quarters are for children who, though they no longer require hospital treatment, would get no education if sent home, owing to the relation of the degree of their disability to the distance of the school from their home. Here, again, no internal structure is indicated, but as some of the children in these quarters will probably be convalescent from tuberculous conditions, one or two open-air dormitories might well be provided. No cubicles or dormitories should be on the north side. The size of this particular building should not be regarded as a reliable guide as to the residential school needs of an area requiring a hospital of 200 beds. A group of small cottages would be an alternative method of housing the older children.'

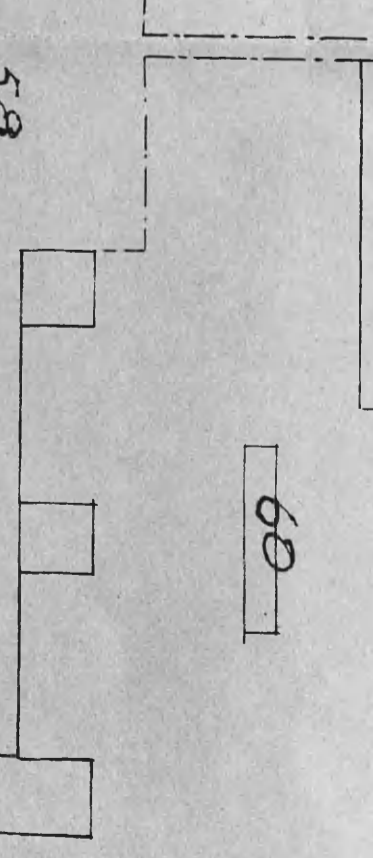
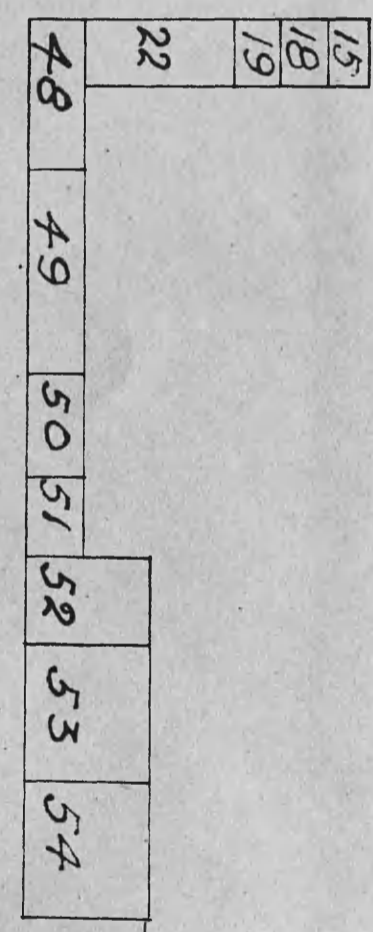
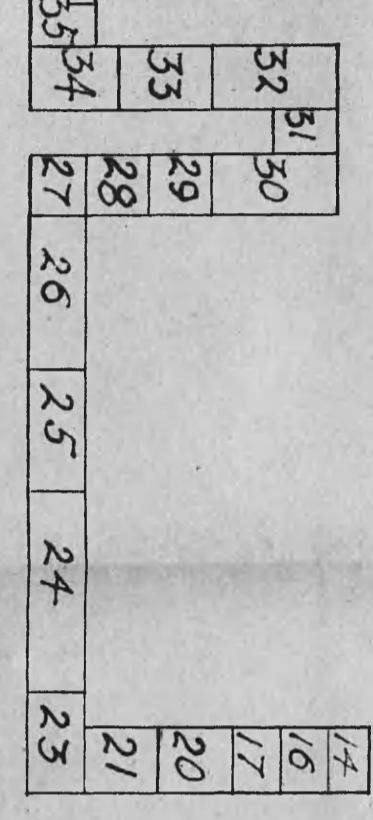
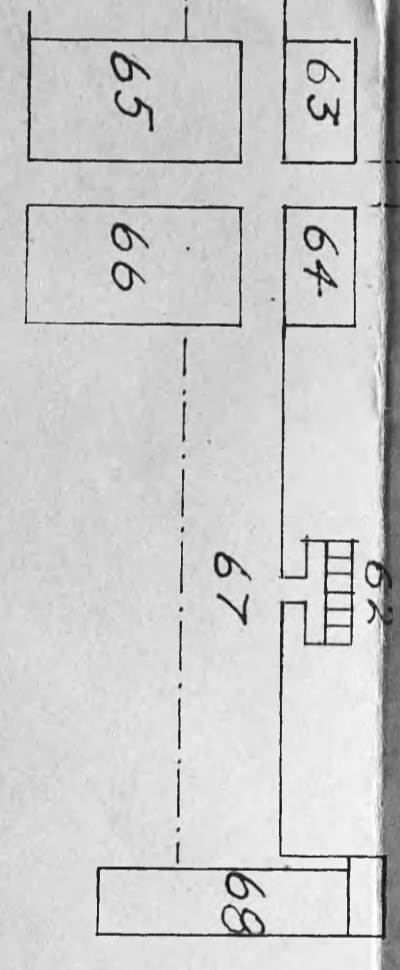
In addition to what has been said of the purpose of these special

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*Diagrammatic Plan of a Hospital-School.
See Key attached.*



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Key to diagrammatic plan of a Hospital School, from
G.R. Girdlestone's "The Care and Cure of Crippled Children"

- | | |
|----------------------------|--------------------------------------|
| 1. Nurses' Quarters | 27. Developing |
| 2. Matron's Bungalow | 28. Plaster casts and records |
| 3. Kitchen Offices | 29. Sterilizing |
| 4. Cooks' room | 30. Theatre for septic cases |
| 5. Housekeeper's office | 31. Anaesthetic room |
| 6. Stores | 32. Theatre for clean cases |
| 7. Larder | 33. Plaster |
| 8. Servants' room | 34. Splint Store |
| 9. Kitchen | 35. Surgeon's changing room |
| 10. Matron's dining-room | 36. Nurses' changing room |
| 11. Nurses' dining-room. | 37. Isolation annexe and sanitary |
| 12. Girls' dining-room | 38. Isolation ward |
| 13. Boys' dining-room | 39. Mother and baby |
| 14. Porter's room. | 40. Babies |
| 15. Telephone room | 41. Recovery Ward |
| 16. Matron's office. | 42. Ward annexe |
| 17. Matron's clerk | 43. Centre ward (girls) |
| 18. Secretary's office | 44. Centre ward (boys) |
| 19. Secretary's clerk | 45. Ward annexe |
| 20. Sitting-room (parents) | 46. Reading-room |
| 21. Stores | 47. Playroom. |
| 22. Ditto | 48. Waiting-room. |
| 23. Dispensary | 49. Clinical room, surgeon and clerk |
| 24. Sitting-room | 50. Clinical room, physio-therapist. |
| 25. Photography | 51. Masseuses' duty-room |
| 26. Radiology | 52. Hydro-therapy |
| | 53. Electricity and massage |
| | 54. Gymnasium |
| | 55. Medical Officers' quarters |
| | 56. Residential School quarters |
| | 57. School |
| | 58. Covered playground |
| | 59. Workshops |
| | 60. Sanitary block (workshops, etc.) |
| | 61. South ward (girls) |
| | 62. Ward sanitary block |
| | 63. Plaster |
| | 64. Minor operations |
| | 65 & 66. Schoolrooms |
| | 67. South ward (boys) |
| | 68. Ward annexe |
| | 69. Drive |
| | 70. Asphalt or concrete area |
| | 71. Asphalt or concrete slope |
- Garage, laundry, chapel not indicated.

N.B. Pathological laboratories and an out-patient department, though not shown will be required if the hospital is not working in touch with a general hospital.

quarters, would not such a plan offer the necessary separate accommodation for the difficult cases mentioned earlier, the long-term 'double-defects' and the cases with additional stigmata? Or even for the very long-term hip and spine cases who are in plaster?

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SECTION II. PART 2. HOSPITAL-SCHOOL ROUTINE

Admitting a Pupil

It is generally the custom to place each child on admission in a separate cubicle in an observation ward for a period of at least 14 days.

The reasons for doing so are mainly these:

- (a) To prevent the spread of infectious disease;
- (b) To acclimatise the child to hospital routine and to allow him to become accustomed to an open-air life;
- (c) To allow for the thorough examination of, and confirmation of the diagnosis of the case and to begin local treatment of the disease so that freedom from pain soon follows when the child has entered the sub-acute stage of the disease;
- (d) To allow the head mistress to examine the child with a view to his classification in the school ward; and if the child's physical state permits, to allow the head mistress or a psychologist to give him an intelligence test.

At the end of the quarantine period the teacher should prepare a chart or admission form for each case, thus:

Name	Sex	Date of Birth	Date of Admission	Disease	Previous Schooling	IQ	Notes	Date of Discharge
A.A.	M	3.4.36	1.4.41	Anterior Poliomyelitis	Nil	102		

If the child has had previous schooling, and if, owing to the prognosis of his case his stay is likely to be of considerable duration, the teacher should obtain from his previous head master his school record cards revealing his stage of attainment in separate subjects. These particulars are of value in allowing teacher and pupil to continue from the point at which instruction ceased.

Allotment to Wards

One would like to call in question a statement made by Florence Nightingale in an article written in 1908, 'It is a matter of universal hospital experience that intermingling of ages is essential. If you have a children's hospital, let the age of admission include fifteen years, especially on the female side. In all hospitals (in a child's hospital much more than in others) the patient must not stay longer than is necessary. One might almost say a nurse is required for every child. Children are better to be mixed with adults. If there must be a children's ward in a general hospital let it be for infants.'

We must admit, at once, however, that Miss Nightingale was a very old lady, approaching ninety, when she penned these words, and also that she could not have been privileged to see a modern hospital-school. Psychologically her suggestions are fantastic; pedagogically they are quite impracticable, except for the stipulation that infants be segregated from older patients. The urgent necessity for the patient's discharge may have been due, in her day, to the danger of the child being 'over-hospitalised' or harmed by being isolated from home environment. To-day we find that the child-patient from the overcrowded slum seldom wants to return to conditions and surroundings that are unhygienic and poverty-stricken.

Few, if any, hospital-teachers would agree to-day that child-patients should be mixed with adults. In favour of the suggestion it has been said that an older person in the next bed makes the child feel less lonely, and, conversely, the adult likes the companionship of the child. But, surely, the presence of ward-sister and junior nurses and the visits from relatives should supply sufficient adult influences. Again, it has been maintained that the adults help to discipline the children.

Psychologically, however, the danger of too close proximity of mature adult to immature child is obvious. It is a misfortune that is only

allowed to occur nowadays when accommodation is very limited. When this does happen, the adults often complain of the noise made by the children, chiefly when they themselves are old or suffering from additional ailments such as headaches, etc. On the other hand, the children, through constant proximity to grown-ups who are extraordinary in that they are segregated for specific reasons, become 'little old men' or 'little old women' too soon. In outlook, speech, gossip, melancholy interest in disease, they are often pitifully and prematurely wise. It is difficult for them to remain really childlike and it is not always possible for them to remain until puberty morally unspotted from the world.

When adults and children are mixed, the combating of a variety of distracting influences awaits the teacher. It is difficult for her to modulate her voice in order not to disturb resting or sleeping patients; the object-lesson becomes almost impossible; the continual presence of adults, both patients and nursing staff may induce a nervous self-consciousness in her, no matter how much she may be engrossed in her work. The conscientious instructor gives out a great deal of herself that may seem more often foolish than wise. Lastly, there is the distraction for teacher and pupil alike caused by the transmission of wireless programmes. Frequently where no earphones are provided, the patients courteously cut off or reduce the volume; but since they all look forward daily to their favourite broadcasts, one cannot insist that they refrain from listening in during school hours, the wireless being such a blessed alleviation from many incommunities in hospital life.

Ward Discipline

If the child is thoroughly interested in his lessons - and that he will be if the teacher has gripped his sympathy and attention - the question of maintaining discipline should scarcely arise. It follows, of course, that if the age-range in the school ward is wide the task of

disciplining the pupils during both group and individual tuition increases in difficulty. No matter which teaching method is being employed and irrespective of the design of the ward, the teacher cannot keep an eye on all the class-groups so easily as the teacher in the ordinary school-room with its rows of stationary desks. At the same time, when as in some most successful Dalton class-rooms, a babel of conflicting sounds arises, the teacher must discriminate when the noise is mere noise and when it is the natural accompaniment of real work, mental or manual.

If also, out of lesson hours, and sometimes during them, the children are noisy and unbearably loquacious, fidgety and occasionally destructive, it should be remembered that the young orthopaedic patient is denied the normal outlet of play, of letting his steam off in a romp round the garden or in a game of football. This world-old instinct to play, to make believe, can only be done vocally, or by pitching things across the ward, or by making or marring some object with the hands.

Few occasions occur when a child has to be reprimanded for obscenity in speech or action. It may happen at times, when children are roused in temper, that they will hurl at each other abusive epithets about their physical deformities. A strong sadistic instinct abides in many juveniles thwarted by an inferiority complex due to unhappiness, repression or disease. When this warped impulse appears in a warped body it is doubly pitiful. It is generally through some unkind, tactless extraneous influence that certain cases of congenital deformity (such as kyphosis angularis, 'hunchback') become conscious of any abnormality in their physical condition or appearance.

At this point it is scarcely irrelevant to introduce a matter in which the co-operation of the junior nursing staff would be advantageous not only to the teacher but to the pupil. The hospital is the child's home, often for many years, and on its environment depend the child's ideas and examples of morals, manners and speech. The teacher, who is mostly non-resident, may do much by precept and stories or by prescribed 'morals and manners' lessons to counteract regrettable tendencies; but

it should also be impressed upon the probationer nurse, who is resident, that she too may influence, for good or ill, the child-patient's behaviour, and his whole outlook upon life. The co-operation of the entire nursing and teaching staffs could become one of the most important aids to the sanatorium or hospital in its capacity as an isolated place of humanitarian healing.

The Question of Discipline

Out of school hours discipline should be left entirely to the discretion of the hospital administrators; but during lessons the teacher feels responsible for all matters affecting her pupils, and must decide for herself if or how she will mete punishment for offence. It is sometimes difficult for her to remove the cause of the offence. Any form of corporal punishment would be unthinkable, so completely is the child at the teacher's or nurse's mercy. Yet the problem child can cause infinite worry in a ward by his fits of temper, sullenness, disobedience and destructiveness. The other children may punish him sufficiently by sending him to Coventry; he may be deprived of cakes, but never of food, at tea-time; or he may be asked to do some engrossing task that will either restore his turbulence to quietude, divert his impulses into proper channels, or give him a sense of responsibility. Older children may be set to restore the damage they have done by being compelled to sew the garments they have torn in a rage or stitch up the blanket edges which they have unpicked. It is, however, painful for the teacher to chastise these ill and afflicted children at any time. So much compassion, so much understanding of their restrictions and occasional boredom, must affect her judgment. Often a quiet look, a firm but gentle touch of the hand, a strong grip on the wrist, is sufficient to restrain and restore the culprit. In the primary ward, as in the nursery, he may have his first real lesson in citizenship when he is shown that his misdemeanours make him a nuisance to the whole family of patients; but if he

persists in his disturbance of the peace he may, with quite good effects, be isolated in a corner of the ward behind screens. This is a harmless, yet almost always effective, punishment and with that recommendation we shall leave the unpleasant subject.

Age-range of Pupils

The age-range of the child-patients is wide in every special hospital and also in the general children's hospitals. The sex-ratio and the age-ratio of the different groups varies so frequently and so inconsequentially that no attempt has been made to classify them. The three following tables, however, may serve to indicate the various groupings. The two first were drawn up from the reports of a very scientifically conducted hospital-school in Edinburgh, in which the patients were of the M type, mainly medical and surgical cases. These tables for 1938 are typical of similar data given in reports of former years.

TABLE X. Ages and Sexes of Children eligible to attend M School

Age in years	Boys	Girls	Total
4	1	1	2
5 - 7	21	8	29
8 -11	48	23	71
12 -14	42	15	57
15 and over	1	-	1
Total	113	47	160

TABLE XI. Nature of Disability and Length of Attendance at M School

Nature of Disability	Number of Cases	Average Length of Attendance in Weeks
Medical	33	8.7
Cardiac and Chorea	26	11.3
Surgical	46	15.7
Special		
Ear, Nose, Throat	52	6.5
Eye	3	7.7
	160	10.4

TABLE XII. Daily average number of Children

Year	Unfit for Work	Fit for Work in Bed	Attending School-room
1938	1.6	12.4	16.2

The relative significance of Tables XI and XII will be noted later.

The following table contains data for 1938 which are typical of the age-range, sex and disabilities of children in the C, C₁, C₂, the orthopaedic, groups, in a children's orthopaedic hospital in Glasgow which has also a Pulmonary Tuberculosis Block.

TABLE XIII. Ages of Children in C, C₁, C₂ Groups eligible to attend School (1938)

Age in years	Total Number of Boys and Girls
4	-
5 - 7	11
8 -11	55
12 -14	74
15 and over	18
Total	158

The sexes are usually about equal.

TABLE XIV. Ages of Children in T Group eligible to attend School (1938)

Age in years	Total Number of Boys and Girls
4	-
5 - 7	6
8 -11	27
12 -14	30
15 and over	10
Total	73

The sexes are usually about equal.

Segregation of Sexes and Ages

In the nursery ward, whether a nursery school is conducted or not, all infants, boys and girls, are together up to the age of 5, in some cases to 6, years.

The Infant Division may be in one ward containing both boys and girls from 5 to 7 years, with possibly a group of girls from 7+ to 11. The girls are on one side of the ward, the boys on the other.

It is generally customary to have all the Junior Boys and the Senior Boys in separate wards, if there is adequate accommodation. The Junior and Senior Girls may be similarly divided. In a considerable number of hospitals, however, boys and girls who are approaching puberty are scattered respectively over adult male and female wards, a custom which is not very desirable for reasons already given.

Beneath is shown the customary arrangement of pupils in a large orthopaedic hospital.

Infant, up to 5 years
Girls, 5 to 16 years
Junior Boys, 5 to 9 years
Senior Boys, 9 to 16 years

In some hospitals pupils are arranged, during lesson hours at least, not according to age but according to ability. This is a great help to the teacher and to the retarded pupils. Boys and girls in the junior age-groups who, because of their disabilities, habitation in remote rural areas, and other causes, have been unable to attend school before admission to hospital, have frequently been taught to read and write along with the infants.

Incidence of Retardation

The aim of many hospital-teachers has been to keep the pupil who has had previous schooling 'up to the scratch', so that on discharge he may return to his appropriate grade in the ordinary school. To do so means that in many cases the bed-patient may be over-taxed. Not only has he missed schooling during the acute stages of the disease, but his mental as well as his physical energy has been appreciably depleted by the effects of his illness, especially if it has been of the M type. It must be confessed that the pupils who return to their former grades

in the ordinary school and go on with their old classmates are exceptionally gifted children. Many of these, owing to individual attention in hospital, may be very fluent readers or arithmeticians, but in other subjects be very backward. Because of their outstanding ability in one or other basic subject, they may be enrolled in a grade higher than that to which their average attainments ratio would allocate them.

Observations on this point were made by a Committee for the Study of the Care and Education of Physically Handicapped Children in the Public Schools of New York City. We quote the following tables from this report made in 1941. It may be inferred that the pupils in the 'Orthopedic Classes' have received treatment in clinics, dispensaries or hospitals and hospital-schools.

TABLE XV. Percentage of Children in Classes for Orthopedically Handicapped Children who are Under Age, Normal Age, and Over Age for their Grades, compared with Regular Class Pupils

	Percentage of Children		
	Under Age	Normal Age	Over Age
Regular Classes	42	44	14
Orthopedic Classes	6	37	56

TABLE XVI. Percentage of Children in Classes for Orthopedically Handicapped Children who are Accelerated, Normal and Retarded for their Grades, compared with Regular Class Pupils

	Percentage of Children		
	Accelerated	Normal Age	Over Age
Regular Classes	11	62	26
Orthopedic Classes	15	35	50

'It will be noted,' says the Committee, 'from the foregoing tables that the amount of over-ageness and retardation in the special classes as compared with the regular classes is significant.'

The writer has made no attempt to assess in a similar manner the

amount of retardation or 'over-ageness' in ex-hospital pupils. Instead, a few general observations are given with a view to explaining the causes of backwardness attending several categories of diseases. Some of these observations have been made by medical superintendents and by head mistresses of hospital-schools who wrote explanatory letters when returning the questionnaires. Others are gathered from the experience of the writer in an orthopaedic hospital. They are made, meantime, without reference to, or consideration of, the scientific measurement by intelligence test of the pupil's inherent abilities. The remark of a head mistress in a large Day Special School, 'We never expect much from hospital-pupils when they come to us,' was both a criticism and a challenge. So many points must be considered before one should assess the attainments of the 'hospital-child'. The chief are these:

- (a) The nature and degree of disease and consequent ability to study;
- (b) His length of stay in hospital;
- (c) The number of teachers in the hospital-school and the number of pupils per teacher;
- (d) The number of hours devoted to instruction in the basic subjects and that to handcrafts.

Rate of Progress by M, D and H Cases

Much of what has been said already on pp. 68-69 of education in general hospitals and convalescent homes applies to the early stages of the treatment of M, D and H cases (medical, surgical, debilitated and heart cases). They receive no education at all in the acute and perhaps sub-acute stages. In the latter they may merely be entertained and most attention given to diet and exposure to air and sunshine, to gentle physical exercises and to rest. In the convalescent stages, if they are pronounced fit to receive instruction, they get it in the school ward or in the school-room for up-patients if one is provided. In the

Astley Ainslie Institution, Edinburgh, a close study of the effect of tuition on such cases was made during three months¹. It was found that, as a rule, 'the medical and surgical cases were not fit for much pure mental work and tired easily if they had to concentrate for any length of time. A good deal of instruction was therefore given by the use of projects, in which all the children could take some part according to their age. Stories, geography, nature study and instructional games were also included, while a good part of the time was devoted to handicrafts, such as cane coiled basketry, sewing, etc. In the summer gardening had also an important place in the timetable.'

M, D and H Cases in the Residential Special School

These cases are generally suffering from malnutrition, anaemia, bronchitis, asthma, chorea, post-rheumatic heart, and the daily timetable arranged for these varies little in the recognised Residential Schools. It is subject to alteration according to the health (that is, the degree of the disease) of the children and the time of the year. The undernoted timetable is that reported by the Jewish Fresh Air Home and School, Delamere.

Timetable

7.15 a.m.	Rise
8.0	Breakfast. Prayers
8.45	Early morning duties (weather recording, care of poultry, tending plants and flowers, preparation of class-rooms, bed-making, boot-cleaning, etc.)
9.20	Lessons
10.10	Lunch and Play
10.25	Lessons
12 - 2.30 p.m.	Dinner followed by rest
2.30 p.m.	Lessons or ramble
4.30	Play
5.0	Tea followed by Play
6.0	Prayers, bath and bed

¹ See Tables XI and XII, pp. 97 and 98.

Both in the hospital-school-ward and in the Residential School the cardiac (rheumatic heart disease and congenital heart disease), and choreic cases require special consideration, the former because of the constant danger of reactivation of the disease, the latter because of the close link between the psychological and physiological aspects of the disease. Of the acute stage of chorea Seguin wrote in the last century, 'It gives unsteadiness to every movement, to every impression, to every expression, keeping the subject in a state of tremulousness, unfit to be the starting-point of physical and intellectual operations and of forming or transmitting correctly the orders of the will¹.'

In the modern hospital-school the corrective methods used upon the choreic case are simple, as Seguin's also were, yet scientific. It was reported by one medical superintendent that the teachers 'in a minor way helped to educate the patients back to co-ordinating the use of their limbs. It was done by giving them toys to play with such as bricks which were to be placed in a specific spot, simple jig-saw puzzles, which a recovering 'chorea' finds quite an effort to put together, knitting and sewing. Many of these children were used during illness to dropping cups and sometimes valuable pieces of crockery, and had lost confidence in their own abilities. In the simple way mentioned above, they often found that they could carry out things which were done by other normal children who were in the ward.' One might add that without the daily continuance of these progressive exercises a considerable time would elapse before the choreic case could take part in the ordinary lessons.

The Orthopaedic Group

The various types of diseases, with duration of stay, in this group have already been tabulated². As a rule it is the spinal case

¹Edouard Seguin, Idiocy. P. 45.

²See pp. 60-61.

and the hip-joint case who each become the teacher's special care, since some of them may be over-hospitalised from their long residence in institutions. Though, through lack of schooling due to the complete absence of educational facilities or shortage of teaching staff, they may be exceedingly retarded, no special type of education need be provided for them. Before lessons are begun they are all pronounced convalescent and physically fit to receive them. Their periods of unfitness occur only in the presence of extraneous epidemics such as mumps, measles, etc., which seldom happen, and during occasional post-operational upsets, fluctuation of temperature due to abscesses, etc. It is the duty of the ward-sister to inform the teacher each morning of any children who are unfit for lessons; but the hospital-teacher very soon learns to recognise certain warning symptoms, the excessive pallor or the telltale flush in the cheeks of children in whom a toxæmic condition exists and in whom the metabolic processes are slow.

Postural Handicaps

The orthopaedic pupil is usually restricted by

- (a) Plasters;
- (b) Celluloid appliances;
- (c) Other surgical appliances.

All cases in plasters therefore require individual tuition and individual apparatus such as mirrors arranged at the top or side of his bed, and bed-desks.

Prone or recumbent cases. Spinal cases in plasters and certain hip and leg cases in 'extensions' with pulleys must lie on their backs and therefore should have an adjustable overhead desk to which books and exercises may be strapped by elastic or they may have a desk which in design is somewhat like an easel.

Certain hip cases may be allowed to lie face downwards. They may be provided with short-legged table-desks or with trays to facilitate writing, etc.

Sitting-up cases. Foot, ankle, knee; arm, wrist, cervical glands and all superficial glandular cases, if admitted to this group, may be in a sitting position and be provided with table-desks, or better still, a wooden box for school-books, the lid of the box serving as desk. It must be remembered, of course, that some of these cases may have limbs in plasters which may restrict movement considerably, for example, hand, wrist, upper arm and shoulder in plaster or splint.

Ambulant orthopaedic cases. These cases may be learning to walk for a fortnight or three weeks before they are discharged. They may be taught at ordinary school desks in the ward, or go to a separate school-room where one is provided.

The following table should help to make the teacher familiar with the various types of appliances used in orthopaedic hospitals.

TABLE XVII. Surgical Appliances for All Patients
Stonehouse Orthopaedic Hospital
1940 Report

Appliance	Number
Plasters (bone-joint diseases; dislocation of hip; spines; legs, arms, etc.)	60
Celluloid appliances	
Spinal jackets (these are made in the institution)	27
Hip spica splints	21
Knee splints	2
Ankle splints	7
Leg splints	4
Arm splints	4
Wrist splints	3
(These last two are so excellently jointed that they do not restrict writing, etc.)	
Other surgical appliances	
Walking calipers	8
Surgical boots	16
Artificial limbs	19
(Pupils wearing these go to a school-room where one is provided)	
Total	171

From this table it will be seen that in the orthopaedic hospital-school it is with the bone-joint cases that the teacher will be mostly in contact. On the whole, the child in spinal jacket or plaster is a tardy beginner. Muscular control comes slowly since the ability to grasp a pencil and make a decipherable mark with it is poor. The child's metabolism (building-up processes) is slow and his natural angle of vision is distorted by his supine position. This restriction in posture is a great handicap which the teacher must never allow herself to forget.

Since the causes of retardation may lie mainly in the inadequate staffing of hospital-schools and in the wide range of time allotted to handwork, it would be well to assess at this stage the mean number of hours devoted to handwork and to basic subjects. These undernoted points should be borne in mind when considering the tables on pp. 107 and 108.

- (a) The figures refer to classes from the Infant Division to the Junior Secondary. The range of hours is therefore wide, in each case 25 - 1;
- (b) Handwork is to be interpreted in these stages as an **activity**, or project, that is more or less educational as compared with manual instruction which is vocational;
- (c) The number of hours devoted per day and per week to schooling vary considerably according to the category of the special hospital or the Residential Special School - T schools, $3\frac{1}{2}$ hours daily, C schools, 4 to $5\frac{1}{2}$ hours;
- (d) More instruction of all kinds can be given if the teachers are resident. Very few hospital-teachers are resident. In the Residential Special Schools various subjects and activities are introduced in the evenings because the teachers are resident. For example, in Deanscroft 'voluntary evening classes on English are conducted covering 3 hours. 7 hours are devoted to hobbies.' In the Lancasterian Residential Open Air School, Whitchurch, Salop, there are many evening-school activities. There are 6 resident teachers;
- (e) In some hospital-schools the hours devoted to both basic subjects and handwork vary according to the age and disability of the pupil, as in the age-groups indicated below in Tables XVIII and XIX.

TABLE XVIII. Hours devoted to Basic Subjects and Handwork
in Representative Hospital-Schools
(per week)

Hospital-School	Basic Subjects	Handcrafts
Craft Schools, Chailey	15 to 25	2 to 10
North Wales Sanatorium		
Juniors	15	5
Seniors	11	9
Deanscroft, Oakham		
Age 11 years	25	10
Age 15 years	5	
Age 16 years		20
Riviera, Bowleaze Cove		
Children	$22\frac{1}{2}$	
Boys		$4\frac{1}{2}$
Girls		$13\frac{1}{2}$
Trade Classes for Seniors		

TABLE XIX. Lancasterian Evening-School Timetable for
Older Boys and Girls (All C and D)

Day	Subject	Group	Place
Monday	Gardening	Older Boys	Grounds
	Dramatic Work	Older Girls	Billiard Room
Tuesday	Shorthand	Class I	Dining-room
	Woodwork	Boys	Class I Room
Wednesday	Remedial Games	Boys and Girls alter- nately	Class-room or Playground
Thursday	Puppetry	Girls and Boys	Dining-room
Friday	Shorthand	Class I	Class I Room
Saturday morning	Gardening	Older Boys	Grounds and Dining-room
Sunday afternoon	Guides	Girls	Grounds and Billiard Room

- (f) It is apparent that since secondary education is not statutory, many children who are admitted to hospital at the age of 11+ (even 10+) are in danger of receiving very inadequate instruction in the basic subjects. It is to be confessed that a great many hospital-pupils at the age of 10+ who can read, write and count, have had very little or no instruction whatever in the geography and history of their own or other lands; yet these same boys and girls can do weaving, embroidery, knitting, boot-repairing and other handcrafts in an astonishingly excellent manner;
- (g) It is considered advisable, even kind, in some hospitals to teach only handwork to progressive cases. But one might ask, What does the child himself wish to learn? He does not know the sad prognosis of his disease. If his mind can assimilate knowledge, he ought to be given as much as he desires. The writer remembers with what joy one such case worked out 'pages and pages of sums' till two days before her death. Hers was the unconquerable mind that triumphs over matter.

It is to be feared, and is in some measure excusable, that the Jack-of-all-trades teacher in the 1-teacher school has been forced to set the older pupils to such patient tasks as embroidery in order that she herself might devote most of her time to the beginners. Fortunately, the occasions for this unfair exigency are gradually passing for two reasons, (i) increase in teaching staff and (ii) the introduction of modern individual methods of teaching, such as the Dalton plan with its assignments.

Correspondence Courses

Considering the above points (a) to (g), it will be obvious that no comparative conclusions can be drawn from the following Table XX. It merely suggests likely causes of retardation. The 119 hospital-schools and Residential Special Schools cited are those which returned the numbers of hours devoted to basic subjects and handcrafts¹. Since

¹Through the courtesy of the Director of Education, Sydney, New South Wales, we learn that in 10 hospital-schools, among approximately 407 child patients whose age-range is 4 to 16 years, the scatter of hours devoted to handcrafts and basic subjects is very similar to that in the British special hospitals. The average number of pupils per teacher

TABLE XX. Median of hours per week devoted in 119 Hospital-Schools to Handwork and Basic Subjects

Hours per week	Handwork		Basic Subjects	
	Number of schools		Number of schools	
25		119		119
20	1 (g)*	118	3	116
15	1 (g)*	117	11	105
10	26 (d)*	91	36	69
7.45 or 7.46 hours	<u>Median</u>	59.5	9.22 hours	<u>Median</u> ... 59.5
5	62	29	61	8
0	29	0	7	1

*In the frequency column under Handwork the letters (g) and (d) refer to the points indicated above. The schools are mainly for progressive or severely crippled cases.

The significance of the range and the medians will be developed further in the section on Occupational Therapy (pp. 202.)

Footnote cont.)

in New South Wales is 27. In reply to Question 12 in the questionnaire, the Director stated, 'Replies to this question show a considerable variation in the time spent on basic school subjects. They range from 8 to 18 hours per week. In the case of 2 schools the replies indicate that the time spent on basic school subjects varies with the health of the children. A similar wide variation in time spent on handcrafts and other activities was recorded. Time varied from 1 to 10 hours per week.'

In reply to Question 5 it was stated that the types of orthopaedic and other long-term cases treated were: All types of surgical and medical cases; surgical T.B.; Poliomyelitis; Osteomyelitis; congenital deformities; spastic paralysis; traumatic cases; lung cases (Waterfall Sanatorium); Torticollis; Rheumatoid Arthritis; Clubfeet.

The Royal Alexandra Hospital for Children, Collaroy, which takes cases up to their thirteenth year (the school-leaving age in New South Wales is 15) stated that they have 'built up a unique small craft from seashells; samples of this have gone all over the world; macramé work, fretwork, knitting, crochet, weaving, feltwork, paperwork, candlewick, embroidery, etc. are available for patients. This craft work has a great appeal to children'. A very similar programme could be cited from many British hospital-schools. One is tempted to ask, Is the import of such a scheme purely a diversional one? Is it allowed to usurp the place of a more educational programme?

in most cases returns were made also of hours devoted to academic, social and physical education, no ratios can be calculated. In some hospital-schools the teacher visits only in the forenoons. In all the preponderating 1-teacher schools, half the hours of schooling are devoted alternately to the girls and boys, who again may be divided into four groups¹. Even though all the junior sections were working on an assignment plan, they could not make normally rapid progress since the teacher could not give them daily supervision. That there have been many examples of fine attainments records is true; but it must be admitted that genius does not flower profusely in any untended garden. Only the very exceptional child of 10 to 12 years can be relied upon to concentrate upon his studies when left to himself. Thus, taking into consideration point (f) the writer must confess to agreeing with the findings of the medical superintendent of Burrow Hill Colony, that as a result of broken periods of schooling and of only very rudimentary schooling, the adolescent youth when disease is quiescent is in danger of being 3 to 4 years behind his contemporaries in the ordinary day school.

¹ See paragraphs on arrangement of classes, pp. 184 et seq.

**THE HOSPITAL-SCHOOL AND THE RESIDENTIAL SPECIAL SCHOOL;
WITH PARTICULAR REFERENCE TO TEACHING IN ORTHOPAEDIC
HOSPITAL WARDS**

VOLUME II

III.

SECTION II. PART 3. INTELLIGENCE TESTING IN THE HOSPITAL-SCHOOL

There seems no reason why the convalescent physically defective child in the hospital-school should not be tested. An estimation of the child's basic intelligence should be of as much - if not more - assistance to the teacher of the handicapped child in hospital as it is to the teacher of the normal child in the ordinary school. One might almost advocate that the disabled child himself should be told the general result of his intelligence test, if it is good, in order to show him that his mental gifts, if properly used, may in some measure compensate for his physical disabilities. He can at least be told he has a 'good head'. The writer has always had peculiar satisfaction in acquainting the parents of children who suffered from the effects of infantile paralysis or of chronic tuberculosis with the fact that their children's IQs were above the average. They there and then decided that their children, despite all difficulties, would get a chance in life.

But putting sentiment aside, we must recognise that the measurement of the child's intelligence by means of the standardised intelligence test does four things:

1. It reveals to the doctor as well as to the teacher qualities of mind in the patient which may affect the patient's reaction to his disease during his period of treatment;
2. It reveals the quality of mind as it will affect the patient's vocation;
3. It furnishes a necessary guidance to the teacher in the arrangement of schemes of work for the patient from the nursery to the post-primary years;
4. It may prove, for the comfort of parents, that so far the actual disease of Tuberculosis has not affected basic

intelligence, whatever effects the causes of the disease, unhygienic environment, poverty and malnutrition, and predisposition by heredity, may have had.

As our investigations proceed we shall refer with enlargements to these several points.

Question 14

On the whole, replies to question 14 in the questionnaire, 'Are intelligence tests applied (a) with some children, (b) with all children? Name of tests used,', were disappointing.

It was revealed that only in 57 out of 145 hospitals, and Residential Special Schools, that is, 39 per cent, were intelligence tests given.

On further inquiry it was stated by the medical superintendents or by the head mistress that:

- (a) Owing to shortage of staff there was no time available for individual testing. Recalling our discoveries of the conditions in the 1-teacher hospital-school, we can fully understand the validity of such an excuse.
- (b) The intelligence testing had been of too sporadic a nature to be of any value.
- (c) Only very backward or emotional cases were tested, and these were referred to the medical inspector of schools or to the county or borough psychologist at the out-patient or child guidance clinic.
- (d) Not all doctors and very few teachers are capable of administering and scoring the recognised tests.
- (e) Some teachers obviously confused educational attainments tests with basal intelligence tests, since they stated that they 'made up their own tests' and applied them to the child as early as possible after admission. Others depended upon the reports - if any - of their pupils' previous schooling.

The Tests used in Hospital-Schools

The intelligence tests quoted as being applied were these, mostly without differentiation of nature or origin of tests:

Various revisions of the Binet-Simon Scale - the Herring, Terman, Stanford-Binet, Terman-Merrill, Burt;

Burt's Scholastic Tests;

Ballard's Tests;

Kelvin, Orton, Porteous, Northumberland, Moray House and Richardson's tests;

Wheaton & Co., Ltd., Exeter, 'Can you think? Think again'.

In **several** replies the tests were not specified, or were stated to be applied only to backward or doubtful cases. Some tests were chosen by the inspector or by a psychiatrist.

Faced, then, by the vague and heterogeneous nature of these replies the writer was forced to make two decisions:

1. To follow up the trail of those hospital teachers who were using the oldest and, as we believe, the most reliable test of intelligence for hospital children - the Stanford Revision of the Binet test;
2. To discard, for the present, any idea of assessing the results of attainments tests among hospital pupils or of comparing them with the results of scholastic attainments tests among normal school children.

The latter decision was made (with some reluctance, because some hospital children test very well) for these reasons:

1. The present totally inadequate distribution of teachers per pupil and the consequent very curtailed amount of time spent with each pupil;
2. The impossibility of sufficiently large numbers of pupils being able to take part in a group test;
3. The fact that the results of both group and individual attainments tests are made less suitable for comparison with those taken among ordinary children by the
 - (a) Wide age-range of pupils;
 - (b) Broken periods of schooling;
 - (c) Degree of disease and physical disabilities;
 - (d) Possibility of double defect, physical and mental;
 - (e) Restricted environment of the hospital child;
 - (f) The hospital child's almost complete ignorance of the

examination atmosphere. The effect of this when suddenly applied introduces emotional upset. He becomes incapable of concentration and cannot be timed with accuracy.

It became apparent to the writer in considering attainments tests as applied to hospital pupils that all these points, (a) to (f), might also be quoted as reasons for her decision not to compare the results of basal intelligence tests among physically defective hospital patients with those among normal children, or even among physically defective children in the Day Special School.

The only analogous cases might be found in the 1-teacher or 2-teacher rural school, of which the single class-room accommodating some 36 children is comparable to the hospital-school ward with its 36 children of both sexes and wide age-range. Again if the results of the intelligence tests taken in hospital were compared with those taken in the Day Special School it must be remembered

- (a) that in the latter there is no hospital atmosphere;
- (b) the pupils have residual handicaps, but they are beyond the convalescent stage of disease;
- (c) performance tests may be more easily applied in the Day Special School and in the rural school than in the hospital-school ward.

Point (c) indicates that the scope of intelligence testing in the hospital-ward is somewhat restricted and also that the ideal intelligence test for the hospital-school child, particularly the orthopaedic subject, may not yet have been devised.

The Performance Test and the Hospital-Pupil

To enlarge upon point (c) above and ally it with the nature of the child's disease as it affects testing is the next matter for consideration. We must hasten to say that most performance tests which are defined as 'short mental problems which may be presented and must be solved, in non-linguistic terms¹', may be given to the inmates

¹F. Gaw, L. Ramsey, M. Smith and W. Spielman, A Study in Vocational Guidance (Industrial Health Research Board, No. 33), 1926. P. 21

generally to be found in a hospital-school ward, but that they may not be suitable for all patients; and that the selectivity of the subjects to be tested, compared with normal subjects, would be of narrow margin because of the various physical handicaps that may prevent the application of the performance test; and also because these physical handicaps, which may include the abnormal posture of the patient, make the requirements of speed and accuracy in the tests unfair factors in comparison.¹ We refer of course to those performance tests which may combine mechanical ability with constructive ability. We might add the Kohs Block Test and the Perseveration Tests which include Inverted S Test, Triangle Test and Cancellation Test, used by the Industrial Health Research Board to discover the results of fatigue and boredom in repetitive work,² to the list of performance tests given in A Study of Vocational Guidance. The latter list comprises

Healy Picture Completion Test I	Porteous Maze
Healy Picture Completion Test II	Cube Imitation Test
Manikin Test	Goddard Adaptation Board
Profile Test	Substitution Test
Cube Construction Test	Diagonal Test
Dearborn Formboard	Healy Puzzle A
Goddard Formboard	.

¹These are the diseases which may handicap the subject to be tested by performance test in a typical orthopaedic ward. They are given in order of probable extensiveness of crippling or atrophic effects.

Cerebral Palsy: affecting upper limbs
 Poliomyelitis: affecting upper limbs
 Arthritis: affecting upper limbs and shoulders
 T.B. Bone and Joint diseases: affecting upper limbs and
 causing enforced recumbency in spine and hip disease
 Congenital Syphilis: affecting the vision
 Contagious Skin Affections

²S. Wyatt and J. N. Langdon, Fatigue and Boredom in Repetitive Work (Industrial Health Research Board, No. 77), 1937.

As we have said, all these performance tests might be tried to assess individual mechanical or constructive ability in the hospital pupil, but they should be used only if the subjects are suffering from diseases of which the crippling or atrophic effects are similar in nature. It should be remembered, however, that the extent of the effects of these diseases could be measured by the results of such performance tests.

Since certain subjects, therefore, could not be given performance tests in the regular manner, no attempt has been made at present to correlate the findings of any performance tests given with the findings of the intelligence tests¹.

Manual Dexterity and the Intelligence Test

How then, it may now be asked, did the tester overcome the difficulties occasioned for certain subjects by those tests in the Stanford Revision of the Binet-Simon Scale (as described in Terman's The Measurement of Intelligence) which require a degree of manual dexterity and constructive ability².

¹The writer has used the Kohs Block Test and the Perseveration Tests mentioned above for particular reasons upon particular subjects; for **example**, to discover from the latter test the effect of too mechanical **handwork upon the** mentality of long-term adolescent patients. The conclusions, which were foregone, were simply those made by the testers in Report No. 77 of the Industrial Health Research Board mentioned above: 'that the amount of boredom experienced by operatives employed on repetition work increases with their degree of intelligence. Conversely, the individuals who are likely to find most satisfaction in simple forms of repetition work are those of a relatively low order of intelligence'. (P. 20)

²The writer is aware that several of these manipulative difficulties have been eradicated for the subject by their omission or alteration in order (for example, tests which were starred became unstarred) in the Terman-Merrill Revision of the Stanford-Binet Intelligence Scale (Form L). This test was not used for these reasons: (a) Owing to war conditions the writer could not obtain the material from America; (b) A borrowed set of the testing materials would have been retained over too long a period;

it can be given, that is, if the subject can handle the shoelace or ribbon, the tester ought to remember that the hospital child has few, if any, opportunities of dressing and undressing, tying tapes, shoelaces, etc. On the whole, girls pass more often than boys, since they may be able to tie their own hair ribbons or that of their dolls.

Year VII, Test 6. Copying Diamond. Paper etc. to be placed in convenient reach of patient. A pencil should be used instead of the pen advocated. Very few hospital children are allowed pens and ink at this age. Again, as in failure in Year V, Test 6, failure to execute may be due to the child's physical or mental disability and assessed as a measure of the sequelae of his disease.

Year VIII, Test 1. Ball and Field. Fortunately in this Year this is not a star test. In the writer's opinion, it is an unfair test to apply to the child-patient who has been hospitalised since infancy or for a period exceeding six months to one year during which time memory impressions have become less vivid. The reasons against the validity of this test are obvious. (1) The child may have no sense whatever of locomotion, (2) of orientation, or movement in space, (3) no notion of the size or appearance of a field, or even of a garden, (4) has never bounced a ball in a large open space and therefore cannot appreciate the factors that govern its speed or movements. The writer found that only the child of average plus intelligence and the child whose memory of outside play was still vivid, passed in this test in Year VIII or in Year XII, Test 5.

Year IX, Test 2. Weights. Aids, as for Year V, Test 1.

Year X, Test 3. Designs. Aids, as for Year VII, Test 6.

Year XVI, Test 6. Code. Aids, as for Year VII, Test 6.

The Verbal Tests of the Stanford-Binet Scale

In some respects these also might require adjustment to the environmental conditions of the hospital child. Again we speak of the long-term case whose knowledge of normal life is non-existent or scant.

From the writer's experience the verbal tests which called for most discretion and sympathetic judgment in scoring were these:- The Pictures Test, Years II and VII, the Comprehension Test, Years IV, VII and VIII, the Coins Test, Years VI and VIII, the Differences Test, Year VII, the

Similarities Test, Year VIII, the Definitions Test, Years V and VIII, for older children the Date Test, Year IX, and for all long-term hospital cases with exceedingly few exceptions the Vocabulary Test for their respective chronological or life-age.

Typical 'Hospitalised' Replies which might be scored Plus

The Pictures Test, Years III and VII. Canoe: 'That man has a bumper.' (The oar in the picture is exactly like the long-handled polisher used daily on the ward floor. The reply was made by a child who had been bed-ridden since birth.) 'There are Christmas trees.' 'A big slunge of water.'

Post Office. 'The man is reading a comic.' - 'a temperature chart.' 'There are shelters (houses) in the picture.' (The child could see wartime shelters from her window.)

The Comprehension Tests, Years IV, VII and VIII. Question: 'What must you do when you are sleepy?' Answer: 'Go under the clothes.' 'Go on pillow' (a sitting case).

Question: 'What must you do when you are cold?' Answer: 'Go under the clothes.' 'Pull blankets over me.' A minus reply was, 'Stand on your toes.'

Year VII. Question: 'What's the thing to do if you find your house is on fire?' Answer: 'Get out of it quick and go to another.' (Plus, for the sense of conviction and rapidity with which the reply was given. This child had no memory of home or of an open fire in a hearth.) 'Go to the shelter.' 'Come back at once to my own hospital' (age 5).

Question: 'What's the thing to do if you are going somewhere and miss your bus?' Answer: 'Run after it as quickly as I can.' (This reply was scored minus, though the child aged 5 has never seen a bus and therefore can have no knowledge of its speed. She scored plus in (a) and (b).

The Coins Test, Years VI and VIII. All the children tested by the writer knew the penny. Some of the replies to this test were typical of those given by normal children from sheltered urban or rural homes - children who did not travel alone in buses and trams, and were therefore unaccustomed to handling fares, or who were not sent shopping errands. Typical of such replies were: 'A wee shilling' (threepenny bit). 'A man penny' (shilling). These replies, of course, were scored minus. The majority of young

hospital patients receive many coins from their visitors and therefore pass in the Coins Test for Year VI.

The Differences Test, Year VII. Failures in this test did not predominate, but almost in every case the subject required to be prompted by the preamble, 'You know the flies, don't you? You have seen the butterflies.' (The child had seen the fly on the window, the butterfly on the verandah.)

To item (b) of this test one child, aged 7, a spastic case (IQ 58), made the astonishing reply, 'You eat the egg, but you put all the stones round the plate.' (This child, an orphan, had no memory of home or outdoor life.)

Similarities Test, Year VIII. Replies to this test indicated that the children were not sufficiently familiar with the objects to be compared. 'Wood and coal,' said one boy of 7, 'are what you throw at people when you are angry.'

Definitions Test, Years V and VIII. The replies to these were coloured, particularly among the lower scores, by the restrictions of hospital-ward environment. If the object was defined according to its use in hospital the answer was scored plus; for example, Chair defined as 'Nurse lays plates on it. There it is.' (A common custom during meals in a very long E.M.S. ward of the hut type.) Table - 'It stands in the middle of the floor with a cloth on it to make the ward look pretty.' 'To put flowers on.' Doll - 'A little baby to hold.' 'It sits beside your cot to keep you company' (age 5). Horse - 'A thing with a long neck that goes to the laundry.' (The child, aged 4½, had seen the sheets being taken regularly to the laundry by a horse-drawn buggy which passed his ward window.)

It is obvious from these replies that only a tester who realised fully the circumstances which occasioned and coloured such replies could have scored them plus. If any doubts arose about the child's definition of these words the war sister was consulted about the matter.

The Date Test, Year IX. Unfortunately this is a starred test and was very often the only failure for Year IX among subjects whose IQs were average and over average. Unless the child possessed a calendar (which was unlikely, since such things are not allowed to be hung on the walls of hospital wards), or kept a diary, or had been taught to insert the date above each day's written school work, he seldom passed in item (c) of the test. The 'day of the month' meant nothing to him unless it happened to be his birthday. To hospital children, also, the 'month' of the year and even the 'day' of the week

were of little significance except on the festivals of Easter and Christmas or on visiting days.

The Vocabulary Tests. As already indicated, this was almost invariably the hardest test of all for the hospital child, not only among the 5 to 7-years group, but also among those of 8 to 14 years. The younger child was once more hampered in his replies by his restricted environment; the older child by that also, and in addition, if compared with normal children, by the usually narrower field of his conversation and reading. It was found that a failure or pass in the Vocabulary Test was not always a sure indication of the Year in which the subject's basal mental age might lie. The younger subject was generally lost before the ninth word in the first list. Some typical hospitalised definitions to Vocabulary Test, Year VIII, Test 6, were: Gown - 'We get it on to go for 'Sunlight''. Scorch - 'The big lamp (in the physio-therapy room) does it to you.' Tap - 'It is in the basin at the end of the ward.' 'In the slunge.' Health - 'The doctor says I am not in good health.' Curse - very often mistaken for 'nurse'. Lecture - 'The nurses go to it. They hear all about veins and draw them.' Nerve - 'It is a thing in my head.' (The child who made this reply said that the doctor had told him that his pain was caused by a nerve.)

The writer is aware that the replies of normal children are also largely coloured by their environment and its restrictions, which may be urban, or rural, or specific, as in the case of the children of travelling tinkers, barge-men, or circus employees; but surely in no other environment have the replies such an emphatic ring of almost scientific conviction, both positive and negative, as those given within the walls of a hospital ward. The candid answers, 'I don't know', or 'I've never seen it', make the tester want to apologise for having put the question. In return therefore she must give the child not only the benefit of the doubt, but make a careful investigation of the circumstances which have occasioned his replies.

Selection of the Test

Despite all these limitations of the intelligence test by the Terman Revision of the Stanford-Binet Scale, the writer feels that it is, so far,

the best test for the hospital pupil, and was gratified to find that this test had also been chosen by a group of English psychologists from the Burden Mental Research Trust, Bristol, for an investigation of the basal intelligence of 98 cases of Poliomyelitis.¹ This test was also chosen in preference to others by Doll, Melcher and Phelps of the Training School, Vineland, America, in their investigations on 12 cases of Cerebral Palsy due to birth injuries. Reference will be made to their findings in a later paragraph.

Selection of the Subjects

The subjects chosen for testing were representative of the categories of diseases already discussed in Section I, p. 51 et seq.:

- Group 1 - C, C₁, C₂ and all cases requiring treatment and education in an orthopaedic hospital;
- Group 2 - T cases requiring treatment and education in sanatoria or Residential Special Schools;
- Group 3 - A selection of a few subjects representing all types of cases who had passed on to Day Special Schools after periods of treatment in hospitals.

For all these cases the duration of stay in hospital was from 3 months to over 10 years. The age-groups studied were 5 - 7 years, and 8 - 14+. Table XXI recalls details of cases.

¹"Does Poliomyelitis affect Intellectual Capacity?": An Investigation on 98 Cases by R. G. Gordon, M.D., D.Sc., F.R.C.P.Ed., J. H. Fraser Roberts, M.A., D.Sc., M.A., and Ruth Griffiths, M.A., Ph.D., British Medical Journal, vol. ii, October 21, 1939, p. 803.

TABLE XXI. Categories of 283 Testees requiring treatment in an Orthopaedic Hospital

Category	Number
Group 1. Surgical and non-surgical Tuberculosis	
Bone joint	
T.B. spine	30
T.B. hip	30
other parts	46
Osteomyelitis	8
Anterior Poliomyelitis	21
Perthe's Disease	6
Arthritis	3
Adenitis (abdominal, renal, genito-urinary)	23
Chorea	16
Cerebral Falsy	31
Fractures	4
Congenital Deformities	6
Group 2. Surgical Tuberculosis excluding Bone and Joint Cases	
Pulmonary Tuberculosis (including cases of Bronchiectasis, Asthma, Pleura effusion)	51
Group 3. Miscellaneous	
Rheumatism, Diabetes, Enuresis, Lupus	8
Total	283

Mean IQ of Total Number of Cases Tested

Table XXII shows in condensed form the Stanford-Binet IQs of 283 physically defective children who have had prolonged treatment in hospitals.

TABLE XXII. IQs of 283 Physically Defective Children
(Ungrouped Diseases)

IQ	Number	IQ	Number
30-39	1	90- 99	70
40-49	5	100-109	34
50-59	15	110-119	20
60-69	24	120-129	7
70-79	40	130-139	3
80-89	62	140-149	2

Mean IQ - 89

Standard deviation - 18.74

significant

The writer does not consider the above results/for these reasons:

1. The diseases are mixed;
2. The causes of the diseases are not identical;
3. Imbecility or feeble-mindedness may be secondary to at least one of the diseases, viz., Cerebral Palsy;
4. Tests were made during different degrees of the disease, viz., early sub-acute stage, convalescent, disease quiescent;
5. The tests were not all given by the same person.

The Time for Testing

There is a right and a wrong time for testing the intellectual capacity of hospital pupils. It should be done as early as possible after the child's admission, but not before he has been acclimatized to the hospital environment, and certainly not before he has entered upon the less painful period of his treatment. It should be unnecessary to state here that no testing should be performed while the subject suffers from elevation of temperature, due, perhaps to chronic abscess, or during a prolonged period of post-operational exhaustion or debility due to malnutrition or slow metabolic processes. The observant teacher scarcely requires to be told by the doctor when the child is ready to respond to the test. The child himself will show an interest in things

outside himself and **begin to evince** his personality to the others in the ward. On the **other** hand, a complete lack of personality dominance may make the doctor and teacher suspect that the child is backward and perhaps feeble-minded; but it should never be assumed, as has actually been done in several hospital-schools, that certain types of children who do not respond to conversation and scarcely to testing are mentally deficient. That is not only cruel, but unscientific.

The dullness complex should call for more speedy testing than the behaviour complex, because some children who appear to be mentally deficient are continually passed over by the less intelligent nurse and the unprogressive teacher. It has occasionally been assumed that a child suffering from eleptiform seizures, chorea, effects of certain birth injuries, pronounced strabismus (squint), speech defect, or deafness, is therefore ineducable. Even the doctor is not above making this error.

'I agree,' writes the medical superintendent of a children's sanatorium in Manchester, 'that very difficult children are often passed over in an ordinary hospital ward. The present medical training and the present teaching of nursing staffs tend to make them find the feeble-minded child a nuisance and quite beneath their notice, and it is very difficult to get any sequential observations carried out on a child's character and outlook by the average nurse.'

But, we hasten to add, one must first be sure of the degree of the child's feeble-mindedness.

The Wrong Time to Test

As an example of the wrong time to test, the writer cannot **but** feel grateful for the following evidence given in the replies to one of the questionnaires and is aware that, despite the false deductions of the tests, the enthusiasm of the teacher is to be commended.

Miss X writes: 'There is interesting material; the cases (1) of girl, IQ 60, with a huge T.B. gland, treated medically for 2 years.

Three months after surgical removal of the mass, IQ was 110. (2) A boy similarly affected; IQ rose from 75 to 95 during the same three months.'

The first low IQ is obviously due to the child's febrile condition. Table XXIII is the abridged list given by Miss X with the initial IQ on admission and the later one following treatment, diagnosis, age on admission, form of treatment and notes on the subject's behaviour.

In view of the mean IQ and standard deviation of T and D cases discussed later, we cannot help conjecturing that this quotation of IQs of which the majority of the scores in the second test are above 100, are too high. We admit that changes for the better in the child's behaviour and outlook were bound to follow the treatment, but not such **startling** elevation of the basal intelligence.

The Choice of Subjects for the Tests

Another interesting reply came from Y Sanatorium. The superintendent wrote: 'All the children at the sanatorium are under treatment for tuberculosis. The number who have been given intelligence tests is extremely small and one could draw no conclusions as to the average IQ. I do not know whether there has been any investigation into the intelligence of any large group of tubercular children.' 'These children (see below) have been referred for testing because of behaviour or personality complex in 8 instances and backwardness in 2. The comments are those of the social worker at the Child Guidance Clinic.'

No. of Case	Date of Birth	IQ	Comments
1	3. 7. 28	87	Unruly behaviour
2	9. 3. 36	97	Diurnal enuresis
3	6. 5. 34	104	Enuresis
4	6.12. 35	96	Masturbation
5	24. 6. 33	83	Backwardness at school
6	9. 3. 35	86	Unsatisfactory toilet habits
7	7. 1. 35	92	Nervousness
8	28. 7. 34	107	Nightmares, sleepwalking (Referred by mother, not by sanatorium, subsequently re-admitted to sanatorium)
9	22.11. 35	87	Solitariness
10	4. 8. 32	100	Lack of concentration (Referred by elementary head master and subsequently admitted to sanatorium)

TABLE XXIII. IQs of some Physically Defective Children
on Admission to, and after period in,
Hospital

Case	Diagnosis	On admission		Present		Treatment	Comments on behaviour
		Age	IQ	Age	IQ		
1 B	Glands submax.	9	92	12	105	Surgical removal	A remarkable alteration in temper after operation. Change of disposition and outlook within a week.
2 G	do.	7	85	9	110	do.	Viciousness gave way to sweetness.
3 G	do.	9	92	12	110	do.	Moodiness and depression suddenly vanished.
(4 G	do.	4	80	8	100	do.)	Twins - very interesting cases. Could barely speak or walk. Now sturdy and smart wee creatures.
(5 G	do.	4	86	8	95	Ultra- violet)	
6 G	do.	7	90	10	100	Ultra- violet	A screamer and kicker - now merry and docile.
(7 G	Glands axillo.	9	95	11	100	General)	Sisters - sad little souls, now cheery and sociable.
(8 G	do.	11	100	12	105	do.)	
9 G	Asthma	9	95	13	105	do.	Timidity changed to frankness, fears gone.
10 B	Abd.	13	120	13	120	do.	
11 G	Pulm.(Deaf)	10	86	11	95	do.	Very backward on admission.
12 G	do.	10	85	11	95	do.	Progress retarded by absence previously.
13 G	do.	8	75	14	105	Tonsilec- tomy at 12	No rise in IQ until Tonsil removal. Temperament entirely changed for the better.
14 G	Glands submax.	$3\frac{1}{12}$	105?	$3\frac{1}{3}$	105?	General	Precocious but dominating.
15 B	do.	11	95	13	110	Ultra- violet	Peevishness changed to happiness.
16 B	do.	12	90	14	105	do.	Very backward on admission - then boisterous.
17 B	Pulm.	9	90	11	100	General)	Brother and sister. Nervy, deceitful. Now open and unafraid.
18 G	do.	13	95	15	100	do.)	

TABLE XXIII (cont.) IQs of some Physically Defective Children on Admission to, and after period in, Hospital

Case	Diagnosis	On admission		Present		Treatment	Comments on behaviour
		Age	IQ	Age	IQ		
19 B	Pulm.	13	105	13	105	General	
20 G	Abd. and submax. glands	(5	95	8	95)	Ultra- violet	Two visits. Hysterical
		(9	95	12	95)		
26 G	Lupus	12	96	14	96	do.	No improvement physically.
27.G	do.	11	95	14	100	do.	Little local improvement.

We would add nothing to these comments (on p. 125) except to say that all of the cases cited are strong instances of the need for the combined treatment and curative education given by doctor, teacher and nurse.

We must conclude that all the children ought to be tested as early as possible, irrespective of any supposition of their intelligence by doctor, nurse or teacher. The teacher will then know the child's capacity and, with some reservation, his quality of mind. The writer does not intend to enter into the question of the efficacy of the standardised intelligence test in estimating a subject's personality, which might be called the aura of the physical, mental and spiritual states of his being.

The Place of Testing

It must be confessed that the place of testing of the subjects chosen for this survey was not ideal in every instance nor in the orthodox sense. The tests were performed in the wards, in private room or ward-duty room, in clinics, in the social worker's room. According to the strict procedure of testing, the orthopaedic patient should be taken on the operation trolley to the head mistress's room, or to a side room

or cubicle. But during the busy days of war when a great many orthopaedic hospitals were partly taken over by the Emergency Medical Service for military casualties, this could not be done. Many of the patients, also, lay on ordinary beds because of the shortage of orthopaedic wheelbeds. They could not, therefore, be easily moved out of the ward. The teacher had to set the other children some absorbing task, put the screens round the bed of the child to be tested and make the best of it. On the whole, the pupils responded well despite occasional noises which entailed the repetition of a question. One found that the children were so interested in the test material, which they regarded as a game, that their powers of concentration were little short of wonderful. More important still, the results of the testing showed no significant difference in scores that might be caused by the surroundings at the time of the testing. Table XXIV is presented to illustrate this point. Scores

TABLE XXIV. IQs of 53 Subjects tested in bed in a Hospital Ward or Verandah, and of 53 Subjects tested in the Head Mistress's Room in Day Special School or in Child Guidance Clinic

IQ	Tested in Hospital Ward	Tested in School or Clinic
60 - 69	2	7
70 - 79	11	13
80 - 89	15	8
90 - 99	17	16
100 -109	5	6
110 -119	3	3
Total	53	53
Median IQ	88.125	89

below 60 and above 120 were omitted. The ages of the subjects were from 5 years to 14+ in about equal groups of cases representing the C, C₁, C₂ and T and D categories. Periods of treatment had been from 3 months to 5 years.

Areas represented by the Subjects tested

The random selection of 283 physically defective children, whose mean IQ was given as 89 (Standard deviation 18.74), was made from hospitals serving industrial and semi-industrial areas and was therefore fairly representative of urban and semi-rural districts. These children from the environs of Glasgow, Motherwell (Lanarkshire), and of Bath, Bristol and York, came from families whose economic status is represented by the elementary school population.

Although the writer decided for several reasons already stated not to draw comparisons between the results of intelligence testing in hospital-schools and those of testing in the ordinary schools, it must now be asked how, on the whole, the former compare with similar investigations on a representative group of the healthy child population. They can only be contrasted on these grounds:

1. The difference between their average IQs and that of a representative group drawn from the general population;
2. The range of variation in both groups.

An assessment of the intelligence of a representative group of Scottish children was completed in 1937 by Dr A. M. Macmeecken¹. These were the chief results: 'The mean intelligence quotient for the total sample of children is 100.11 ($\sigma_M = .53$), for boys it is 100.51 ($\sigma_M = .76$), for girls 99.7 ($\sigma_M = .74$). The difference between the means for boys and girls is not statistically significant; and the evidence of our data points to equality of mean intelligence for boys and girls. A representative quotient of 100 has been decided on for Scottish children, for boys as for girls. The standard deviation for the total sample of children is 15.58 ($\sigma_\sigma = .37$); for boys it is 15.88 ($\sigma_\sigma = .54$); for girls it is 15.24 ($\sigma_\sigma = .52$).'

¹ A. M. Macmeecken, The Intelligence of a Representative Group of Scottish Children. (1939) Pp. 136-137.

The IQ of 100 has been found to be very close to the average IQ of the general population. It has been found also that the basal intelligence quotient of rural children tends to be slightly lower than that of urban children.

A survey of representative children, selected by age only, was made in 1937 in the City of Bath by Roberts and Griffiths. The mean IQ for the Bath school children was 98.8 and the standard deviation, 15.2.

The reader is asked to bear in mind these results from investigations on the intellectual capacity of Scottish children and on school children in the City of Bath while scrutinising the later tables which will show the findings of similar assessments of the intelligence of various groups of physically handicapped children.

The Surgical Tuberculosis Groups, represented by the C, C₁, C₂ Hospital-Schools

Very little systematic intelligence testing has been done amongst the tubercular and non-tubercular orthopaedic groups of hospital children, not only in Britain but even in America. In the bulletins published by the Board of Education of the City of New York on various groups of physically handicapped children, very sparse reference is made to intelligence testing. When testing occurred, it was performed generally by a psychologist. Might one conjecture from the following quotation that teachers were not expected or encouraged to undertake the testing? '..... the Board of Education urges the psychological services of the institution where available be more generally utilized for the benefit of the children and teachers.'

Though the following remarks were made about the intelligence of a group of handicapped adolescents in Day Schools, they might have been applied with equal significance to physically handicapped adolescents

¹ Recommendation 12 from The Education of Children in Hospitals and Convalescent Homes.

in hospital-schools. 'Representing a range of intelligence which is just as wide as that of the physically normal population, they have in their number both intellectually gifted and feeble-minded, with all the degrees of intelligence intervening between these two extremes*. Such individual study is, of course, no less important in the guidance of other handicapped groups¹.'

It was this sentence spoken by Dr J. Van Assen, Jzn, orthopaedic surgeon, Rotterdam, - 'It is noteworthy that among patients suffering from rickets and from tuberculosis of the bones and joints, the percentage of mental defectives is high', - that sent the writer posthaste to test her own tubercular and non-tubercular orthopaedic pupils. Two groups were chosen, from Stonehouse Orthopaedic Hospital and Philipshill Hospital. Ninety-six cases were tested. Cases of Poliomyelitis and Chorea were excluded because it is considered in some quarters that mental deficiency may be secondary to these diseases. Witness Seguin: 'We note as important that idiocy is frequently met with epilepsy and chorea, less with paralysis and contractures, least of all with deafness and blindness, and that its decreasing severity is quite in the same ratio².'

Twenty-six orthopaedic subjects were tested by the writer at Philipshill Hospital; 96 by the writer and her colleague at Stonehouse. It has been decided to present tables for the Stonehouse C group only, since the writer is more familiar with the degree of the diseases affecting the latter.

*Footnote to text. 'Some research studies seem to indicate that the intelligence of certain groups of the physically handicapped is skewed toward the lower end of the scale. This, however, does not affect the range of distribution.'

¹Board of Education, City of New York, Occupational Experiences for Handicapped Adolescents in Day Schools. P. 32.

²Edouard Seguin, Idiocy. P. 45.

TABLE XXV. IQs of 96 Typical Subjects in Stonehouse
Orthopaedic Hospital
(Age 5 - 14+)

IQ	Cases	IQ	Cases
30 - 39	1	90 - 99	21
40 - 49	2	100 -109	11
50 - 59	7	110- 119	11
60 - 69	4	120 -129	6
70 - 79	11	130 -139	2
80 - 89	18	140 -149	2

Median IQ = 92.38

Standard deviation 20

Range of IQ 39 - 147

Observations

It will be observed that the mean IQ of this orthopaedic group is 7.62 points below the mean IQ of 100 for a representative group of healthy Scottish children. That is not an alarming decrease if we consider

1. The scatter of scores between 70 and 100, which shows that 52 per cent of this group are below the average IQ of 100 of the average population, but above the border-line of feeble-mindedness, viz.,

IQ	Cases
70-79	11
80-89	18
90-99	21

Median IQ = 88

Standard deviation 12

2. The scatter of scores between 100 and 149, which reveals that 33 per cent of the Surgical T.B. group in Stonehouse are above the national average for healthy school children, viz.,

IQ	Cases
100-109	11
110-119	11
120-129	6
130-139	2
140-149	2

Median IQ = 114.54

Standard deviation 18.7

3. The frequency of 14 cases whose scores lie between 30 and 69. This represents 15 per cent of the Stonehouse group of Surgical T.B. subjects, viz.,

IQ	Cases
30-39	1
40-49	2
50-59	7
60-69	4

Median IQ = 55

Standard deviation 13.7

4. It will be observed that 3 unfortunate cases occur in the range 30-49 IQ. These 3 ineducable subjects were,
- a boy age $8\frac{1}{2}$. Microcephalic. T.B. Adenitis. IQ 39.
 - a girl age 15. T.B. hip. Very little education. Time in hospital $5\frac{1}{2}$ years. IQ 48. Still at basic steps in reading, writing and number. Probably an 'artificial' imbecile through lack of schooling.
 - a girl age 15. T.B. hip. Three periods in hospital, at Special Day School in intervals. IQ 46. Quite illiterate, partly due to poor eyesight. Parents refused to get spectacles for this child.

Influence of Age at Onset of Disease, and Sex

In considering the below-normal mean IQ, 92.38, of these 96 subjects, the writer realised that factors such as age at onset of disease, and sex, may have influenced the results. The IQ scores were therefore grouped according to the age and according to the sex of the subjects.

The variation in the mean IQs of age-groups 5 - 7 years and 8 - 14+ years is not significant.

The decrease in percentage below the average IQ100 of the younger group is 14.7. The decrease in percentage below the average IQ 100 of the older group is 15.3.

There is therefore only .6 per cent difference of decrease in mean IQs between subjects with early onset of disease (age 5 - 7) and subjects with later onset (8 - 14+).

IQ	Cases aged 5 - 7	Cases aged 8 - 14+
30- 39		1
40- 49		2
50- 59	3	4
60- 69	1	3
70- 79	2	9
80- 89	6	12
90- 99	10	11
100-109	5	6
110-119	6	5
120-129	-	6
130-139	1	1
140-149		2
Total	62	34
Median IQ	95	Median IQ 90
Standard deviation	11.8	Standard deviation 33.6

But we might also infer, though the inference is very doubtful, that there is a slight tendency for the mean IQ to be lower in the higher age-groups of Surgical Tuberculosis subjects.

IQ	Males	Females
30 - 39	1	
40 - 49	-	2
50 - 59	6	1
60 - 69	2	2
70 - 79	4	6
80 - 89	10	8
90 - 99	13	9
100 -109	9	2
110 -119	9	2
120 -129	4	2
130 -139	2	-
140 -149	1	1
Total	61	35
Median IQ = 95.76		Median IQ 88.125
Standard deviation 11.2		Standard deviation 19.5
Range of IQs 39 - 147		Range of IQs 46 - 140

Statistically the variation in mean IQs of the sex groups is of some significance.

The drop in percentage below the average IQ 100 of the Males is 4.24. The drop in percentage below the average IQ 100 of the Females is 11.88. There is therefore 7.64 per cent difference of decrease in mean IQs between the male and the female subjects.

We may perhaps conclude, then, that there is a tendency for the mean IQ to be lower among the female Surgical Tuberculosis subjects than among the male. By studying the frequency column of the Females it will be realised that the greater standard deviation of the girls, 19.5, does not do much to modify the variation between the two groups.

The Pulmonary Tuberculosis Group, represented by the T and D Hospital-Schools

The number of pulmonary-tubercular children in Scotland between the ages of 5 and 15 as at December 1945 was estimated to be 1,492.

The number of hospital-schools in Scotland in which intelligence testing was given was returned as three. Only in one of these could the testing be described as systematic.

The English and Welsh T hospital-schools have accommodation for 1,497 pulmonary-tuberculosis cases.

We recall that only in 39 per cent of all types of hospital-schools was testing done.

Not more than six of the T schools sent in reports of testing. From these we have selected the IQs of only 54 pulmonary-tuberculosis subjects for observation. The group, with an age-range of 5 - 15 years, represents two areas, Lanarkshire and Yorkshire. The range of periods of treatment in sanatoria for the entire group was 3 months to 6+ years. Twenty-nine of the cases were tested in Scotland.

TABLE XXVI. IQs of 54 mainly Pulmonary-Tuberculosis Subjects

IQ	Cases
50 - 59	1
60 - 69	4
70 - 79	5
80 - 89	16
90 - 99	14
100 -109	13
110 -119	1

Median IQ 90.71
 Standard deviation 15.6
 Range of IQs 56 - 115

Observations

Since only 6 of these subjects were in the age-group 5 - 7 years, and since only one-third of the group were girls, the writer does not wish to draw any decisive conclusions from the influence of age at onset of disease or of sex upon the intellectual capacities of the subjects.

Since the range of IQs in the small 5 - 7 age-group was 92 - 100, and the median IQ for a group of 12 girls, ages 13 - 15, was 87.5, it might be inferred that, as for the Surgical Tuberculosis group, there is a tendency for the mean IQ to be lower in the higher age-groups of Pulmonary-Tuberculosis subjects, and for the mean IQ to be lower among the females than among the males.

Conclusion

We regret, therefore, that despite the wide range of IQs of tubercular subjects which were

	Mean IQ	Standard deviation	Range
Surgical T.B.	92.38	20	39 - 147
Pulmonary T.B.	90.71	15.6	56 - 115

Tuberculosis, or rather the causes of tuberculosis, do tend subsequently to depress the level of intellectual capacity as estimated upon the Stanford-Binet Scale.

Cases of Chorea

Only a small group of these subjects were tested. Of 15 cases in varying degrees of the disease, the median IQ was 91.

Since chorea may be a condition secondary to several other diseases, the writer did not include these IQs in either the Surgical or Pulmonary T.B. groups¹.

The Epileptic Group

The writer has had no personal experience of this group; but replies to the questionnaire revealed that in one colony for epileptics the range in IQs of subjects of school age was 60 to 100. The following information was supplied by Dr J. Tylor Fox of Lingfield Epileptic Colony: 'The majority of epileptics, probably, show no defect of intelligence or of conduct In certain cases conduct difficulties may be due to changes in brain cells and thus be as much part and parcel of the disease as are the fits, but I believe many of these difficulties arise from our failure to handle the patients properly or, in other words, to provide them with a suitable environment. After school is over, the epileptic child is dogged by disappointment, frustration, and something near social ostracism in the wider world. It is said nowadays that every chronic disease or disability has its psychosis. What wonder that in epileptics the psychosis is outstanding, for perhaps there is no disease that brings with it such heavy social handicaps. And here I may remark incidentally that in my experience, the greatest benefit that residential special schools for epileptics bestows, is the provision of a community of which each epileptic boy or girl is a normal member².'

¹ '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.' (British Medical Journal, vol. ii, October 21, 1939, p. 203.)

² Extract from article in The Special Schools Journal, vol. xxxiii, No. 1, Summer 1943. See also vol. xxxiii, No. 3, Summer 1944, for article by W. H. Newman on "Experiences and Work in an Epileptic School". See also Epileptic Children, issued by Board of Education, City of New York.

The Poliomyelitis Group (Infantile Paralysis) in Victoria, Australia

In this group, as in most others, systematic testing develops slowly. It would appear from our returns that teachers in the Antipodes are alive to its value. From the Yooralla Orthopaedic Hospital and the Austin Hospital, Victoria, comes news that testing is done by the teachers and by Dr Jorgenson, Psychological Clinic, Training College, Melbourne. The tests used were Otis, Terman-Merrill, Kohs Block Design Test. Although no details of test results were given, some items are indicative of the procedure of the testing. 'Except in the case of children whose arms are paralysed and who write with the pencil in the mouth, no special methods are used. Printing done with the pencil in the mouth can reach a high standard of neatness. We find painting a good subject, even for the most handicapped. The brush is easily handled and colours are so placed that they can be reached in most cases. At first there was a majority of infantile paralysis cases, many of whom had been in hospital more than two years. Though they had everything that hospital care and a generous public could give, there^{were}/many behaviour problems to face¹.'

A British Inquiry

A scientific study of this group was made in 1939 by members of Burden Mental Research Trust, Bristol. The intelligence testing of 98 Poliomyelitis subjects was done by Dr Ruth Griffiths. The investigation was made in order to allay (and it did) the fears of anxious parents that cerebral symptoms which were clinically recognisable at the onset of the disease would depress the level of general intelligence. These

¹1943 Report by Head Mistress of Austin Hospital-School.

were the scores which we include through the courtesy of the tester.

TABLE XXVIII. IQs of 98 Poliomyelitis Subjects (ungrouped figures)

IQ	Cases	IQ	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 IQ = 105.91

Standard deviation 15.89

It will be observed that this mean IQ is 4.11 points above the mean IQ 98.8 of a representative group of healthy school children in the City of Bath, and 3.91 points above the accepted national Scottish average IQ of 100. 'The study shows,' the tester concludes, 'that an attack of Poliomyelitis does not either at the time or subsequently depress the level of general intelligence as estimated by the Stanford-Binet Scale.'

The Cerebral Palsy or Spastic Group

This has been called in many quarters the 'most neglected group' of physically handicapped children. They belong, many of them, to that unfortunate group who because of their extensive deformities and occasionally vacant expressions are passed over in the wards and regarded as a nuisance, with the result that many of them do become 'artificial imbeciles.'

Systematic investigation into their general intelligence, combined with medical treatment, is now being given in several centres, in the United States, in Holland, in Victoria, Australia, in Auckland, New Zealand, in South Africa, in London, Manchester, Edinburgh and Glasgow. Set the Cerebral Palsy group in Britain against some other categories

of physically handicapped children and their number is proportionately small; but taken absolutely they form a conspicuous group that constitutes both an economic and an educational problem.

The Economic Problem

The writer has little patience with those who hold the view that the unfortunate children who are afflicted both mentally and physically should be put into a lethal chamber, chiefly because they are a financial burden to the state and entail the employment of nursing personnel who might be more profitably engaged. Let these unfortunate children live out their brief allotted span in the most comfortable surroundings that can be afforded them! It has been said by advocates of euthanasia that such low-grade groups are, after all, only vegetable matter; therefore they might without criminal offence be pleasantly destroyed. We, then, who are not poets, might be equally justified in smashing up all stones and inoffensive plants that may 'enjoy the air they breathe.' If little crippled, feeble-minded children enjoy the delights of a garden, the songs of the birds, the sunshine, and are happily lost in their own world of strange thoughts, then they have a right to live; and to endorse this sentimental view of the matter, one is glad to refer to the experiences of several prominent workers among spastics.

'It is not an easy thing to write, but it should be stated. There is a strong disinclination in certain quarters against improved facilities on the grounds that spastic cripples do not repay the time and trouble and expense of their care. One is glad to note that this attitude is slowly giving way to a more sensible one. Perhaps this is due to the remarkable results obtained in Holland by Van Assen, and by Carlson and Phelps in America. The work done in Manchester, while of a different scope and with a narrower approach, is now of sufficient duration and quality of result for us to endorse the opinion of Van Assen¹, that

¹William Hodgkins, Director of Speech Therapy, the Royal Manchester Children's Hospital, in an article, "A Neglected Group", The Special Schools Journal, vol. xxxii, Summer 1942.

'Not only from the point of view of the patient's happiness and welfare but also because his maintenance is made easier and cheaper, the mentally deficient cripple should be given the greatest care and every effort should be made to overcome his defect and develop his intelligence¹.'

The Numerical Problem

The following figures quoted by Van Assen give some indication of the population of children crippled by cerebral lesions.

In Germany, Bielsakski's statistics, collected 1906, revealed 15 crippled children under 15 years of age per 10,000 inhabitants; 10 per cent of these were mentally deficient, so that there were 150 mentally deficient children per 1,000,000 inhabitants. There is no reason to suppose that these figures would differ much in other countries to-day. (But, one might ask, have these subjects survived in Nazi Germany? One fears they have not.)

In Holland which has a total population of 8 $\frac{1}{2}$ millions we find 1,275 mentally deficient crippled children. From various statistics from Sweden and Holland it appears that the number of boys with cerebral lesions exceeds that of girls in the proportion of 3 to 2. There is no explanation of this. In the institution Adrian-Stichting, which is under Van Assen's management, it was found that the largest percentage of mental defectives is found among cripples whose physical handicap (spastic palsy, uncontrolled movements) is a consequence of cerebral lesions; 35 per cent of this group are intellectually inferior as well as physically handicapped.

From the 1943 Annual Report of the Auckland Branch of the New Zealand Crippled Children Society, we find that Cerebral Palsy comes

¹From Address by Dr J. Van Assen, Rotterdam, to Fourth World Conference for Cripples, July 1939.

second to Poliomyelitis in New Zealand. 'In March 1942 there were 364 spastic children registered with the various branches of the New Zealand Crippled Children Society.' The first educational centre for spastic children in New Zealand has been opened at the Wilson Home, Auckland.

A School for Spastics was started at Mount Eliza, Victoria, Australia, in 1940, and up to March 1943, 46 cases had received medical treatment and education.

Recent surveys in various parts of America have shown that there are approximately seven **Cerebral Palsy** cases~~s~~ born each year per 100,000 population. 'Not more than two of these seven children have birth injuries and so are likely to be truly mentally deficient, and perhaps not more than one of the seven will die before attaining adult life. It is apparent, therefore, that under twelve years of age there would be living about 72 such children per 100,000 population, allowing for the probable death rate. In a city of a million population, there will be easily 350 treatable children, and in a city the size of New York, there are probably at least 2,560 children who can benefit from treatment. About 15 per cent of all crippled children in New York City are crippled as a result of Cerebral Palsy¹.'

It was estimated in a companion report² that '150 children with Cerebral Palsy are born annually in New York City. Of those who survive, about 80 or 90 will be educable. A few are being educated in a single class at the Neurological Institute for which a teacher is provided by the Board of Education.'

¹Board of Education, City of New York, Orthopaedically Handicapped Children. Pp. 77-78, section on Children with Cerebral Palsy.

²Board of Education, City of New York, Physically Handicapped Children in New York City. P. 73.

As in the Antipodes, Cerebral Palsy comes second to Infantile Paralysis on the list of crippling diseases in U. S. A.

The estimated total of 6,750 mentally deficient crippled children in Britain was given by Van Assen in 1939. No figures were obtainable about the number of Cerebral Palsy subjects in Scotland, though a considerable quota may be found in Day Special Schools, orthopaedic hospitals and mental institutions.

Place of Treatment

There is obviously a difficulty in the placing of these cases which has been tersely expressed by Dr Theodore G. Gray, Director-General, Mental Hospitals Department, New Zealand in the 1942 Report. 'There are three groups of spastics, (1) the uneducable, in mental hospitals, (2) the border-lines in special schools, preferably residential, where they are taught manual work, e.g., gardening. These are the **higher grade imbeciles**, (3) the spastics who are quite normal mentally, in hospital-school, or under the care of the social welfare worker in their own homes.'

From all these centres came the opinion that for the majority of Cerebral Palsy subjects, certainly for the more severely afflicted, clinic day schools, similar to the one at the Neurological Institute, New York, appear to be the best means of providing a combined programme of regular medical supervision, physio-therapy, speech therapy and education in the basic skills.

But, as we have indicated earlier in this treatise, there will occasionally occur the instance of the child who has not only a double defect, but a triple defect, viz., the mentally deficient cripple who has developed tuberculosis. Whether he is T.B. or non-T.B. the spastic generally requires long and painful orthopaedic treatment in hospital. From birth to the age of 8 or 9 years is quite a common term for types of choreic spastics, and the severely crippled cases.

Provision of Educational Programmes for the Cerebral Palsy Group

The scope of this will depend, as for all other groups on

1. The degree of the cerebral lesion;
2. The subject's intellectual capacity.

For the benefit of teachers in hospital-schools and Day Special Classes, the New York Committee reporting on the cerebral palsied group made a summary of the motor types and special characteristics of these subjects somewhat after this fashion.

1. Athetosis. 'The Athetoids'. Involuntary motion, including tremors; arms, legs and face may move involuntarily; represented by 40 per cent of Cerebral Palsy cases in New York.
2. Spasticity. 'The Spastics'. Rigidity or tenseness in the muscles, accompanied by decrease of sensation in arms and legs; speech is usually affected; also represented by 40 per cent of cases in New York City.
3. Ataxia. 'The Ataxics'. Inco-ordination between opposing muscle-groups; resulting often in awkwardness in movement, slurring or scanning speech; tremor and staggering gait.

The teacher must consider the part of the body involved - legs, arms, speech, and face - and the possible sensory disturbances - sight, hearing, - and degree of sensation, superficial or deep. All of these secondary conditions affect the pupil's manipulation of material and the rate of performance during his tasks.

Van Assen makes a similar division for the benefit of teachers, but adds a fourth group:

1. Spastic palsy of one side of the body, haemiplegia;
2. (a) Paralysis of both legs - Little's disease or spastic paraplegia; (b) Paralysis of both arms and legs - quadriplegia;
3. Uncontrolled movement of all limbs;
4. Lack of co-ordination of 'dyskinesia', due to extra-pyramidal lesions. In this group the spinal cord has been affected.

Van Assen says, 'In these groups, the highest numbers of mentally defectives are in those with palsy of one side and palsy of both sides,

these being more unfavourable than those with uncontrolled movements. This cannot be otherwise, as the defect causing the uncontrolled movements is not situated in the cerebrum (the organ which is the seat of the intellect) but in the base of the brain. The attainments of these children vary very greatly¹.'

Doll, Melcher and Phelps in their investigations on Mental Deficiency due to Birth Injuries,² sum up the medical aspects of these subjects very conveniently: 'In general, the pyramidal cases will be those in which spasticity is the prominent symptom. This spasticity may be represented as a monoplegia, paraplegia, hemiplegia, triplegia, or quadriplegia of the spastic type. physical signs and symptoms (being) very much mixed.'

In all these cases the symptoms are due to some defect caused by illness, intracranial haemorrhage at birth, or by a congenital defect (faulty embryonic development).

The Time for Testing

From information gathered from reports from several of the Cerebral Palsy centres mentioned above, and from the replies to our questionnaires, we gather that the cases are all referred to a psychologist before admittance to an institution, whether mental asylum, hospital-school or clinic school. That the intelligence testing should be done as early as possible is very obvious if the patient is to benefit from physiological education.

Boorstein wrote, 'The spastic cases should be treated at once even when we are in doubt whether the mental condition of the child will ever

¹ Dr J. Van Assen, Address to Fourth World Conference for Cripples, 1939.

² P. 31.

be normal. One cannot foretell how much mental recovery will be obtained¹. No evidence is available that Boorstein applied mental tests to his cases, but he observed improvement in mental conditions when contractures were removed.

One must admit that all the known medical tests of these cases, which follow closely the methods of Seguin, are preliminaries to the measurement of intelligence made by the standardised intelligence test. Primary steps in motor re-education, procedure in assessing sense-perception, auditory discrimination of causes of sound, response to language, taste, smell, pain, touch, rhythm, social behaviour; measurement of all these may be called intelligence tests if we agree that every gesture of motility originates in the brain.

Doll, Melcher and Phelps give heed to all these physical therapy tests including simple ones like, 'Draw a line within a track of 5 mm. wide without touching. Strike at a target on the wall. Mark time with rhythm. Lie perfectly still for -- seconds.' These tests were given to discover the motor-co-ordination of a triplegia subject, characterised by spasticity. To these might have been added the common one, 'Clap your hands', in which a 'fumbling', loose motion suggests only too readily a degree of feeble-mindedness.

It is to be regretted that Cerebral Palsy is not yet included amongst the list of notifiable diseases. Very many children therefore are very late in being brought to the notice of the psychologist, if ever at all. It is essential that education, both through physical-therapy exercises and simple tests of mechanical and constructive ability, be given at a very early stage, preferably whenever the subject shows such prophetic features as attention to sounds, sights and the development of certain associations, for example, 'Doctor X wears a blue suit', 'We

¹ Samuel Boorstein, "Birth Injuries requiring Orthopaedic Treatment", Journal of the American Medical Association, vol. 85, No. 1869, December 12, 1925.

get cocoa on Saturday'. These remarks were suddenly made one day to the writer by a hitherto very silent case of spastic paraplegia, age 5. From that date his progress, educationally, was comparatively rapid.

Doll, Melcher and Phelps forewarn, however, that 'mental improvement can result only if the physical disability has been the most important cause of the retardation. Success will probably depend in some measure in such cases on how early treatment is undertaken. The more freedom of expression that can be obtained during the developmental years, the more well-rounded should be the ultimate intellectual attainment¹.'

Procedure of Testing

The procedure followed by these three thorough American testers was briefly this. Account was taken of certain prophetic features (attention, perception, etc.), and of the hereditary endowment of the subject. Then the following questions were answered:

- (a) Is physical therapy given? Of what nature? Orthopaedic treatment? Operation? Does the subject improve?
- (b) What is the extent of his motor disabilities? (abduction, adduction, supination of hand, etc.). Has he a speech defect? Is he capable of self-care? Has he a facial overflow? Is his walk slightly or greatly inco-ordinated?
- (c) What is his mental age? His IQ? What were his reactions to the entire test? To the **Vocabulary Test**?
- (d) What indications of personality does he evince? What are his responses to attention?

The Cases Tested (completed 1932)

Twelve very representative cases of Cerebral Palsy were tested in

¹Doll, Melcher and Phelps, Mental Deficiency due to Birth Injuries. P. 15

Vineland. These were

Spastic Paralysis	4 cases
Athetosis	5
Brachial Palsy with macrocephaly and speech defect	1 case
Excitability with no motor lesion	1
Intention tremor	1

Purpose of Tests

These were briefly

1. 'To determine the feasibility of applying the Binet Scale to birth-injured feeble-minded subjects in the face of their specific handicaps and
2. To infer from these results some general principles concerning the psychology of birth-injured feeble-minded subjects¹.'

An additional purpose, stated on p. 16, was 'to observe by the use of these methods what mental development accompanies motor development resulting from physical therapy.' The latter point recalls a paragraph in the Industrial Health Research Board's pamphlet, A Study in Vocational Guidance, compiled by Professor Cyril Burt and others in 1925. 'There seems to be a fundamental difference between mechanical ability and motor ability. The former can be considered as more of an intellectual function than the latter: mechanical ability involves recognising, understanding and recombining mechanical relationships. It ranges over a great many different levels..... from the motor mechanic to the highly trained engineer. Motor ability, as yet almost as much of an unknown quantity as mechanical ability, may be said to include the various forms of conscious muscular control².'

At this juncture we might refer also to two pertinent questions which Van Assen put to the physical-therapists and teachers whom he

¹Doll, Melcher and Phelps, Mental Deficiency due to Birth Injuries. P. 103.

²P. 42.

addressed in 1939.

1. 'Can the Cerebral Palsy subject, who is unable to walk, be trained to walk, either with or without support, and can a patient who walks badly be trained to walk better?'
2. Can he learn to write?'

As an instance of a particular type of motor ability, indicative of conscious muscular control, we shall only reply to the second question.

The Cerebral Palsy subject can be taught to write by these methods:

1. Holding the pencil (or brush) in his mouth;
2. By means of a typewriter;
3. By the usual methods of tracing sandpaper letters in the Montessori way, or painting letters in the Steiner way.

The pupils' success in these attainments is one of the tests, not only of his motor ability, but, we think, of the ultimate degree of development of his intellectual capacity. Indeed training in the basic skills has been considered by some authoritative orthopaedic surgeons to be the best treatment for certain types of the Cerebral Palsy groups¹.

The Tests Used

Doll, Melcher and Phelps did not exclude performance tests from their investigations on their twelve Cerebral Palsy cases. All of these required manual and manipulative dexterity. The tests used were

¹Van Assen says, 'It is a remarkable fact that for all these children, writing lessons and handicrafts constitute the best exercises for the hands, much better than the most careful medical gymnastics.' Address to Fourth World Conference for Cripples, 1939.

Brief reference should be made to educational experiments which are being undertaken in South Africa in the Transvaal. The methods of F. Matthias Alexander are being tried on cases of spastic paralysis with apparent success. Orthopaedic treatment was dispensed with, and a psycho-physical training substituted, in which the subject is encouraged to control his movements by conscious effort of will. (See The Transvaal Educational News, April 1943, pp. 6 - 12.)

Binet, Myers, Goodenough (Drawing Test, 'picture of man'), Healy II, Ohio Literacy and Morgan. They realised that only the 'face value' of the child's performance could be assessed. 'On this basis only could their scores be compared with those of normal and typically feeble-minded children¹.' The test may be repeated in order to check the individual's capacity to succeed in that test. 'If,' they say, 'the test is capable of indicating improvement or if it differentiates between the ability of two physically handicapped children, it may be valuable even though it may not be useful for comparison with the normal. Such a premise is consistent with the general tendency to define and measure intelligence in terms of capacity for learning.²' Surely, we might add, that is the purpose behind the testing of all types of physically handicapped children.

These are the gross results given from Vineland.

TABLE XXIX. IQs of 11 Birth-Injured Subjects

Number of Case	Life Age	Mental Age	IQ
1	7.1	3.0	42
2	8.9	7.3	82
3	11.1	5.7	51
4	12.3	6.0	49
5	13.7	4.3	31
6	15.3	10.3	74
7	18.9	13.1	94
8	22.2	9.4	67
9	23.9	8.2	59
10	33.6	12.7	91
11	39.7	12.6	80

Mean IQ = 51 for subjects below 15 years

Mean IQ = 79 for subjects above 15 years

¹Edgar A. Doll, "A Brief Binet-Simon Scale", Psychological Clinic, vol. 11, December 1917, January 1918, pp. 197-211 and 254-261.

²Doll, Melcher and Phelps, Mental Deficiency due to Birth Injuries. P. 82.

Observations

Surprise may be expressed at the chronological ages of the subjects tested. In life-age, four might be considered adult; but since the date of the onset of Cerebral Palsy is at or very soon after birth, age at onset of disease as an influential factor in the IQ must be discarded. It is evident from the above table, and also from a later one of the IQs of British children, that mental development seems to be irregular and to extend to a higher age-level than it does with normal or ordinary feeble-minded children.

It will be noted that six fall within the moron range of mental deficiency, while two are within the average normal limit.

A Cerebral Palsy Group in Britain

TABLE XXX. IQs of 31 Spastics in Hospital-Schools in Great Britain
(Ages 5 - 15+)

IQ	Cases
40 - 49	1
50 - 59	3
60 - 69	8
70 - 79	4
80 - 89	3
90 - 99	7
100 -109	3
110 -119	2

Mean IQ = 78.75

Standard deviation 18.7

Range of IQs 40 - 112

TABLE XXXI. IQs of 25 Spastics between the Ages of 8 and 15

IQ	Cases
50 - 59	3
60 - 69	8
70 - 79	4
80 - 89	2
90 - 99	4
100 -109	3
110 -119	1

Mean IQ = 71.25

The smallness of the number - 6 - between the ages of 5 and 7, and their mean IQ of 90, **did not** justify any observations on the significance of the scores except to say that amongst the subjects whose IQs fall immediately below and above the average normal limit (90-109 IQ) the cerebral lesions could not have been great.

Out of the group of 31 cases, 12 are within the moron range of intelligence, **that is, below 70 IQ.**

Unfortunately in the returns to a follow-up questionnaire which was sent to the few hospital-schools in which testing was done, most of the teachers classed the subjects as 'spastics', giving no indication of the extent of the physical disability or additional defects in speech or sight. The regrettable reason is that there are still too many hospital-teachers who are not told the exact degree of the child's handicap. That is quite unfair to the teachers who, in increasing numbers, are capable of making sequential and scientific investigation on both the psychological and scholastic standard of the subject. One fears also that in several hospitals spastic children have been assumed to be mentally deficient. Almost half of the subjects in Table XXX are above the border-line IQ of 70. Five are above IQ 100.

Some cases were instanced more or less vaguely as:

Paralysis, arm and leg (hemiplegia?) IQ 61.

Similar Case, IQ. 55.

One case was reported thus, 'Cerebello defect'. IQ 92.

One case, age $6\frac{1}{2}$, as General Spastic, mental retardation, speech defect, impossible to find basic age.

Another case, 'no basic age' found; a case which may have been in the Poliomyelitis group.

One case of Erb's Palsy (paralysis of one or of both upper extremities), IQ 103.

One case, paralysed hand (monoplegia), IQ 80.

Two cases, definitely spastic paraplegia, the first with IQ 98, the second with advancing IQs, 40, 52, 58, taken at intervals of one year.

Two cases showing mental deterioration,

- (a) **First test**, IQ 98, second test five years later, IQ 79
- (b) **First test**, IQ 97, second test five years later, IQ 85

One case, paralysis of both feet, slight stutter, excitability, choreic, IQ 64.

Observations

One case of spastic paraplegia, age 15 years 8 months, IQ 98, whom the writer tested at Philipshill Orthopaedic Hospital, had been educated in ordinary day school, Special School and hospital-school. He passed in the Vocabulary Test for Year XIV, also in the problem of the enclosed boxes, Year XVI. His memory tests were good and his interpretation of the fables very good. His responses gave the impression that his IQ might rise still higher when the calipers on both lower limbs were finally removed and remedial physical-training exercises continued. In his case, and in that of the choreic spastic, IQ 64, (the latter a boy aged 11 who had only had one year's education and was making good progress with his first Infant Reader) one felt that to a great extent their lack of controlled movement would decrease in accordance with the rate of increase of their general intelligence. The higher the level of the subject's intellectual capacity, the greater will be his ability to obey the simple commands given during his remedial exercises, that is, in movements of adduction, abduction and flexion.

In the case of the subjects whose scores had decreased after a five-year interval one conjectures that the initial cerebral lesion had been sufficient to obstruct normal development and would show in increasing mental deficiency.

Systematic Investigation of Effect of Physical Progress

This has never been done on any considerable scale. Teachers

have invariably remarked that the scholastic progress of the spastics has been very slow. 'They tire quickly and consequently are not able to concentrate for long. They are usually rather moody.' (The Woodlands, Birmingham). 'Our C.P. cases varied from quite unteachable people to one boy who learned to read well and was good at mental arithmetic. He had not sufficient control of his arms to write much. We have always felt about these children, the teachable ones, that as they have done as well as they have with the little time we have been able to devote to them, they might be quite educable if they could receive adequate attention'. (Wingfield Morris Hospital, Oxford.)

That is just the kind of statement one welcomes with pleasure. The majority of the spastic group would improve at a greater rate if they had more daily individual attention in our hospital-schools. In some cities here and in the Dominions 'Spastic Groups' have been formed among the parents who meet at the clinic and discuss the problems affecting their children with the teachers, psychologists and doctors. If the majority of these cripples are to be homebound, these Parent Associations will prove invaluable in helping guardians to cope with the behaviour complexes which exist in many cases. Excitability, moroseness, excessive fits of giggling, extreme shyness, may prove as great handicaps to progress as lack of controlled movement. Only when the parent or teacher understands the personality of the child will an invaluable bond of confidence in each other be made. Without that there can be little progress.

'There is yet room for question in any particular instance,' write Doll, Melcher and Phelps, 'whether the mental retardation is directly related to a widespread process of cell-destruction which also caused the paralysis, or whether the mental deficiency is caused by the restriction in ideational expression which the paralysis imposes¹.' And again,² 'The problem as to whether native intelligence as a capacity

¹Doll, Melcher and Phelps, Mental Deficiency due to Birth Injuries. P. 34.

²P. xi.

can continue to expand in the absence of functional expression (such as speech and movement) is a question of the utmost importance at the present time in academic psychology.'

In view of these two statements, and since very little systematic investigation has been made of the effect which the physical change has had upon the mental development of a spastic paralysis subject, it might be of interest to conclude this section with some brief samples of the treatment given to, and the work done by, a typical case in an orthopaedic hospital-school.

When the writer first saw J., a spastic paraplegia case, in December 1941, he was exactly 5 years old. He could neither walk nor stand alone. He seldom talked or smiled, but sat in his cot with head down and eyes occasionally turned timidly upwards. Nurses were inclined to pass him over, in spite of the docility of his temper and really attractive features; but when we showed him that we wished him to join in lessons with the other children he brightened visibly, and rapidly evinced some personality of his own. His memory improved; he began to chatter, showing more and more association of ideas. Though his grip was very weak he learned to handle and thread beads, name colours and hold a pencil.

The following tabulations of methods of treatment and education indicate his very slow, erratic but unmistakable mental progress.

Physical Therapy

Case J. Date of birth, 31. 12. 36. Admitted from an Orphan Home 18. 8. 41. Disease, Spastic paraplegia. Early treatment was electrical with massage and Faradic stimulation. Splints and plasters were applied and removed when necessary. His general condition remained good. Both feet improved and the inversion deformity was corrected. By the end of the year J. was able to stand $\frac{1}{2}$ minute alone and could walk with scissors gait when assisted.

In February 1942, J. began to be taught in the basic skills with the other children. His medical report contained these words: 'Child is mentally brighter. Sense of balance improving. Walked with scissors gait when supported by one hand.' His first intelligence test was given at this time, but he failed to respond satisfactorily, no basic age being found and his answers marked by ecolia. He giggled a great deal and kept interrupting the test for toilet attentions. Owing to shortage of staff, J. received a few minutes' individual attention in a full ward on three forenoons a week. At this time, as indicated earlier, he learned to name colours, manipulate bricks, thread beads, do very simple 'fit-in' or 'completion-test' pictures, use the Montessori button-and-hole frame, distinguish large wooden numerals 1 to 5, and repeat nursery rhymes with the other children. Till the end of 1942 he had done little more than scribble with his pencil in the manner of a normal child of 2 - 3 years. He could not trace round an animal cardboard silhouette, even when it was held firmly for him; but his perception and memory of events in the ward were steadily improving.

During that year application of splints, plasters, appliances, alternating with remedial exercises, were continued, and J.'s general condition remained good, but the spasticity continued to be more or less marked. The second intelligence test was given in June 1943. The results were, chronological age, 6 years 4 months, mental age, 3 years, IQ 40.

From June to December J. worked through a specially prepared series of exercises to enable him to draw straight lines. We found it was not good to allow J. to scribble without guidance. The abridged notes on p. 157 will give an idea of the tasks. Many more exercises can be devised.

At first the lines were very faint and unsteady, many decidedly choreic in character. At the age of $6\frac{3}{4}$ years, at intervals of three months, J.'s attempts to draw a man are shown at the foot of p. 157.

JOIN THE DOTS (Pages repeated ad lib.)

Page 1



Page 2



Page 3



Page 4



Page 5



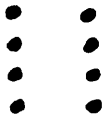
Page 6



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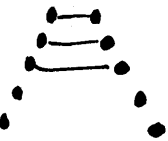


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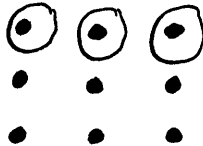


Make ladders

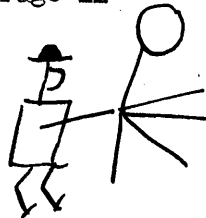
Page 9



Page 10



Page 11



Take big steps

Catch the dots
in a ring

Give the little
man more balloons

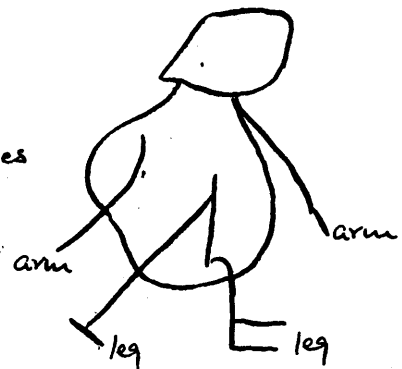
I



II



III



J.'s Drawing of a Man

(The face being omitted in the first one, he supplied it in the second attempt.)

The third Stanford-Binet test was given in January 1944. Results, chronological age, 7 years 1 month, mental age, 3 years 4 months, IQ. 50.

From January to June J. repeated the series of exercises already quoted, with the addition of symbols + and x, and the beginnings of formal script, o a b in the usual manner. In number he could enumerate 0 to 30 and could copy 1 and 4 with variable steadiness. In reading, by the 'look and say' method he knew, with some lapses of memory, the first three pages of the Radiant Way Reader, First Step. During 1944 J. was receiving longer periods of individual tuition on three forenoons a week. Every day he grew more and more rational in his conversation and could distinguish between the use of 'who' and 'what' as applied to persons and things. His confusion of these pronouns had caused much amusement! It was J. who, in the Differences Test, Year VII, said, 'You eat the egg, but you put the stones round the edge of your plate.' In the tests, his replies were marked by the hospitalisation we have noticed earlier, a chair being 'the thing you went in for Sunlight' and a doll, 'a thing you took to bed with you.'

The fourth Stanford-Binet test was given in September 1944. Chronological age, 7 years 9 months, mental age, 4 years 6 months, IQ 58. At this time J.'s condition remained good. He was allowed up and could walk alone, pushing a weighted doll's pram before him. We took him short walks to see the flowers, the chickens and the passing traffic. He was very talkative and observant. Since he still walked badly, with a sidling movement of a shuffling character, it was decided to perform the operation of Double Adduction Tenotomy (that is, tendons were cut to reduce spasticity and give wider stride. A double hip spica was applied.) Remedial exercises followed.

Conclusion

It will therefore be seen that despite the rigours of the physical therapy which J. has had to undergo, his IQ has risen 18 points since the initial test. His perception, comprehension and memory are

improving so markedly, that one might safely predict a still further heightening in intellectual capacity and also a physical betterment, since he will be able to perform the remedial exercises by a more conscious effort of will. Dyskinesia, a lack of co-ordination, will gradually decrease.

If the inclusion of this sample of progressive mental development should appear of little value, the writer hopes that it will at least remind the reader once more of the trying variety of case and task that the teacher in the orthopaedic ward must be prepared to face and to tackle to the best of her ability.

It must be admitted that some teachers have refused to deal with these double-defect cases among their other physically defective pupils who, if bed-patients, require individual attention. For obvious reasons they are justified in so doing. In some hospital-schools in America no more than one Cerebral Palsy case is allotted to the care of a ward-teacher. But, as we have indicated earlier, such difficulties may be overcome by the gradual segregation of such cases in special clinic-schools.

SECTION II. PART 4. THE NURSERY YEARS IN HOSPITAL

The idea of separating young children from their parents and home environment was not new even in the days of Robert Owen who took infants of 3 years into his school at Lanark in 1817. It was an idea of Plato's, and probably of many an advanced pagan thinker before him, that in order to ensure a good government for a good people, the people themselves should from the very earliest possible stage, practically from the incident of weaning, become the care of the State. Looked at from that lofty ideal, the separation of the child from the parent might not be so inhuman as at first appears, since the claim of the common good is set before the private sentimental claims of the parent's natural affections.

It is at once apparent, then, that when the child is diseased or disabled through disease or accident, the parent has no choice but to hand him over to some authority. Little children with physical handicaps need expert skilled attention and, great grief though it may entail the parent, it is far kinder to the children, in view of their preparation for adult life, to send them to special hospitals or homes. The responsibilities of the controlling authority are complex and very great since they cover the care of body, mind and soul in the child's most formative years.

Since the Local Government Act of 1929, it would appear that Plato's idea of a state upbringing for the child is becoming a reality, since, in certain instances, where Maternity and Child Welfare functions have been transferred from the authority of the District Council to that of the Education Authority, the child is under the supervision of a single authority from birth to the end of his school years. Early in legislative measures for the welfare of blind, deaf and dumb children, local

Authorities were empowered to educate them in Nursery Schools or homes from the age of 3 years and the local Authorities were to pay for their training. Not until the 1918 and 1921 Education Acts were similar powers granted to Education Authorities to provide Nursery Schools for all children and also for other types of physically handicapped children than the blind, deaf and dumb. The number of certified Day Nursery Schools in England and Wales was in 1930 about 31, and most of them were modelled upon the voluntary Nursery Schools founded by Miss Margaret Macmillan in Deptford in 1911. The world-famous Deptford school might be said to have been a constructive antidote to the results of the social evils of previous generations. In other words, the need for the Nursery School was created by our neglect of the children in the past. To that neglect were due bad homes, poor health, insufficient education and poverty of body, mind and spirit.

It was the earlier medical inspection of schools which increased in impetus after the Education (Administrative) Acts of 1907 enjoining Education Authorities 'to provide medical inspection of the scholars' that showed that children were coming to school already grievously undermined in health at 5 years of age. The findings of a Royal Commission in Scotland (1902) and an Interdepartmental Committee in England gave accumulated proof that the main causes of this unhealthiness among infants were:

- (a) The increase of slumdom due to urbanisation of the population in industrial areas;
- (b) Smokeladen atmospheres; bad ventilation and close contact with disease, etc.;
- (c) Intemperance and its resulting poverty;
- (d) Malnutrition due to lack of food, poor, or badly cooked food, or the excessive use of over-refined food such as tea and white bread.

In short, it was in the homes of our country that the fault lay.

Though at the beginning of the century these and other causes may have filled the under-5's wards of our special and Sick Children's

Hospitals, they are not to be considered the reason for advocating an increase of nursery-school education in hospitals. The need for early training is a biological one as well as a psychological one. In the first place, the unfit child, who is among the future fathers and mothers of the race, must be made physically fit; in the second, there must be provided for him in hospitals as nearly as possible a home atmosphere, no matter whether his own home has been good or ill. If the former, he may miss in hospital its formative social influences; if the latter, he will be protected from all the deleterious effects of the evils scheduled above.

The best doctors and the best educationists recognise that the one person capable of supplying all the needs of the pre-school child is the child's mother. Pestalozzi (1746-1827), writing in the late eighteenth century, said, 'Whoever has the welfare of the rising generation at heart cannot do better than consider as his highest object the Education of mothers.' 'The ideal educational institution for Pestalozzi was not the school but the home, the school being but a temporary expedient till mothers were sufficiently educated to undertake the education of their own children.¹' If we agree with Pestalozzi and with Rousseau, we must admit that viewed from certain angles the Nursery School is a necessary evil of the times, and that Pestalozzi's dream of a perfect motherhood must remain unrealised until, with the disappearance of slums, with the wider and wider scope of medical preventive services, with the teaching of mothercraft to mothers in clinics and to girls in schools, the urgent need for Nursery Schools and even for hospitals will arise only amongst primitive and backward peoples.

The Residential Nursery School

The recognised hospital-nursery-school may be said to be non-

¹ Robert Rusk, A History of Infant Education. P. 44.

existent as yet, except for a few hospitals in which education is begun in the nurserywards from the age of 2 years onwards; and in some residential open-air schools for delicate babes who are tended from 18 months onwards.

In New York, in the report of the Sub-Committee on Education in Hospitals and Convalescent Homes to which reference has frequently been made, no teaching at the kindergarten grade was being given in hospital-classes in 1941.

Only one Residential Special School for Infants is on the list of Residential Special Schools in the Board of Education Circular (February 1944). It is the 'Kathleen Schlesinger' Home, Russells Water, Hanley, Oxfordshire, controlled by the London County Council and unfortunately to be discontinued. The Home could accommodate some 24 babies. Details from the questionnaires gave some interesting information about the types of case received and the staff employed. The Kathleen Schlesinger Home was used as a Nursery School for invalid children, ages 2 to 7 years; the cases included congenital deformities, post anterior Poliomyelitis, rheumatic heart diseases and traumatic cases. One visiting teacher was employed and all Nursery School activities were given.

The Dedisham Residential Open-Air School for Young Children, Sussex, under voluntary management, was a venture inspired by the Macmillan Schools. It was opened in 1929, since when over 2,000 children have been treated and educated from the age of 18 months and during a stay of 3 months or more. The cases were delicate children from crowded or unhealthy surroundings. The staff includes a certificated teacher, two assistant teachers, an experienced matron, day and night nurses, and probationers. The aim at Dedisham is to keep a child until it is physically and mentally normal. With very few exceptions the children make excellent progress, and become sturdy, bonny little people fit to carry on the battle of life. They learn to live with others; to share toys, and to be helpful and independent, lessons they take back with them to their homes. At the same time students are trained to bring up children to be

disciplined and obedient and to keep them amused and happy.' (School Prospectus). Such is the aim of all Residential Open-Air Schools for children of all ages where most of the cases are ambulant and the activities may take place out of doors.

The Nursery Ward

Very much modified must be the aims and procedure in the nursery-wards where the children spend almost the whole of their stay in hospital in bed. In many ways they can be taught to be helpful and independent, but only in a very restricted sense. They cannot even share toys or sweets in the ordinary way of childish bartering without the help of an outsider, nurse or teacher, to pass things over. Psychologically the approach to, and the discipline of, such bed-bound children is often difficult. Many of the patients, both among the under-5s and over-5s have, owing to their illnesses, been the spoilt tyrants of their homes. As an orthopaedic surgeon has said, 'Their habits are unnatural; they are destructive and often melancholic. The very nature of the treatment during the acute and progressing stages of the disease, the enforced recumbency, restriction of movement and the immobilisation of the diseased areas would tend to aggravate this condition were it not for the lessons and discipline of the school routine¹.'

The two Residential Nursery Schools mentioned above, and four others, were the only recognised schools of that type discovered through this survey; but amongst the remaining hospital-schools, 47 per cent, or 67 hospitals out of 143, began schooling at the ages of 2 or 3. In all of these the usual nursery-school activities, restricted to the requirements and capabilities of bed-pupils, were carried out. Various teaching methods such as Froebel, Montessori, project, were indicated as being employed from

¹Report of Liverpool Open-Air Hospital for Children: Leasowe, 1924.

their earliest stages; but the main purpose of the teacher or teacher-nurse in charge was to reproduce or create a home atmosphere for the school.

The latter aim has been realised very practically in an experiment made in Grasslands Hospital, Valhalla, New York, by a teacher-mother, Margaret Fitzgerald. In an article in The Cripple Child, December 1943, she outlines the aims of pre-school education in the Nursery Ward. These were to prevent the child-patient from becoming over-hospitalised and mentally restricted by his environment. Every case is encouraged in varied activities:

1. Sensory and manipulative experience with objects common to the home; ironing, washing, cooking, etc.;
2. Dramatic experiences in playing home, mother, school, store, etc.;
3. Similar play of a make-believe kind with dolls and doll's houses;
4. Pre-school and kindergarten experiences with blocks, crayons, finger-paints, rhythm instruments, recorded music, weaving looms, games and stories;
5. Real experiences in the hospital; orientation; sight-seeing trips (on spinal carriages) in hospital grounds if possible;
6. Dramatising their own experiences in hospital.

The scheme is excellent in its details as only those can realise who know how restricted are the outlook and the experiences of the hospital child; that is, the child who is too young to remember or who has forgotten the interior of his home, or the busy street with its shops and traffic.

Nurse and Teacher

The day may come when the services of the trained Nursery-School teacher will be required by all children's hospitals. In the under-5s' ward, or in a large mixed ward, their part-time supervision would be invaluable; but until then, there is much that the ward sister, and

particularly the junior nursing staff, could do to prepare the very retarded child for the day-school teacher. Again the nurse should remember that the ward is the child's home and that she, temporarily, is its mother. How much more readily does a child respond to love than to stern and rigid discipline! The loved child is, as a rule, happy and contented and in his actions and responses reflects the treatment given him. Love, added to wise and intelligent care, will also aid him physically and mentally. The nurse should not leave the child's mental development alone pending the arrival of a teacher who may never be supplied; nor should she be timid about approaching the apparently dull or retarded cases, or the cases with speech or visual defects. It has long been recognised that congenitally deaf-mute and blind children must begin to receive the rudiments of speech training and knowledge as early as 2 years - in the child's home, if possible, if not at the nearest speech-therapy clinic or at a Residential Special School.

Until the teacher trained in phonetics comes along,¹ until ordinary ward teaching is begun, the nurse might adopt the following hints. With the pre-school child who is slow in speech, whether thyroid-gland or cretinous case, or otherwise retarded, she might make him repeat daily with brisk change of tone and pitch:

Good mōrning, Billy: Good mōrning, doctor: Vēry well,
 thank you: Yes plēase, nurse: Thē sūn is shīning: Lōok!
 It is rāining:

etc., etc. as new interests arise. (- is low pitch, ' is higher pitch.)
 Speech must be clear, tone not too flat or high, and have some intimate personal appeal and quality for each child.

¹As an aid to speech training, and indeed for ordinary teaching purposes, books like Miss Sylvain M. Martin's Speech Training for the Deaf Child (London: Allen & Unwin) and Dr Anne McAllister's First Steps in Speech Training (London: University of London Press Ltd.) are of sound practical value.

The nurses could repeat - and many of them do - nursery rhymes in chorus with the children while making beds and combing hair. The familiar traditional verses should always be chosen rather than popular swing or jazz choruses such as 'Oh Johnny, how you can love!' because they are the child's literary birthright and his gateway to speech training and to literature in song, story and drama.

The Nursery School will do much not only in hospitals but outside them to lessen the sad, low morale and mentally lazy calibre of many homes in our crowded cities and also in the slums of rural areas. (In justice it must be divulged that there are pupils from middle-class homes who have never been taught nursery rhymes nor been encouraged to love or handle carefully the many beautiful picture and story books that flood the shops and children's libraries. These children had been left to the care of maids, or been neglected by parents engrossed in pleasure.) It has happened in hospital wards as in the Day Nursery School that occasionally a child arrives whose obscenity in speech and actions puzzles and shocks the clean-minded hospital children. These ugly things soon disappear in the hospital atmosphere after corrective measures; though sometimes cold ignoring of the discrepancies is most successful.

The sister and nurses should encourage the children to be conversational and to talk in sentences. Teach Tommy colours by telling him his hair is black, his gown white, his jacket red, his blanket blue, the plant in the pot green, etc. The commonsense wisdom of doing so will be apparent when we come to consider the application of standardised intelligence tests to hospital children.

Help Tommy to count his fingers, his toes, the cots, the beds, the lights, the windows, the doors, etc. All these while toilet-attentions, bed-tidying, ward-dusting, tucking-in for the night are going on. Touch hard and soft things, rough and smooth, narrow and wide, light and heavy. Name the parts of clothing and of body. Tell the names of trees. Speak about flowers in the vases and in the hospital gardens; about the food

he is eating - 'milk from the cows in the fields', 'porridge from oats'; - about the tap in the basin, the thermometer, the radiator, etc. Tell him he lives in Scotland, etc. Speak to him about his visitors and the conveyances by which they have travelled to hospital.

In the large primary ward when under-5s are present, as happens in very many hospitals, both teacher and nurse should be very careful not to pass over the very quiet, very shy, or the very young child in favour of the older, brighter ones. If possible each child should have a picture book, wooden toys or numerals to play with while lessons are being conducted. It takes up the limited time available to hand out equipment, but when it is done the atmosphere becomes more restful and freer from interruptions; and it also encourages in a child who might otherwise be very backward a desire to learn. The nurse and teacher become so accustomed to seeing those stone-still little figures in their spinal jackets that they forget the passage of weeks and months into years till suddenly, one day, a small voice protests, 'But teacher! I'm three, and I want my lessons!' Truly, a great age and ripe for adventure!

There are times when, perhaps after painful dressings in the ward or after visits to the operating theatre where bones and joints have undergone manipulations, the babies will all begin to weep loudly in sympathetic chorus. It is wise to sing them to sleep with lullaby music or to have very simple communal rhythmic exercises and hand-clapping to the piano. 'Music hath charms' over pain and soon even the infants are beating correct time to the crotchet-quaver-quaver tunes. The traditional singing games should neither be scorned nor forgotten. 'Broken Bridges', 'Lubin Loo', 'Bee-Bo-Babbity', 'Ring-a-Ring-a-Roses', etc. If one or more children are up, the teacher should dance, or act or mime with them in the middle of the ward, so introducing them to actual play and to the beginnings of drama.

One might appeal to the younger nurses not to forget all such things in their constant and already very exacting routine jobs of teaching the

child personal hygiene. No little child should ever become a mere case or an object that is only to be washed, fed and dressed; nor to the teacher merely 'another one' to be taught. To be nursed and taught - yes, - but be taught to live.

In the Open Air

In the summer months when even the babies are out of doors in beds or spinal carriages, the teacher should not repress, but rather encourage, their desire to look round and about. The children are alive to every sight and sound in the sky and in the grounds. The arrival of the post, the tradesmen's vans, the neighbouring farmer's dog, a stray cat, cobwebs on bushes, the herbaceous borders, the railway lorry with Joe the driver, a new army uniform, the American Red Cross ambulance, the whistle of a distant train, visitors, and above all the constant passing overhead of many types of planes, most of which are instantly recognised by the older boys.

There are the birds, too, (a living nature lesson), which all little children love. In the spring, out on the verandah, they watch every movement of the blackbirds on lawn and bush, becoming very excited when a nest is located nearby. Then, in the winter, in a warm ward they sing with very marked pathos,

The North Wind doth blow,
And we shall have snow,
And what will the robin do then?
Poor thing!

for it is sunlight that is the most liberal cure for these afflicted children and nature, soft, green, maternal nature, their most potent teacher.

The Nursery School in hospital is surely, then, the most unique of educational institutions. It is the locus of the new curative education.

In its most formative years the body, mind and soul of the unfit child will, as far as is humanly possible, be made whole. It is the process of healing in the three spheres that matters in the years of infancy. There is time enough to consider the material, vocational aspect of such curative training when the child has reached years of discretion and must take his place in the workaday world. There is also always a small percentage of these afflicted children and adolescents who will not live to maturity. To them we might apply the philosophy of positivism behind those magnificent words from the **Socratic Dialogues** of Plato: 'Some one will say: And are you not ashamed, Socrates, of a course of life which is likely to bring you to an untimely end? To him I may fairly answer: There you are mistaken: a man (a child) who is good for anything ought not to calculate the chance of living or dying; he ought only to consider whether in doing anything he is doing right or wrong - acting the part of a good man (child) or of a bad.'

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SECTION II. PART 5. METHODS IN THE PRIMARY
HOSPITAL-SCHOOL

The Infant Division

In a pamphlet, The School Curriculum, published by the Educational Institute of Scotland in October 1944, there are many suggestions which might serve as aids to hospital-school teachers, and also many statements which corroborate findings which they have made over years of difficult experience. There have been no text-books on teaching methods for teachers in hospitals. There have been articles and books on the psychological and medical aspects of such spheres of teaching, but few, if any, on how to do the job, or on the daily routine in a hospital-school.

In paragraphs 7 and 8 of this pamphlet we read:

'The school life of the pupil should be a continuous and completely connected whole. The Nursery School should co-operate with the Infant Division and the methods of the Infant Division should be maintained in the early Primary classes. It would help if teachers had experience, wherever possible, of classes younger and older than they would normally teach.

'While reading, writing and arithmetic will continue to be the main work of the Primary School, these must not be allowed to monopolise the time and attention of teacher and pupil to the exclusion of the development of moral and aesthetic qualities.'

From Table VI on p. 62 it can be calculated that the average length of stay of the orthopaedic pupil is two years. It has been stated, moreover, that certain cases where chronic suppuration (amyloid) occurs, in Osteomyelitis subjects and in several spinal cases, the

duration of stay has been known to exceed 10 to 15 years. It would be wise, therefore, to preserve some uniformity of teaching methods in hospital-schools where several of the inmates may receive their entire education. It follows also - as if in direct answer to paragraph 7 of the Institute's pamphlet - that the hospital teacher cannot escape a wide experience of classes and, in endorsement of paragraph 8, that the hospital-school curriculum must include more than the bones of the three Rs. The saddest indictment that might be made in regard to curriculum in the majority of hospital-schools is that a considerable number of the patients discharged at adolescence have been almost semi-illiterate - or, as we have seen, 3 to 7 years retarded in their scholastic attainments.

Still, as in the ordinary school, the rudiments of reading, writing and arithmetic must remain the main subjects in the Infant Division timetable of the hospital-school. Much of what was said in the section on the Nursery-School ward could be applied to the Infant Division, but in the latter more attention might be paid to the pattern or method of teaching adopted.

It will be for the teacher to decide what help she can get from Froebel, Montessori, Dewey or Steiner. The Dalton Plan and the project-method have each very definite and important contributions to make in orthopaedic teaching. She will also, when considering separate subjects, choose methods according to the type of child, (the prognosis of the disease, additional stigmata, temperament), to be considered, which way in reading she will follow, the 'look and say', or the sentence method, or the phonetic, or a mixture of all three. It is expedient that the teacher should be familiar with all systems, because of the frequent number of fresh admittances who have previously begun schooling.

Methods already in Use

The questionnaire revealed that in approximately 60 hospital-schools

a combination of individual and group methods in teaching were employed. Nine hospitals mentioned Froebelian methods; only 2 specified the Montessori system, 3, the project method, 1, Rudolf Steiner's methods and 6, the Dalton Plan, or a modification of it.

It may be understood, however, that modifications or combinations of the three systems in common use (Froebel, Montessori, project) are employed in the 67 hospitals which have already been quoted as hospital-nursery-schools. Both group and individual methods are indispensable in all Nursery-School activities.

With what advantages may these systems be adopted in hospital-teaching? How far do the ideas they embody satisfy the need for the provision of a home atmosphere and for the knowledge of the outside world which can only be attained by a widening of interests? Can any one of these or one combination of these go towards the creation of wholeness in man? Owing to the restrictions of environment and of the posture of the pupil-patient, every one of the existing systems must be modified. That should go without saying. The best and most suitable features must therefore be adopted from each way of teaching. This treatise makes no attempt to be a primer of hospital-teaching, nor to be an exponent of existing methodology. It can only point out what features in each system may meet the complexities of an environment that is both medical and pedagogical.

The Principles of Friedrich Froebel

The writer prefers to apply the word 'principles' rather than 'methods' to the teaching of Froebel because these principles are the foundations (built, of course, on the cornerstones of earlier educators like Comenius and Pestalozzi) from which most modern systems have evolved. They were philosophical and might have remained vague and scarcely constructive had it not been for the introduction of the tangible guidance of the 'gifts' or 'occupations' through the handling

of which the child passes, through a process of self-teaching, from an acquaintanceship with the concrete to a knowledge of the abstract; from an awareness of the separateness of his own individuality to a consciousness of his relationship with God. Through the development of the three activities of the mind, knowing, feeling and willing, he becomes aware of being a unit of the greater unity of nature, man and God. Because he is the child of God - as Froebel's essentially Christian doctrine insists - he participates in the divine acts of creation. In his play, which in Froebel's mind is synonymous with self-activity or self-development, he co-exists with, and shares the creative acts of God. In building or 'playing' with the gifts, the sphere, the cube, the cylinder, he is training his own capacities; through games, where he is developing the senses of sight, sound or touch (movement), he is developing according to the eternal laws of creation. Whether the normal child is conscious of the symbolism of the gifts is of little moment; he is becoming subconsciously aware of laws of compromise, of the interdependence of unity and plurality, the round and the straight, that the opposites of movement and rest are parts of a pattern that in itself is a whole.

These general principles of the Froebelian doctrine are given practical expression in the methods and programmes of modern systems. They have helped in every attempt to find a teaching method applicable to the defective child, but it has been difficult, for obvious reasons, to apply them to the physically defective, bed-ridden child.

The physical environment of the hospital, that is, its site among trees, fields, gardens or by the sea, bring the child into view, if not into close proximity, with nature and the sights and sounds of nature which in Froebel's mind are so essential to the child's true development. The bed-ridden child cannot get to know this environment so thoroughly as he might through the activity of natural play. His appreciation of it is developed through purely mental functions (that is, including knowledge acquired visually through pictures). For him the use of the

gifts must be more than merely mechanical; their symbolical significance should be made as clear as possible to him by the teacher, if they are to be aids towards the development of his whole being. It follows, therefore, that the bed-pupil must speedily be directed into the activities of speech (in singing and reading), in form (writing and drawing), and in number, the aspects of education emphasised both by Pestalozzi and Froebel, and that all three be directed in the spirit or atmosphere of play. That the hospital child regards his lessons as a form of play is a welcome revelation to the teacher who wishes to widen his mental horizons. The interest in lessons and avidity to learn are almost universally existent from the nursery-ward upwards. The Froebelian activity of 'write to read' is psychologically sound and is an aspect of instruction that may almost be begun from the first day in the school ward. Many a normal child succeeds in writing at 4 years and in so doing he is bringing at least the idea of form in creative activity within the compass of his mental environment. When Froebel chose the copying of block capital letters, the combination of right angle and straight line, as the simplest and most scientific fundamental of the teaching of writing, he selected the way that made most appeal to the child. The hospital-teacher must do so also. But since Froebel himself advocated the 'write to read' method, and since there are few, if any modern reading primers made up entirely of block capitals, a previous instruction in the formation of such letters would prove a waste of time. As will be observed shortly, the teacher's aim to develop the child's ability to read as quickly as possible according to the fitness of the individual child, is best fulfilled by the Montessori method.

The Methods of Edouard Seguin

We ought briefly now to refer to the teaching practice of Edouard Seguin, contemporary of Froebel and the first medical-educator of physically defective children. The use of the word 'physically' is deliberate, because Seguin was in the vanguard of those medical teachers

and psychiatrists who now refuse to designate 'amentia' or mental deficiency as a disease of the mind. Since no one has yet satisfactorily defined 'mind', or the essence of mind, how then, they argue, can a mind be diseased? There are 'minds' or intellects which, owing to lack, destruction or disorganisation of brain cells, do not work properly or at all. The so-called mentally defective child is primarily then a physical defective and it was as such that Edouard Seguin approached his cases. He got through to them because his educational theories were based on accurate scientific knowledge of the child's body, muscles, brain and nerves. If any one of these could not work, he set to making it do so by stimulating latent urges and emotions to action. The action was more likely to be repeated if it was spontaneous on the child's part, but through patient demonstration and suggestion by the teacher, an action, a movement, once achieved with great difficulty, was tried again, until it became a habit. The acquisition of these habits formed the initial education of the 'idiot'. (And what, we may ask, is education at all, if it is not the acquisition of right habits of thought and action? And what action is not preceded by some mental process, conscious or unconscious?) So Seguin began by teaching his subjects to stand, sit, step forward, grasp a cup, etc. 'The general training embraces the muscular, imitative, nervous and reflective functions, susceptible of being called into play at any moment. All that pertains to movement, as locomotion and special motions; prehension, manipulation and palpation, by dint of strength, or exquisite delicacy; imitation and communication from mind to mind, through languages, signs and symbols; all that is to be treated thoroughly¹.'

Seguin opened his school for 'Idiots' in Paris in 1847, ten years after Froebel founded his Kindergarten Institute at Blankenburg in the Thuringian Forest. Seguin's methods of physiological teaching are a

¹Edouard Seguin, Idiocy. P. 33

practical illustration of these words of Froebel in The Education of Man: 'The progressive development of the senses is accompanied by the regular use of body and limbs in an order fixed by the nature of the body and the qualities of external objects Standing is the most perfect instance of the conjoint use of all the limbs and body; it demands the finding of the body's centre of gravity.'

Physical Training Exercises in Hospital

Can any of Seguin's physiological methods be applied in the hospital-school to-day where there are so many cases whose bodily 'centre of gravity' is disturbed, who may not be taught to stand at all? They are being applied wherever remedial physical training is being given and where the teaching of the ordinary basic skills, in drawing, writing, modelling, etc., lead to the co-ordination of mind and muscle. The modern science of orthopaedics, as practised by the late Sir Robert Jones, was said to have been founded on a recognition of the function of reflexes, of the flexions of muscles, of their initial stimulation or their re-education. Such lessons on the control of limbs and the re-education of atrophied muscles are given to the child-patient in the sub-acute stages of Infantile Paralysis (Anterior Poliomyelitis), Chorea and during the stages when the bone-joint case is learning to move limbs with or without the restriction of surgical appliances. (In 25 per cent of the hospital-schools of our survey physical-training teachers or masseuses are employed to perform this remedial education which is given individually or in groups in the school-room or the physio-therapy block. The range of hours devoted to remedial exercises is 1 to 6. Some hospital-schools report 20 minutes devoted daily to physical training, while in Residential Open-Air Schools the occupations of dancing, swimming and walking (for D and T cases) are classified under physical training.¹)

In America it has become a generally accepted practice that the maintaining or administrative authority of the hospital be responsible for this form of remedial treatment or education, and not the Board of

¹ See note, p. 177a.

177a.

Note

Physical Training and Poliomyelitis in America

'Combined physical and educational therapy is begun as early as possible after the acute stage of infantile paralysis is over. The masseuse, the physio-therapist, and the physical-training expert begin muscel-re-education in hospital to prevent crippling effects; and, if the child is of school age, the parents are advised to let him remain in the school which is attached to an orthopaedic hospital. There are two such schools in Chicago, the 'Spalding' and the 'Christopher' Schools, which each accommodate 1,000 pupils. Health work, manual instruction, general education, are in the programme provided to suit each child's educational needs.'

(Esther Loring Richards, Behaviour Aspects of Child Conduct,
(1936) P. 38)

Education. The same conditions were to apply to the entertainment, recreation and social activities of the juvenile and adult patients. It would appear that the position is similar in British hospital-schools.

It may almost be taken for granted that physical training and remedial exercises founded on Seguin's methods and the later Swedish school of Gymnastics are given in every hospital where an orthopaedic unit is established. The modern remedial apparatus of rehabilitation, the ladders, pedal-cycles, foot-treadles, pulleys and various types of gadgets to increase range of flexions, etc., also certain construction-games and performance-test boards are developments of Seguin's ladders and springboards. The remedial purposes of these various aids are later carried into real life in the handling of garden implements, carpentry tools, etc., a matter of which more will be said in our paragraphs on manual instruction in occupational therapy. It must be realised, however, that this remedial training must be begun in the earliest stages of the pupil's treatment and education. It is really begun in the action-songs and rhythmic exercises in the Nursery-School-ward. The purpose - and functioning-of the training gradually becomes more than merely mechanical. It indicates an intellectual and moral capacity. What Dr William Boyd has said of the value of personal and objective imitation of the teacher by the pupil may be applied to the responses made by orthopaedic patients: 'Exercises like these quicken the movements, improve the function of sight, extend the range of the perceptions, give accuracy to the understanding, bring the whole body under the control of the will and above all, educate the dead hand for living work.¹'

The Montessori Method

In spite of the direct descent of the Montessori system from that

¹William Boyd, From Locke to Montessori. P. 109. ¶ 8 on Seguin.

of Seguin, its ideas have been adopted in exceedingly few Nurserywards and Infant Divisions of Primary wards. Among ambulant cases, however, in the hospital school-room or in Residential Open-Air Schools, it, like all the other methods, might be adopted with only slight modifications.

Madame Montessori's approach to teaching is, like Seguin's, physiological. It is also psychological, since her theories are based on a scientific observation of the child's mentality; but, on the whole, the range of her theories is less wide than that of Seguin's, or Froebel's in that it is less philosophical; and therefore in our opinion it is only partly suitable as a method of instruction of physically handicapped children whose restrictions and defects are bodily rather than psychic. Much of the orthopaedic child's play - his education through the activity of make-believe - must be mental. Perception and cognition must ascend quickly into activity of the imagination if his whole being is to be educated. To that end the sensory training which is the basis of the Montessori method is not enough. During the development of the very earliest sensory urges, it is true, the use of the Montessori gifts and educational apparatus, the tactual aids (for example, sandpaper letters in both script and cursive forms) is almost essential to the teaching of basic skills to choreas and educable spastics¹.

From the ward teacher's viewpoint, however, the whole system is made too hidebound by that very apparatus which was designed to give 'regulated activity; the synonym of 'freedom', to the developing child.

¹The aim of the hospital-teacher is to hasten the child's ability to read as quickly as possible and with the least trouble to the pupil. The Montessori method can satisfy both aims and is especially helpful to those who have difficulty with sight or lack of co-ordination. By frequently feeling and tracing the Montessori sandpaper letters the child soon learns the right direction of the letter. He traces it with his finger; soon he writes it, saying its sound-name as he does so. He may make up his own individual writing - and reading - book.

These are the smaller gifts or apparatus which might be used with advantage by individual bed-patients:

Part No. 8 The Buttoning and Lacing Apparatus, Part No. 21 Colour Tablets, Part No. 26 Metal Insets, Part No. 27 Sandpaper letters, the Short Bead Stair with special ruled square paper, the One-to-Ten Black and White Bead Bars, the apparatus for teaching the Decimal System.

Plainly much of it is too large for ward use. The teacher could use the Long Stair only if she herself were elevated so that all the recumbent orthopaedic pupils could see her. The larger gifts could not be used in bed nor held up easily by the teacher. Nor can the specially prepared environment of the Montessori Infant School be provided in a hospital ward. True, as we have seen in the pages on the Nursery-ward, home experiences may be given to the children through various activities, but the actual reproduction in miniature of an adult world, or adult reality, is impossible. 'As well place the child in Lilliput,' some critics have cried. The hospital child is already too conscious of reality in his acquaintanceship with isolation and pain. The gifts he deserves and needs are those that both visually and mentally widen his horizons.

Much, however, of the fine atmosphere of the model Montessori school could be emulated in the hospital Nursery and Primary wards; its acquired self-discipline, its compelling but not compulsory periods of rest and silence, the social integrity of its community of small individuals, its spiritual fervour, or rather the sense of a divine maternal control or supervision of all activities, which could be so efficacious in a hospital environment.

It might be observed also that the Montessori system, whether it be applied in the ordinary school or in hospital, has, with apparent and measurable success, bridged the gulf between the supernatural idealism of Froebel's theories and the too concrete realism of the American pragmatists. Though her children play at being adults, running their homes, being their own physical and mental nurses, they are always essentially children who are in need of guidance, though the latter may be supplied by the mere bodily nearness of the teacher and the equally near, though impalpable, presence of God.

The Project Method

This method lays claim to none of Froebel's lofty idealism, to Seguin's

remedial activity, nor to Montessori's didactic self-disciplinary occupations. It has the bluntly practical character of its American origin. True, as Froebel would have it, the child who follows the project way creates in doing; as Seguin would demonstrate, he is mobile instead of static; and, as Montessori would tacitly guide him, he is doing an adult's job in his child's way.

The object lessons given to him or experienced by him in the Nursery ward were the beginnings of his learning by doing; and, as we have seen on p. 102 in the section on the rate of progress of medical and surgical cases, the simplified projects were found to be most suitable for certain convalescing cases who were taught together in a variety of stages and ages, each child taking part according to his mental capacity. To attempt projects on the large and life-size scale recommended by the American educator would be as absurd as it is impossible. Yet, even if conducted to completion in miniature, that sense of wholeness and continuity, which is denied to the project method by some critics, is bound to be awakened in the child whose interest in the subject is projected into creative activity. The various projects need not be spasmodic if they are taken in series. They can progress to a whole.

For example, after a group reading about a 'Town Street', always a thrilling topic for the hospitalised child, the child's interest may be actively projected into drawing or modelling houses, shops, trams, buses, telegraph-poles, etc., counting them, and writing about them; for the three daily commands of the project system - 'See, do and say' - must become a habit. The three Rs are thus combined in the single lesson, a very important consideration for the teacher who must pass from ward to ward, although the entire project may have to extend over a number of days or weeks if every type of question arising from it is to be actively pursued and illustrated to completeness. It may be advisable also, owing to the short time at the teacher's disposal, to devote one entire visit to Number, which would introduce sums in practice and problems to suit the different stages; another to 'shopping' with cardboard money; another to writing; one to drawing; one to the project workshop, etc.

Even the youngest member of the group may take part, employing in his writing the sentence method, which is an integral part of the project system. Although he copies the teacher's headlines in printing, script or cursive hand only one line a day, a great deal is achieved -

for example:

Mother goes to the shop
 JOHN BROWN'S GARAGE
 I can count the cars

And as the projects widen in scope and matter through the various stages of the school - Nursery, Infant, Primary, Secondary - the instruction derived from them may be progressive. It is not an unknown thing for project schools in America, and Decroly schools in Belgium, to devote an entire year to some geographical project; the study of a certain country, its people, its homes, its work, its history, its literature, etc. To know one subject completely is to become aware of it as a whole, that is, in its relation to nature, man and God. It cannot live in isolation; it cannot be isolated and live. Within the walls of the hospital-ward the scope of the project may be isolated or confined; but it need be none the less alive, varied and crammed with interest. Outside visual aids may be brought in to give concrete form to ideas. Added to the wealth of gifts, tools and apparatus which are integral parts of most modern systems (Montessori, Winnetka, Decroly), the more human assistance of the drama in mime, puppetry and cinema may be introduced to supplement the restricted activities in the ward.

From our survey questionnaire it has been found that 43 hospital-schools, or 30 per cent, have a cinema projector for recreational and educational purposes. The films can be shown in the school ward, in the school-room for up-patients, or in the general recreation hall to which, on occasions, orthopaedic bed-patients may be wheeled or ambulant cases walk. There is no need to enlarge upon the great joy which this activity brings to the adult as well as to the child-patient.

A few hospitals report the teaching of mime and puppetry - the children making the puppets as part of their handwork exercises¹.

¹ See Handwork Projects in Occupational Therapy, p.

If these dramatic and cinema activities can be co-ordinated with the subject of the current project, they become doubly valuable. They might come as the culmination or prize of all the daily lessons of the project, whether these are the occupations of individuals or teams.

The Project Method and Group Teaching

Since 29 per cent of the hospital-schools known to the writer have one teacher (as against 15 per cent with two teachers and 14 per cent with three) it will be appreciated that the project method of teaching offers many advantages to the person in charge of an entire ward. The morning session might be devoted to the theories or lessons of the project, the afternoon to the doing or illustration of it in handwork. That, indeed, is the Winnetka adaptation of the project system.

It should be borne in mind, however, that no matter what way of teaching is adopted, a great many of the activities can be performed by teams or communally. The religious lesson¹, the singing, the story-telling, the poetry lesson, the choral verse-speaking, the mime, the percussion-band exercises, the BBC's broadcasts for schools, can each be part of a carefully graded concert programme in which every age participates for half an hour as often as time will permit. Needless to say, the subjects of all these may be derived from the project under consideration, for example, in songs, stories, poems, plays of particular nations.

¹ Owing to the proximity of pupils nurtured in different religious creeds, it has not been found advisable to conform to any denominational teaching of religion. The writer has used such hymn-books as The Primary Sunday-School Books of Nature Songs and Hymns with happy results. They present no theological difficulties, and indeed, are absolutely in the spirit of the music through which Froebel would bring the child close to nature and God. Repetitions of Our Lord's Prayer, a few psalms and paraphrases, Christmas carols and literary presentations of Old and New Testament stories such as are to be found in The Bible as Literature and Walter de la Mare's Stories from the Bible do not offend the young adherents of different sects.

A Combination of Group and Individual Methods

We indicated that the Froebelian principles underlay most modern teaching methods. Thus while the majority of hospital-schools confess to employing no specific method, they emphasise the fact that the teaching is partly group and partly individual, mostly the latter - that is, bed-to-bed teaching. It should be noted, however, that several of the bed-patients may be taught in groups in accordance with age-capacities or ability irrespective of age. It has been confessed also that the aim of many hospital-teachers is to keep the child as closely as possible to the standardised rate of progress of the child in the ordinary school. Accordingly practical suggestions for a weekly time-table are offered on p. 185 to the teacher in the 1 or 2-teacher orthopaedic hospital-school. The reader is asked to bear in mind the postural handicaps of the pupil and the arrangement of pupils according to sex, age, disability. It will be seen that a combination of group and individual methods is a necessity. If only one teacher were employed, the table could be repeated on alternate days in the boys' and girls' wards, thus spreading the work over a fortnight. The time allowed to teaching such a scheme is roughly 2 to $2\frac{1}{2}$ hours preferably in the forenoon. In the afternoon 2 hours could be devoted to very backward cases¹ or to Secondary pupils; or it may be spent entirely on handwork.

The scheme may appear alarmingly full for children with such handicaps; but it should be remembered (a) that any time-table is primarily a guide to the teacher, and that it should be subject to instantaneous adaptation to the child's needs and the interests and circumstances of the moment; (b) that only a very little is performed each day by each child, especially in the Infant stage, and in the basic steps of any one subject. Besides, as indicated elsewhere, variety in the matter of instruction is the great inducement to learn for the hospital child.

The chart on p. 84 represents a typical orthopaedic ward of boys, the smallest in which the writer has worked. The two oldest cases,

¹ See cases with additional stigmata, p. 85.

Day (forenoon)	Chief lesson	10 mins.	20+ minutes	30 minutes	15 mins.	15+ minutes	30 minutes
Monday	Nature Study		Group Nature Study with story and pictures to illustrate.	Application of lesson for all stages, in drawing, writing, spelling, etc.		Sound Drill for Primary. Continuation of previous lesson for others.	Allocation of assignments.
Tuesday	Arithmetic Writing	W O W T O F O K F	Group lesson in Number all stages. Repetition of Tables. Mental Arithmetic.	Individual apparatus and Number books for all stages.		Writing, all stages.	Stories or Games.
Wednesday	Reading and Spelling	T W H O T P O P O	Individual Readers, all stages. History and Readers for Juniors upward.	Sound Drill for Infants during silent reading by others.		Tracing, Colouring, Cut-outs, Drawing. All stages.	
Thursday	Handwork		Arithmetic all stages.	Handwork		Handwork all stages.	
Friday	Geography		Group lesson in Geography for Juniors upward. Montessori apparatus for Primary.	Application of lesson in writing, spelling. Montessori apparatus for Primary.		Poetry or stories selected for all stages, or Percussion Band (fortnightly)	

aged 21 and 18, preferred to be in the children's ward. They kept fatherly order at times, were helpful to the little ones and were particularly kind to the unfortunate child in Bed 11. These two lads, with the case in Bed 17, generally worked at their correspondence course papers or secondary assignments during the forenoon lesson hours.

Apparatus and the Basic Steps in Subjects

Some suggestion of aids to teaching in the group and individual methods are given here and extend from the Infant to the end of the Primary stage, that is, if we reckon the age-groups of orthopaedic pupils as they are reckoned in the ordinary school:

Age 5 - 7	Infant
7 - 8	Primary I
8 - 9	Primary II
9 - 10	Primary III
10 - 11	Primary IV
11 - 12	Primary V

Primary Group Lessons in Number

Visual and tactual aids to basic group lessons in number are:

Very large standard bead counting-frames

Very large oblong wooden blocks, 10" to 12" in height, painted in poster colours. These can be placed on the table in the middle of the ward to be seen by all Infant pupils

Some of the larger Montessori counting apparatus, chosen as desired

Very large flash counting cards.

Individual aids:

Bablot wooden numbers with pegs; boxes of beads, counters, shells, beans, small bricks, etc., as in any Infant class-room¹

¹The nursing staff may complain quite legitimately about the untidy state of a child's bed and the surrounding floor during lessons or after them. How easy it is for papers, books, beads, etc., to fall or roll off a narrow bed! But to ensure tidiness and prevent unnecessary labour to the probationers and ward maids the children should be given such apparatus as beads, gummed-paper discs, chalk, crayons, etc., only when the teacher is present, or if she must leave the ward to supervise pupils at work in another pavilion she should return to collect the apparatus.

The Montessori Short Bead Stair; the Montessori One-to-Ten Black and White Bead Bars

Packets of Sum Cards for the Very Young (Larcombe)

Junior Stage in Number - Individual

Work arithmetic books (See Bibliography). Frequent practice from such books as the Beacon Arithmetic Books, or McIlwraith's Everyday Arithmetic Series is an excellent aid to every long-term patient who is to be kept in touch with the mundane application of the Four Rules in arithmetic. The pages in Book III of the Everyday Arithmetic devoted to shopping sums and speed and accuracy tests are excellent.

For the Junior-Secondary pupil, age 12 - 15, books such as Symon and Milkin's Post-Primary Arithmetic are useful.

Infant-Primary I Group Reading

Aids to basic steps in Reading are:

Very large block-capital and script letters in millboard or plywood, painted in poster colours. These may be held up by the teacher during the sound drill or the speech training.

Very large flash reading cards in script, to be made by the teachers or adolescent patients.

Individual aids:

Montessori wood or sandpaper letters of all forms for tactual learning and tracing

Cardboard letters of all forms. Lexicon Games

Bablet and Grosvenor Series of Reading Cards (Charles & Sons)

Group Spelling

Aids to basic steps in Spelling are:

Spelling bees, graded in difficulty from Burt's, Schonell's or Boyd's spelling lists

Spelling games - spell names of animals, trees, flowers, foods, etc.; jumbled letters or anagrams

Individual aids to Spelling

One individual aid to learning to spell that is now recognised to be most efficacious is to learn to spell 20 new words, if possible, per week; to be rehearsed orally at the beginning of the week, written down in the middle of the week, tested in dictation of short sentences at the end of the week.

History

Group aids to History

In the later Primary and Junior Secondary stages the group History lesson may be given with illustrations in story and pictures.

Individual aids

The individual aids to History-teaching are to be found in the individual assignments of questions which are provided at the ends of chapters in most up-to-date History books.

Geography

Later Primary and Junior Secondary

Group Geography lesson might be given in talks about a country; fishing ports, coal-mining, etc. Projector-films to illustrate if procurable.

Individual aids in Geography, games, map-making, etc. and weekly assignments of questions.

English

Later Primary and Junior Secondary

Group lesson in English, for example, oral composition. Very short paragraphs may be written by the teacher on the blackboard during the instruction of sitting-patients.

Individual lesson in English, assignments from such books as Training in Reading and Study, Introductory Book (Oliver & Boyd)

The Dalton Plan

paragraphs

From the above/illustrating group and individual aids it will be seen that the Dalton Plan is partially in operation, especially in the later stages when the pupil has reached an age when he has developed

independence and fuller powers of concentration. The writer regards the Dalton Plan as the consummation in procedure at least of each specific modern method of Primary teaching, or combination of methods. When the Froebelian 'self-activity' has expanded into conscious creative construction the child may be left to himself.

The object of the Plan is that the pupil may be encouraged and aided to develop along lines that satisfy his inherent capacities and vocational interests. Self-expression that leads to ultimate self-realisation is the driving power of the Dalton Plan. The Plan makes allowances for the different types and complexes found in every school. It argues that all kinds of pupils cannot be cast in the same educational mould - in an ordinary school-room or in a hospital-ward; the dreamers, the doers, the perverts, the introverts, the stupid, the intelligent, the prodigies, the high-grade and low-grade defectives. Let them, therefore, seek and find by skilfully concealed suggestion their true vocational bents. Train them, foster them, enlarge them. Let the pupil do - provided his grounding in the basic subjects has been sound - what he is going to be most useful, but also most happy, in doing. Only so will he find individual expression for his latent capabilities. (A forecast of this vocational individual expression is often found in the child's early drawings). Only so will he become a thinking member of society, a shaper of opinion rather than a mere follower. Whether or not he will fit into the workaday world as a contributory member of society is matter for argument elsewhere. But in the long-term orthopaedic institution where his education need not be urgently of the bread-and-butter type, nor to satisfy the examination-crammer, nor to make him primarily an asset to the State, the Dalton Plan has great compensatory advantages.

The hospital-teacher will probably find that in her anxiety to train the beginners in reading and writing, she has very little time or energy left for the advanced pupils. She may find that a prepared set of questions modelled on the Dalton Plan will enable a pupil to work by himself for a period of one week. His work may then be corrected by the teacher, the

189a.

Weekly Assignment of Average Primary Patient,
chosen by himself

Case D

Sex M

Site of disease: T.B. spine. In strait-jacket. Right elbow in celluloid appliance.

Age 11 years

Time in hospital $4\frac{1}{2}$ years.

Arithmetic: One column long-division sums. Revision column of addition, multiplication, division, subtraction of money sums. (Everyday Arithmetic, Book III)

History: One chapter. Four questions fairly fully answered from Scottish History for Beginners (Banks).

Geography: Drawing of map of Ireland. Map filled in in a satisfactory manner. One chapter, one set questions from New Geography of the British Isles (Sutherland)

English and Spelling: One lesson, with exercises from Plain English (Crossland). 40 new words, Difficult stage, from Boyd's Spelling List. Sentences written down containing these words.

Handwork: Woven silk mats or one duchesse set.

new programme of reading discussed, with hints about possible difficulties, etc. The writer would not advise the preparation of monthly assignment or yearly contract time-tables of work. Several unit (daily) and period (weekly) charts of work should be sufficient for the bed-pupil. Very often he will require a fortnight, or longer, to complete the period alone since, as with the younger child, many interruptions (rise in temperature, due to abscess, secondary infections, etc.), may occur.

The reader may object that, in these preceding pages, too much stress has been laid on the amount and nature, even the importance, of instruction to be given to child-patients. But the patient receives no tuition at all, either manual or mental, if the doctor or ward sister has pronounced him to be unable to sustain it. But if he is, then surely the long months and years of his confinement need be marred by no terrible frustration and followed by no stigma of illiteracy. Happiness and industry in finding self-expression must go together. Activity is the antithesis of apathy in hospital life.

The Homebound Physically Handicapped Child

For this unfortunate case, the Dalton Plan may be adopted with excellent results. It will be recollected from Section I, Part 2, that several voluntary agencies have interested themselves in the homebound cripple. In America that similar schemes are extended to the epileptic, cerebral palsied, and cardiac groups may be gathered from the following information given in the bulletin, Physically Handicapped Children in New York City, published in 1941 by the Board of Education: 'Children under home instruction received three periods of one hour each per week of individual instruction. The total State aid allotted to this scheme being \$9,376; per homebound pupil, aid \$55¹. A further statement declares 'that no home instruction whatever was available for tubercular children confined to their homes, although many of these were well enough to profit by it.'

It must be admitted that the extent of home instruction in Britain is just as limited as it is in America. It was noted in Section I, Part 2, that one of the aims of the Edinburgh Cripple and Children's Aid Society, founded in 1902, was 'To teach those who cannot attend school.' At present some 40 homebound children are on the register; these are visited by 4 teachers who are employed by the Education Authority. Each teacher is responsible for 10 pupils to whom she gives 2 hours lessons per week. In Glasgow, under the auspices of the Cripple Children's League, Girl Guides and Rangers have visited homebound children and adolescents, training them in certain handcrafts and in some cases instructing them in the three Rs.

In Devonshire, under the Devonian Association for Cripples' Aid, home industry is made possible for permanently disabled children and adults to whom instruction is 'given by a travelling teacher in classes or in the cripples' homes. A shop is maintained in Exeter for the sale of their work¹.

The Homebound Invalid in New Zealand

It is to the Antipodes that we must go to find a scheme for the instruction of homebound physically handicapped children operating par excellence. The Correspondence School of the New Zealand Education Department is now world-famous. By the courtesy of Dr Butcher, the Head Teacher of the Correspondence Course, the writer is indebted for most of the undernoted information. The headquarters of the School are located at Wellington.

'The New Zealand Education Department's Correspondence School,' wrote Dr Butcher, 'was established in 1922 to meet the educational needs of children, who, on account of distance, isolation or physical disability,

¹Directory of Orthopaedic Institutions, Voluntary Organisations, etc.
published by CCCC. P. 34

were unable to attend school. Most of these children were living on distant sheep stations and farms, in Public Works camps, and on islands and in lighthouses scattered along the coast of the Dominion. A Secondary Department was established in 1929 to provide further education for those pupils who had completed the Primary course. The enrolment at the end of 1940 was:

Primary	1,797
Secondary	1,059
Aggregate Roll	2,866

Nearly 400 of these pupils were enrolled on grounds of physical disability!

At this point it is of interest to quote the definition of 'a crippled child' given by the New Zealand Crippled Children Society. 'A crippled child is a person under 21 years of age who, being not mentally deficient or not educable, has a defect which causes or tends to deformity or interference with normal functions of the bones, muscles or joints; the defective condition may be congenital or acquired, but does not include defects of vital organs.'

It may be deduced from the undernoted columns abridged from the 1942-1943 report of this Society that the majority of these 400 physically handicapped homebound pupils suffer in order of incidence from these disabilities:

Number of Children with their Disabilities on Register of
New Zealand Crippled Children's Society, 1943

1	2	3	4	5	6	7
Atrophic Paralysis Poliomyelitis	Club Feet	Spastic Paralysis	Tubercular Joints	Osteomyelitis	Hip-Dislocation	Spinal Deformity
803*	404*	404*	286	256	164	141

* The inclusion of the disabilities in 1, 2 and 3 is significant when compared with Diagram 2 showing categories of special hospital-schools in Britain, notably for the tubercular C and T groups.

The practical and useful service of the Correspondence School to the crippled children of New Zealand has been heartily endorsed by the Executive Council of the Crippled Children Society.

Other types of disabled children receiving postal instruction include asthma cases, heart disease, epilepsy, lung troubles, diabetes, defective eyesight, and chronic invalidism.

Organisation of School

It is organised in two main teaching divisions - Primary and Post-primary - each under the control of a senior assistant directly responsible to the Head Master. The Clerical Division serves both the Teaching Divisions.

Staffing of School

Staffing is based on roll number in the following ratios :

Primary Classes (Infants)	1 teacher to 75 pupils
Standard I to Form II	1 teacher to 45 pupils
Form III to Form VI	1 teacher to 32 pupils

Special pupils (that is, those requiring more than normal individual attention owing to the nature of their physical disability)

	1 teacher to 25 pupils
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Needlecraft Division	1 teacher to 150 pupils.
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Two permanent relieving teachers are employed in addition to the above.

From Standard I to Form II a pupil's work is handled by the same teacher in all subjects except drawing, which is dealt with by specialists.

In the Upper School specialisation is complete, each subject being undertaken by an expert.

Every teacher shares in the preparation of the assignments as well as in the work of correction. Model answers are prepared and issued with all corrected work except in the lowest classes. A carefully graded

library is maintained, and the teachers guide the pupil's reading progressively from grade to grade¹.

All assignments, model answers, examination tests, etc., are the property of the Education Department and are to be regarded as confidential.

Suggested Time-tables

These time-tables are suggested for those parents who desire the time to be precisely mapped out for their children's work. The time-tables quoted here are from the Handbook of Information issued under the authority of the Honourable the Minister of Education.

Standards I and II

Time	Monday to Friday daily
9 to 9.10 a.m.	A little song, recitation, marching, or a talk about the weather.
9.10 to 9.20	Tables
9.20 to 9.40	Arithmetic work from the book
9.40 to 10 a.m.	Reading and narration
10 to 10.15	Practise writing
10.15 to 10.30	Oral work in English and composition
10.30 to 10.45	Spelling
10.45 to 11 a.m.	Morning interval
11 to 11.30 a.m.	Writing English exercise
11.30 to 12 noon	Drawing
12 noon to 1 p.m.	Midday interval
1 to 1.15 p.m.	Oral and written sums
1.15 to 1.30	Corrections
1.30 to 2.30	Free hour (sewing, nature study, plasticine, silent reading).

¹A. J. Butcher, "Correspondence Education in New Zealand", CCCC News Letter, January 1942

Time-table: Standards III and IV
New Zealand Correspondence School

195.

Time	Monday	Tuesday	Wednesday	Thursday	Friday
9 a.m.	Aithmetic (50 mins.) 10 mins. tables and speed 10 mins. mental 30 mins. written	As for Monday	As for Monday	As for Monday	As for Monday
9.50	Reading	do.	do.	do.	do.
10.15	Spelling	do.	do.	do.	do.
10.30 to 10.45	Writing	do.	do.	do.	do.
10.45 to 11 a.m.	M o r n i n g I n t e r v a l				
11 a.m.	English	English	English	Composition	English
11.30	History	History	History		History
11.50		Recitation and speech training	Recitation and speech training	Recitation and speech training	Recitation and speech training
12 noon to 1 p.m.	M i d d a y I n t e r v a l				
1 p.m.	Project work	Geography	Composition preparation	Geography	Geography
1.30	Drawing		Drawing		
2 to 2.30	Nature Study	Free period	Project work	Nature Study	Free period

Time-Table: Forms I and II
 New Zealand Correspondence
 School

1958.

Time	Monday	Tuesday	Wednesday	Thursday	Friday
9 to 10 a.m.	Arithmetic	Arithmetic	Arithmetic	Arithmetic	Arithmetic
10 to 10.10	Oral reading	Oral reading	Oral reading	Oral reading	Oral reading
10.10 to 10.30	Silent reading	Silent reading	Silent reading	Silent reading	Silent reading
10.30 to 10.45	M o r n i n g I n t e r v a l				
10.45 to 11	Spelling	Dictation	Spelling	Dictation	Spelling
11 to 11.30	English	Essay: coll- ecting mat- erial and planning	English	Essay or letter- writing	English
11.30 to 11.45	Free period	Writing	Free period	Poetry	Poetry
11.45 to 12					Writing
12 noon to 1 p.m.	M i d d a y I n t e r v a l				
1 to 1.45	History	Geography	Drawing	Geography	Drawing
1.45 to 2	Poetry	Free period	History	Free period	Reading
2 to 2.30	Drawing				Free period

Time-table: Secondary Division
For Courses A, B and C

Time	M o n d a y				T u e s d a y				W e d n e s d a y				T h u r s d a y				F r i d a y			
	M o n d a y				T u e s d a y				W e d n e s d a y				T h u r s d a y				F r i d a y			
9 - 10	A. Latin or French B. Latin or French C. History or type-writing				A. Latin or French B. Latin or French C. Book-keeping or farm accounts				A. Latin or French B. Latin or French C. Book-keeping or farm accounts				A. Latin or French B. Latin or French C. Hygiene or woodwork or agriculture				A. Latin or French B. Latin or French C. Book-keeping or farm accounts			
10 - 11	A. Geometry B. Hygiene or home science C. Hygiene or arithmetic or woodwork				English (A, B and C)				Arithmetic (A, B and C)				A. Geometry B. Hygiene or Latin or French C. Book-keeping or type-writing				A. Algebra B. Needlework C. Drawing or Shorthand			
11 - 11.15	M o r n i n g I n t e r v a l																			
11.15-12.15	English (A, B and C)				A. Algebra B. Needlework C. Drawing or Shorthand				English (A, B and C)				Arithmetic (A, B and C)				Geography (A, B and C)			
12.15-1.30	M i d d a y I n t e r v a l																			
1.30-2.30	Arithmetic (A, B and C)				Geography (A, B and C)				A. Science B. Science C. Agriculture or needlework				A. Science B. Science C. Agriculture or Hygiene or type-writing				A. Science B. Science C. Agriculture or Hygiene or type-writing			
2.30 - 3.30	A. Science B. Science C. Agriculture or needlework				History (A, B and C)				English (A, B and C)				English (A, B and C)				English (A, B and C)			

M o r n i n g I n t e r v a l

A f t e r n o o n S e s s i o n

It will be observed from the time-tables that the Correspondence School educates the child from the Infant stage to the adolescent University matriculation standard. The time-tables for the Secondary courses have been included here since, in the next section, we shall be dealing with the advanced stages in hospital education, all of which may come under the heading, 'Occupational Therapy', in its fullest sense of vocational activity. In the next section, also, will be included a summary of the Vocational and Practical Courses provided by the New Zealand Correspondence School, in order that we may compare it with the British programme.

Meantime it is of interest to note the allocation of hours in the time-tables to the basic subjects and to handicrafts or projects. It will be appreciated that these tables are modified at the discretion of parent and doctor to suit the capacity and disability of the physically handicapped pupil. 'On certain afternoons free periods are set down.' 'During these,' recommends the School, 'pupils should do any projects, needlework, corrections, etc., for which no set time has been indicated, or should spend extra time on their weak subjects. It is expected that Primary pupils who find difficulty in completing their work within the hours stated will continue their studies daily until 3 p.m.'

Social Education

'By social education,' writes Dr Butcher, 'is meant the development of breadth of outlook, variety of interest and personal co-operation with others for common ends. The Correspondence School has special facilities for this type of education. A large lending library is maintained from which books are continually being circulated free of charge to the pupils. A school magazine, The Postman, is published annually. Pupils are encouraged to join one or more of the following clubs and societies: Junior Red Cross, Pen Friendship, Stamp Exchange, International Affairs, Meccano and Model Building, Camera, Museum and Naturalists, Garden,

Animal Welfare, Playreading, Girl Guides and Brownies, Boy Scouts and Wolf Cubs. There is a Correspondence School Savings Bank which any pupil may join on lodging a minimum of 6d. as an initial deposit.' We may infer that the 400 physically defective children who are enrolled in the School are members of one or more of these hobbies.

Social Education in Britain

Similar social activities are encouraged in 32 per cent of our hospital-schools in Britain. These report 2 to 3 or 5 hours devoted to social and recreational subjects. All schools intimated that books suitable for children were provided in their libraries. In addition, even among orthopaedic bed-patients youth organisations such as Scouts, Cubs, Girl Guides and Brownies are begun, broadcast concerts are heard, mime and puppetry plays produced; Bird Clubs, magazines, competitions are conducted; in both T and D schools rambles, dancing and physical-training hours are arranged to suit the physical capacity of the child. During the war years the hospital children have contributed a fair share to National Savings through their weekly purchase of Savings Stamps and to the welfare of the Forces by knitting blankets and garments. All these activities, therefore, have formed part of a programme that is not behind the endeavours of their New Zealand cousins.

But it will be observed that in New Zealand as in America and Britain it is the educational need of the child rather than his vocational need that is emphasised in the earlier stages of his instruction. One teacher from a D and T school wrote, 'We emphasise the fundamental importance of the three Rs and do not believe in spending an overweening amount of time on such handwork as raffia, basketwork, fancywork, but rather give the children thorough craft-teaching, preparing them for work as tailors, gardeners, green men at golf clubs, cabinet-makers, etc.'

But though that aim is considerate of the child's physical condition, does it always satisfy his mental aspirations? What is to be the whole end of curative education? Hand, head and heart must decide together.

SECTION III. OCCUPATIONAL THERAPY

Occupational therapy implies the remedial treatment of an illness by stimulating in the patient an interest in an activity that may occupy him both physically and mentally. It is an auxiliary to surgical and medical treatment and it is the amount of interest aroused in the patient rather than the occupation itself which is remedial; though in the operation of certain crafts the physical stimulus to nerve and muscle will prove more beneficial than the mental. Unfortunately, in recent years the custom has been to apply the term 'Occupational Therapy' almost completely to cure, or aids to cure, by handcraft and manual instruction; and, furthermore, the aim behind these has been pre-vocational.

It ought to be borne in mind, however, that neither in the medical nor in the pedagogical sphere can the physical be separated from the mental; brain and hands, thought and movement (except where there is lack of co-ordination due to cerebral lesion), co-operating in almost simultaneous action. Could not the hands, to use a spiritualistic term, be called the 'mediums' of the brain? The distinction between calligraphy, of which the dictionary meaning is 'beautiful writing', and writing as a literary creation is, after all one of degree. It is the effort behind the achievement that counts, the willing that has led to creative action that is restorative to brain and muscle.

Physical Therapy

The modern methods of Matthias Alexander are based upon a recognition of the subconscious direction of will which is the drive behind all action. It is the basis also of Occupational Therapy which deals with the processes behind all motility. It may have to correct, improve

or re-educate what has already been acquired. It is concerned chiefly with posture and movement and therefore with thought processes or willing. Action becomes through frequent repetition almost altogether mechanical, automatic or psychologically speaking, 'subconscious'. That this should be so is considered by physical-therapists of the Alexander school to hold grave dangers. The initial action or movement (involving abduction of muscles, etc.) may be faulty and through constant repetition ultimately detrimental to the entire physical system. By a re-educating of the primary urges that lie behind all movement, by a retraining of the subconscious action, by a fresh exertion of will over impulse, harmful so-called involuntary movements and postures may be eradicated or corrected. Matthias Alexander through his methods claims to have cured apparently cases of spastic paraplegia, discarding the restrictions of plasters and iron frames, and epilepsy; but in his books he gives only vague clues to the technique of his method¹.

Though education in the pedagogical sense came late in the hospital-school curriculum, physiological education existed from the founding of the first orthopaedic institutions in Europe, since the development of motor skills is the first step in the education of those invalids whose nerves and muscles are impaired.

The modern occupational therapist, though she acts only under the doctor's direction, has some knowledge of anatomy, physiology and psychology. How else can she allot remedial occupations to her pupils without the risk of causing disturbances in temperature, posture, undue fatigue, strain to mind, eye, nerve and muscle? When nerves and muscles have become atrophied, she may do irreparable harm by advocating movements where posture, radius of movement, grip, etc., are wrong. She must know whether the atrophy is due to Arthritis, to Poliomyelitis, to

¹ See Matthias Alexander, The Use of the Self.

neuromuscular lesions following injuries to the spine, to closed or open sinuses and whether or not the latter are due to traumatic tuberculosis¹.

Occupational Therapy and the Child-Patient

Whether he be dull or bright, the education of the physically defective child in hospital must be occupational therapy in its fullest sense, that is, it must be from the start a combination of physical and mental activity. According to the time of the onset of the disease, the life-age at which remedial treatment was begun, the nature of the disability, the patient's chances in life, emphasis will be laid more on one aspect than on the other. If very young, the child will have to acquire that basis of practical experience of concrete things and events upon which real knowledge rests²; if more mature, he will have to re-acquire the knowledge which, through the nature of his illness, his enforced recumbency and the ensuing atrophy of mind and muscle, he has forgotten, or, worse still, through an acquired complex, bitterly regarded as of no further use to him.

At present only 27 per cent of the hospitals covered by our survey have appointed fully qualified occupational therapists, and the services of these are mainly directed to the adult patient. In a few cities there are occupational therapists who visit homebound cripples, as in Birmingham. But in the hospital primary school it is the handwork teacher - often the sole teacher - who is the occupational therapist. In most hospitals this training in handwork is considered by the Public Health Authorities to be as important, if not more so, than instruction

¹Cf. A. Haworth and E. M. Macdonald, The Theory of Occupational Therapy. (Second edition, 1944)

²Board of Education, Educational Pamphlets No. 112, The Education of Backward Children.

in the three Rs. The importance of handwork is made plain in Table XX on p. 109 by the small deviation between the hours devoted to each - Handwork, median, $7\frac{1}{2}$ hours; basic subjects, median, 9 hours. That this should be so might be justified for two reasons:

1. Apart from the fact that all handwork is useless unless it is both educative and progressive, the normal hospital-child needs much pleasant variety in his curriculum.
2. Into the action of his hands is directed the energy which in normal circumstances would go into play.

Yet from the progressive educational point of view, irrespective of the child's disability and the prognosis of his disease, this division of time allotted to these two types of subjects is not wise, particularly in the early stages of schooling, since it is surely necessary that all children be given the chance to read and write as soon as possible. The potential cripple, in particular, ought to have many mental resources upon which he may feed in years of enforced recumbency. If, on the other hand, the hospital-child is both physically and mentally backward, this fairly equal division of handcrafts and basic subjects is necessary all through the Primary stages.

It has not been thought necessary to indicate the types of educational handwork which are given to the Primary patients, but where the adolescent bed-patient is concerned, it will be understood that the subjects chosen by the occupational therapist are more advanced. These include embroidery, tapestry work, designing, leather work, advanced carpentry, rug-making, weaving on small adjustable bed-looms, and the more cultural crafts of lettering, designing and poster-painting.

The co-ordination of brain-nerve-muscle, their control, the speed of their action, is the business of handwork. Its pre-vocational possibilities for the bed-patient are valuable also; but the constant pursuit of the same craft induces, in spite of expertness in tuition and

execution, a purely mechanical action and a consequent dullness and laziness of mind that may extend to morals. It should be remembered, however, that this regrettable result is not confined to the inmates of hospitals. It occurs in every sphere of industry, in the home and in the workshop, as a direct outcome of mass - and speedy mass - production. William Morris, the artisan poet, was one of the first to participate in a movement to prove that the dignity of human labour as it existed in the mediaeval craft guilds could be restored by allowing the artisan eventually to produce the whole article, and also in its production to combine utility with beauty and even more to design and create the object from his original mental and visual idea of it. Only so could joy, peace, dignity, self-realisation, beauty, return to the work of man and consequently to his whole existence. Handwork is not merely a handmaid to the arts. It is one of them.

Occupational Therapy and the Ambulant Child-Patient

What has been said above refers mainly to the child in the ward. The early physical-therapy methods of Froebel and Seguin can be carried into activities of the workaday world in the tasks allotted to the ambulant orthopaedic patient, the T, D and M cases in sanatoria and Residential Special Schools. The real experiences of concrete things and events gained in the hours devoted to gardening in all its branches, bee-keeping, simple woodwork (for example, building the rabbit hutch), may be 'diversional' as the American says, educative and pre-vocational. Gone, let us hope, are the days when the entire occupation for these unfortunate junior and adolescent children consisted in the manufacture of bazaar articles and the making of artificial flowers. That the latter might be a worthy occupation and eventually a legitimate trade is not to be gainsaid; but as far as it is possible there should be an adequately educated mind behind the nimble fingers.

The Ambulant Adolescent Patient

The C, T, D and M cases of this class may go to the hospital trade-school or curative workshop where he may or may not be given a small wage while he is receiving instruction in, and executing, his craft. A considerable number of orthopaedic hospitals make their own surgical appliances and the older lads, and sometimes girls, are employed in their manufacture. Splints, calipers, boots, plaster and cellulose-covered casts are made with exquisite precision.

Hospital Workshops

From our questionnaire we learned that 50 per cent of the recognised hospital-schools pay special attention to manual instruction. Such instruction, as we noted in Section I, was given in hospitals in Europe as early as 1832, but in those days it was regarded as diversional and curative rather than pre-vocational. The instruction is given mainly to boys from 12 years upwards, that is, for patients who are resident and still requiring treatment, and since no secondary education is provided in hospital-schools at present, we may deduce that the majority of the senior boys and girls take advantage of these courses. The subjects include:

Practical

Tailoring	Carving	Pottery	Gardening
Dressmaking	Woodwork	Knitting	Rug-making
Canework	Book-binding	Weaving	Embroidery
Leatherwork	Painting	Fabric-printing	Boot-making and repairing

Commercial and Technical

Shorthand	General office routine and duplicating reports
Typing	Commercial English, Geography and Arithmetic
Book-keeping	Art, Lettering, Designing

It will be observed that these subjects are definitely more vocational than the activities provided for the older boys and girls in the Lancasterian

School¹. Indeed in some hospitals these classes are described as the 'Trade School' whether or not the adolescents receive any payment. They are held also in all types of special hospitals, including the two colonies for epileptics at Chalfont, Buckinghamshire, and Lingfield, Surrey, where in addition to the subjects quoted above laundry work and gardening are included for girls.

At the following orthopaedic hospitals and sanatoria the above courses are given prominence:

Royal Cripples Hospital, Birmingham
 W. J. Sanderson Orthopaedic Hospital, Gosforth
 Robert Jones and Agnes Hunt Orthopaedic Hospital, Oswestry
 Heritage Craft Schools and Hospital, Chailey
 Lord Mayor Treloar 'Cripples' Hospital, Alton
 St Vincent's Orthopaedic Hospital, Pinner
 Royal Sea Bathing Hospital, Margate
 East Park Home, Largs
 Hairmyres Colony, Lanarkshire

Training Centres for Cripples

The training centre is distinct from the hospital-workshop in that it may receive trainees from a fairly wide area. These adolescents are discharged hospital patients who may have been encouraged by a local Education Authority or by an After-Care Committee to take such a course².

¹See p. 107

²The After-Care Association (Physically Defective Children) was founded 'to provide suitable wage-earning employment for physically defective children within the County of London, in order that as large a proportion as possible may ultimately become self-supporting. The handicapped youths are placed in industry, and thereafter supervised by the Association, to whom a grant is paid by the Ministry of Labour.'

Branches of the parent Association sprang up in several large cities. Many of the valuable provisions made by this voluntary agency for disabled youth will be the basis for forthcoming statutory measures for their welfare.

That we might not allow ourselves to forget the ultimate purpose of these training centres let us observe the significance of these remarks made by the secretary of one of the centres. 'We cater for crippled girls after they have left hospital and P.D. schools at the age of 16 and are no longer in need of in-patient hospital treatment. We give them, if they prove suitable, a two years' training in highly skilled needlework for lingerie, children's smocks, etc. The appalling ignorance of the girls of 16 and 17 who are coming to us at present has forced us to give what amateurish teaching we can in elementary grammar, composition, English and general knowledge.

'The most disheartening part of this ignorance is the girls' negative attitude to all attempts to remedy it. They seem quite content to remain uneducated and accept the fact that they cannot express themselves by speech or writing. They resent any attempt to make them think or make any kind of intellectual effort. The main cause, I am sure, is their fear of showing their ignorance; they set up a defence mechanism of complete negation, which is very difficult to overcome. This is the more surprising because they show so much grit, courage and perseverance in overcoming their very heavy physical handicaps. If some spirit of intellectual curiosity and openness of mind were instilled in the pupils of P.D. schools and they were encouraged to read for themselves, the girls would very soon make up the lack of knowledge of facts which they have missed by their long periods in hospitals. The amount of leisure which a P.D. child necessarily has should, with proper guidance, enable her to be better educated than her active sister. It is just girls and boys who can never have the normal physical outlets who should be shown how to get as full a life as possible through the activities of the mind.'

That this criticism, alas, only too widely applicable still to the discharged adolescent pupils of hospital-schools, should have been penned in July 1943 is both a regrettable and challenging fact. The

psychological factor, that negative complex, is as serious and as difficult to overcome as the mental retardation which we noted in Section II, Part 2. It is met also by the employers of labour who later employ the trainees from the cripples' training centres. Yet it ought to be recognised that much has been done for their welfare, not only by philanthropic societies such as the After-Care Association, founded simultaneously with the Central Council for the Care of Cripples, but by the Government through investigations made by the Industrial Fatigue Research Board, appointed 1918, 'with a view to finding the most favourable hours of work and other conditions of employment applicable to industrial occupations according to the nature of the work and its demands on the worker.' In 1918 investigations had been made by the Medical Research Council for the purpose only of 'investigating fatigue from the economic standpoint', not from the human. 'Maximum output,' decided the Industrial Fatigue Research Board in their Report No. 27, Results of Investigations in Certain Industries, published in 1924, 'is contingent upon maximum fitness of the individual worker, and this in turn can only be attained by providing the most healthy and comfortable conditions and methods of work.'

The humanitarian investigations of this Board considered these points in reference to seven industries:

- (a) Length of spell of work;
- (b) Personal factors in accident causation;
- (c) Physiology of temperature and ventilation; lighting; noise; variation of speed; vibration; movement; rest pauses, etc.

The industries investigated were: textile, metal, boot and shoe, pottery, glass, laundry, and repetition work.

A further valuable report made by the Industrial Fatigue Research Board was issued in 1927 entitled The Physique of Women in Industry, which appropriately followed the Factories No. 2 Bill of 1926, which in Clause 47 stated, 'A woman or young person shall not **lift**, carry or move any load so heavy as to be likely to cause injury to such woman or young person.'

Tests were made by dynamometers according to the employee's weight, height, length of arm, distance of finger tips from the ground. These physical tests were ordinarily employed in industrial practices. One of them was on the use of muscles rarely employed as in 'lumbar pull', 'hand grip' and 'arm crush' movements.

Precautions for Employment of Handicapped Adolescents

In view of the above investigations referred to certain Boards by the Medical Research Council, it was considered expedient by the After-Care Association to take similar precautions for the handicapped youth about to enter industry. To this Association the discharged patient goes, bearing the following form from his medical superintendent. In section (2) of the form it will be observed that allowances are made to counteract the residual handicaps of practically all diseases requiring special-hospital treatment.

HOSPITAL SCHOOLS

Report for use of After-Care Association

Name Date of birth

Address

Defect

Contra indications: Please underline any appropriate contra indications.
Patient should not enter an occupation that involves

- | | | | |
|--------------------|---------------------|------------------|--------------------|
| Prolonged standing | Dusty atmosphere | Eye strain | Proximity to |
| Much walking | Stooping | Acute hearing | moving machinery |
| Full use of hands | Climbing | Food preparation | Noisy surroundings |
| Confined work | Exposure to weather | Lifting weights | |

Has child been certified P.D., P.S., or Deaf under the Education Acts?
If so, name of school attended (if any):

Remarks, appliances worn, medical supervision needed, etc.
.....

Date Assistant Medical Officer

The Quiescent Tubercular Case and Industry

This type of case is the hardest to place and supervise in industry. On the whole they are only exceptionally fit to enter most spheres of modern industry. It will be recalled that it was for this very reason that Sir Robert Philip started his Farm Colony at Lasswade, near Edinburgh in 1910. There men were to be trained in a healthier line of work during their convalescence. This form of occupational therapy, it was thought also, would counteract the demoralising influences of a long illness.

From this experiment was born the idea of the village settlement for tubercular subjects and their families. The most famous one was founded in 1916 at Papworth by Sims-Woodhead and Varrrier-Jones. It has been called 'a challenge to government and peoples', for up till 1932 no case of tuberculosis had occurred in any of the settlers' families. The entire community is economically self-supporting since every adult who leaves the sanatorium, which is the nucleus of the settlement, becomes a wage-earner in the suitable industries, such as printing and cabinet-making, that have been established in Papworth.

A list of the main village settlements for the tuberculous is given in Appendix on p. 266.

Occupational Therapy for the Tubercular Adolescent

The policy very briefly indicated in the aim and objects of village settlements for adult patients has been imitated for the adolescent boy and girl in several Residential Open-Air Schools of the T and D types and in some homes and colonies for adolescent C cases and pulmonary cases. A fine experiment was begun in 1929 by the National Association for the Prevention of Tuberculosis at Burrow Hill Sanatorium Colony for the 'combined treatment and technical education of tuberculous youths between the ages of 14 and 19 years.' The first medical superintendent, Dr A. H. MacPherson, had developed the famous Farm Colony at Lasswade

under Sir Robert Philip's direction in 1910, and later the Hairmyres Colony in 1914. It was a definite contribution to a curative education that was founded on broad humanitarian principles and since it is both interesting and helpful to co-ordinate the medical with the pedagogical point of view the following quotations have been taken rather liberally from an address given by Dr MacPherson shortly after the inauguration of the school. Particular attention should be paid to the types of courses chosen for the boys and the reasons attached.

'Hitherto this age period (14 - 19) has been somewhat neglected, in so far at least as special institutional care is concerned. Boys up to the age of 14 or 15 are eligible for the children's wards of sanatoria, but after this age they must enter the adult male wards if they require institutional treatment. The mental atmosphere of a sanatorium ward is seldom likely to be a healthy influence for a boy whose character is still in process of formation.'

It might be said at this point that the establishment of statutory secondary and adult educational courses in sanatoria¹ would do much to overcome the dangers rising from a maladjustment of ages and outlook. Because this age period was pre-eminently the teachable age, it was thought that a thorough grounding in some definite occupation would prove most advantageous for the tuberculous subject.

The Clinical Aspect

'The scheme', says Dr MacPherson, 'is eminently suitable for patients who have been affected by the more benign manifestations of tuberculosis of the lung. For instance, in the case of pleurisy with effusion at this age, a prolonged period of treatment combined with technical education may be looked upon as a very sound form of insurance against sickness and disability later in life. Those eligible for admission in the non-pulmonary group are cases of glandular tuberculosis without sinuses, or of tuberculous disease of bones and joints no longer

¹ See Appendix: Adult Education in Sanatoria, on p. 238.

requiring active orthopaedic treatment. The degree of disability affecting many cases in this non-pulmonary group is a barrier to most forms of employment, and further limits the choice of occupations for these patients. This factor was given consideration when arranging the courses of technical education.'

The Curriculum

It was decided to teach two occupations only so that the instruction given in each should be as thorough as possible; but in addition to this technical instruction some general education was to be given, for it was discovered that most of the boys were below the normal intellectually. It will be recalled from Section II, Part 2, that the majority of the tubercular youths were found to be from 3 to 4 years retarded in mental attainments.

The two occupations chosen were gardening and clerical work. From the following daily time-table, made up from details given in Dr MacPherson's address, it will be seen, however, that the range of interests provided for the pupils was by no means narrow.

Time	The Gardener's Day	The Clerk's Day
7 a.m.	Rising time	Rising time
8	Breakfast	Breakfast
9 - 12	In the gardens	General education, History, Geography, English, principles of book-keeping, Economics, etc.
	At the end of <u>every</u> hour each section of workers has a few minutes' rest.	
12 - 12.45	Compulsory rest	Compulsory rest
12.45 p.m.	Dinner	Dinner
1.15 - 2	Rest in bedrooms	Rest in bedrooms
2 - 4	General education	Shorthand, typing, practical book-keeping
4 - 5	Recreation and rest	Recreation and rest
5.30	Tea	Tea
6.- 8.45	Recreation, games, acting	Recreation, acting, play-reading, etc.

Gardening has always been one of the chief activities in the occupational therapy of sanatoria since it is considered the most suitable for the pulmonary group. Instruction in both occupations at **Burrow Hill** was very thorough because its aim was to prepare the pupil-gardeners for remunerative careers as nurserymen, private gardeners and market-gardeners, and the pupil-clerks for posts of graded responsibility in all branches of public service in both the business and the professional worlds.

The choice of curricula showed a wise consideration of the needs of town and country boys and also of the requirements and limitations of the pulmonary and non-pulmonary groups. As far as was possible the conditions of their future employments would be sheltered, and, as we have observed in our reference to investigations made by the Industrial Fatigue Research Board and the most recent Factory Acts, legalised as far as physical and psychological factors in industry can be. The boys at **Burrow Hill** - and at other similar, though less intensive training centres for adolescents - were drawn from a wide area. It mattered very much whether they had come from or would return to

- (a) an industrial belt;
- (b) a rural area on the edge of an industrial belt;
- (c) an isolated rural area, possibly purely agricultural, or, as in Wales and the North of Scotland, partly pastoral and partly under forestation.

The local Education Authorities and the Agricultural Authorities of the areas which supply such sanatorium-colonies have combined in their efforts to supply a high standard of full instruction in every course. It is gratifying to find that the lines along which the courses have developed are very similar to those adopted by the New Zealand Education Department Correspondence School. From the following comparison it will be observed that for the agricultural courses the physical conditions of the two countries, Scotland and New Zealand, have been intimately

studied¹. They constituted experiments which will be continued and emulated in most future schemes of a similar nature.

It should be recalled also, that the New Zealand Correspondence Courses meet the needs of physically handicapped children and youths as well as of normal children. The outline of the Agricultural Course for Young Farmers is given in great detail, and it will be noticed that the business side of farming is not neglected. Indeed, similar detailed accounts of curricula are given for all the vocational and practical courses conducted by the Correspondence School. On the whole, they coincide fairly closely with the British courses in sanatorium training centres and in the technical colleges (rehabilitation courses) to be considered in the next section.

Agricultural Courses

Hairmyres Colony, Scotland	New Zealand Correspondence School
Soils: origin, formation and classification	Farm accounts, including Income Tax and Unemployment returns
Manures: farmyard manure, artificials and lime	Dairy Science: composition and properties of milk, bacteria and their control, separating and treatment of milk, fat testing, herd testing, butter and cheese making
Crops: grain, root, hay, forage and pasture	Fertilisers: effects of fertilisers, classes and composition of fertilisers, action of nitrates, phosphate and potash manures, selection and valuation of manures
Foods and feeding of farm live stock	Farm and orchard crops
Dairying: breeds of dairy cattle, milk, factors affecting milk production, handling of milk, cream raising, and the use of the separator, the making of butter and cheese of different varieties	Pastures and pasture plants: rotational grazing
Pig-rearing	Soil Science:
Composition and utilisation of by-products: separated milk, buttermilk, whey	Farm pests and diseases
	Dairy Husbandry: cows, disease, feeding and management of pigs

¹ It must be borne in mind, however, that these courses at Barrow Hill and Hairmyres have been interrupted during the war years.

Agricultural Courses (cont.)

Hairmyres Colony, Scotland

New Zealand Correspondence School

Horticulture

Preparatory cultivation of the soil and rotation of crops.

Manures and manuring garden crops, cultivation of vegetables for home consumption and for the market, the cultivation of fruit trees and bushes.

Poultry-keeping

Common breeds of poultry, selection of stock, natural and artificial incubation, natural and artificial rearing

Foods and feeding

Ducks, game and turkeys

Diseases of poultry

Bee-keeping

Natural history of the bee, inmates of the hive, swarming, handling of bees, bees and flowers, the production of honey, the arrangement of an apiary

Forestry

Sylviculture: the scientific foundations of modern forestry and its principles, influence of forests on climate, soil moisture, water storage, water supply, agriculture and other national industries

Formation of woodlands: soil preparation, plant nurseries, planting and management. Felling, preparing and disposing of timber and other woodland products, timber transport by land and water, seasoning and preservation of timber, natural seasoning and artificial methods

Agricultural botany

Sheep farming

Poultry farming

Bee-keeping

Farm mechanics: modern farm machinery, combustion engines, etc.

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**SECTION IV. PART 1. REHABILITATION AND THE
EX-HOSPITAL PATIENT**

The term 'rehabilitation', like 'occupational therapy', has a distinctly modern, if not wartime, flavour; yet as we observed in our section on activity as an aid to healing, neither the one term nor the other is in essence new. When, in 1866, the famous John Groom's Crippleage and Flower-Girls' School was founded, the inmates were provided with an occupation that was to be more than a mere antidote to boredom for them. The girls became wage-earners in spite of their invalidism and the institution which housed them could no longer be termed a place of charity or workhouse. There, and in similar institutions such as Marylebone Cripple Girls' Home and School (1851), controlled by voluntary philanthropic agencies, where crafts, mostly of the bazaar-article-making type were taught, was born at least one of the ideas of rehabilitation, which in its fullest capacity of restoration includes the reinstatement of the disabled person to his former economic as well as physical and social status.

Before the dawn of preventive medicine and the rise of the orthopaedic and other categories of special hospital, the invalid had to be a 'confirmed' one, or a fully qualified cripple, before she was admitted to the earlier type of institutions where medical treatment did not advance along with occupational therapy. Now these go hand in hand in the treatment of particular diseases; there is the direct treatment of the physician, surgeon, nurse, physio-therapist and masseur, and the indirect treatment of the occupational therapist, the hospital-school teacher and the almoner or welfare officer. There are several now

long standing examples of this combination of theory and practice which constitutes the basis of rehabilitation. We have noted most of these in previous sections, but the most famous are those connected with personalities representative of different fields of medicine, viz.,

Sir Robert Philip in pulmonary tuberculosis and his inauguration of the Edinburgh dispensaries and the Farm Colony at Lasswade, the building-up period covering 1890-1908.

In tuberculosis, the Dame Agnes Hunt and Robert Jones Orthopaedic Hospital at Oswestry (1900) and the Derwen Cripples' Training College founded by Sir Robert Jones in 1927.

Sir Henry Gauvain in tuberculosis, chiefly bone-joint, and the foundation of such hospitals and hospital-schools as the Lord Mayor Treloar Cripples' Hospital at Alton, 1906.

Sir Pendrill Varrrier-Jones, also in tuberculosis, and the founding of Papworth Village Settlement in 1916.

One ought also to include the famous schools and occupational training centres at the two colonies for epileptics, Chalfont and Lingfield; and, were a wider survey possible, the combined medical and occupational treatment of cardiac neuroses, blind, deaf, dumb and incurable cases.

The Curative Workshop

Occupational therapy and rehabilitation came jointly into the lime-light, at first in medical circles, and gradually in ancillary spheres, after the successful experiments in 'direct' and 'indirect' treatment at Shepherd's Bush Military Orthopaedic Hospital during the Great War.. It again, as must be acknowledged, was founded on the lines already well developed at the Heritage Craft Schools, Lord Mayor Treloar Cripples' Hospital at Alton, St Vincent's Orthopaedic Workshops at Pinner and at others. But it was in its strict application to the medical treatment of war-injured and to their subsequent re-instatement in industry that rehabilitation became familiar to the nation. Now there is a danger that it be discussed ad nauseam since the aims of the first experiments in military workshops are being fully realised in those of 1939-1945.

The following statements taken from an article by H. M. King Manuel on curative workshops¹ are indicative of the purpose of all training centres and curative workshops attached to special hospitals. There were two classes of methods of treatment at Shepherd's Bush, direct treatment and indirect or psychological curative treatment. 'The system employed was, **first**, to give occupation to the men; **second**, to find work which would be most useful for their respective injuries; **thirdly**, to find occupations which would have a beneficial psychological effect; and **fourthly** to consider occupations which would, later on, be of benefit to the men when they were discharged from hospital either to the army or civil life.'

The benefits of the treatment were therefore twofold. There was a mental benefit to the patient, increased in value because the psychological treatment was purely voluntary - no man was compelled to enter any of the occupations; and the indirect benefit to the man's disability. 'My wish,' says one of the founders of the curative workshop, 'is that further organisation should create a real link between the authorities and societies which are dealing with the training and professional re-education of the disabled men. We are at the first stage of the problem, and I am proud to say that we have established our work on a solid basis.'

The workshops were important also from the military and economic side because the hospitals to which they were attached became self-supporting. Certain workshops became recognised centres for the supply of needs in certain areas from the more vital need for surgical appliances to the demand for fancy goods.

The choice of occupations given to the men was part of the surgeon's directly ordered treatment and the following list of occupations covers not only those supplied in the military curative workshops, but in the

¹ H. M. King Manuel, "Curative Workshops", in Orthopaedic Surgery of Injuries, Vol. II (ed. Sir Robert Jones).

succeeding training centres established at orthopaedic hospitals, technical colleges and Government training centres by the joint efforts of Public Health and Education Authorities, and the Ministry of Labour. Notice the wide scope, covering occupations suitable for particular types of disabilities in C, T and D groups.

Indoor Occupations

Splint-making, comprising metal-workers, fitting, leather-workers, smiths. Oxy-acetylene welding, cigarette-making, motor-repairing including vulcanising, wood-carving, machine drawing, telegraphy, basket-making, weaving, artificial-limb-making, papier-mâché work, embossed leatherwork, boot and shoe making, surgical-boot making, carpenters and joiners, tailors, upholsterers, printing, photography, surgical knife-grinding, plumbing, fretwork, book-binding, electrical work, net-making, rug-making, raffiawork, cane-chair seat-mending, orchestra.

Outdoor Occupations

Gardening, poultry-keeping, farming, forestry

Commercial Occupations

Typewriting, book-keeping, commercial correspondence.

Many of these activities have been included in our lists of occupations for the senior pupils in hospital-schools and Residential Special Schools; but it must be remembered that the more recent rehabilitation schemes are in the main more suitable for adults.

Federated Effort

The 'further organisation' of curative workshops desired after 1916 developed by leaps and bounds from 1922 onwards. In 1922 the scheme for the combined treatment and technical education of tubercular

ex-servicemen and latterly for tubercular youths at **Burrow Hill Sanatorium** was begun by the National Association for the Prevention of Tuberculosis. An interesting After-Care Colony was also set up at Beverley, near Hull. Observation of the comparative success and weaknesses of these and other efforts at Papworth Village Settlement led to the publication of a Memorandum prepared in 1936 by Sir Pendrill Varrier-Jones and Reynell Wreford in which suggestions were made upon capital and sales as they affect the development of all schemes run on village-settlement principles and as part of a nation-wide proposed organisation. The principles were summarised as follows:

- (a) Every position from that of a General Manager downwards must be open to a disabled man or woman, fit personnel only being introduced in positions requiring technical knowledge or physical strength when no disabled man possessing that knowledge or strength is available.
- (b) Each industrial department should be built around a personality.
- (c) No visible element of 'charity' must enter into the industrial departments, each of which must be made to feel that it has only itself to depend upon.
- (d) Hours of work must be prescribed by a medical man who should not otherwise intervene in industrial matters.
- (e) Industries thus constituted should not be expected to bear the cost of interest and amortisation of capital.
- (f) Sales must govern production, since it is disastrous to manufacture what will not sell.

It should be observed that the later schemes of the Orthopaedic Council, of the Interim Scheme for the Training and Re-Settlement of Disabled Persons, published in 1941 by the Ministry of Labour and National Service for the recruitment into munition factories of disabled persons, the Report of the Inter-Departmental Committee on the Rehabilitation and Re-Settlement of Disabled Persons, commonly called the Tomlinson Report of 1943, and in parts the Social Security Plan of Sir William Beveridge, follow the suggestions made in 1936.

The Above Schemes and the Discharged Hospital Patient

It may happen that an adolescent youth is discharged from a hospital-school in which no manual instruction has been provided or no assignments in secondary educational work given him by his teacher. What further courses of education are open to him? There are none; because if his education has ceased before or at the end of the Primary stage, and if, as is most likely, he is retarded in attainments owing to his disability, the duration of his stay in hospital and the numerical inadequacy of the teaching-staff, he is neither physically, psychologically nor intellectually capable of benefiting by any of the existing courses for the disabled.

But if, despite the latter inconveniences, he has had a good grounding in the basic subjects in the hospital-school and some practical or academic pre-vocational training in the ward-school or hospital workshop, he may at the age of 16 enter one of these training centres under the Ministry of Labour Interim Scheme

- (a) at certain Government training centres;
- (b) at special centres, for example, St Loyes College for the Disabled, Exeter, Queen Elizabeth Training College for the Disabled, Leatherhead, Surrey. These are institutions which have special experience of the training of disabled persons for industrial employment;
- (c) at technical colleges and other similar institutions;
- (d) at employers' works.

The training centres in (a) are a continuation of a scheme for the occupation of unemployed men during the period of depression after the Great War. The chief craft was furniture-making and upholstery. Group (b) comprises the training centres attached to well-known orthopaedic hospitals and Cripples' Colleges. In reply to the questionnaire sent to Queen Elizabeth's Training College, Leatherhead, the following reports were submitted. They are included as indicative of the nominal rolls of disabled persons at other centres.

Queen Elizabeth's Training College

Records of Discharges from 1934 to 12th July 1943

Sent to employment	714	55.8 per cent
Home for employment	87	6.8
Left for other reasons	356	27.9
Residents at 12th July 1943	121	9.4
Number admitted during years 1934 to 12th July 1943	1,278	100

Types of cases of orthopaedic disabilities trained in 1942 included:

Amputations	54 cases
Infantile Paralysis	24
Spastic Paraplegia	5
Hemiplegia	8
Monoplegia	2
Pseudohypertrophic Dystrophy	1
Encephalitis lethargica	1
Tuberculosis: spine, hip, knee, etc.	8
Arthritis	3
Fractures	6
Severe disability following injury	6
Congenital deformities	6
Deformities of spine	5
Unclassified (including Multiple Osteomyelitis, Disseminated Sclerosis, Post-traumatic neurosis)	7

Under the joint auspices of the Ministry of Labour Interim Scheme (1941) and Education Authorities, classes for the training of disabled persons have been begun at existing technical colleges. For example, in Scotland courses similar to those at St Loyes and Queen Elizabeth's Training Colleges are conducted at Stow College, and the Domestic Science College, Glasgow, at the Technical College, Coatbridge and at Atholl Crescent Domestic Science College, Edinburgh.

The yearly roll at the Scottish classes for the disabled in these colleges has been approximately the same as that quoted for the Queen Elizabeth College. The types of disabilities are also similar, while the subjects taught in all will ultimately include most, if not all, of those given in the list of direct-treatment occupations in the

military curative workshops. At Glasgow, classes in radio-repairs and typewriter mechanics have proved successful; while the need for domestic-science courses for disabled women, particularly ex-hospital C and T cases has been supplied by classes at the two leading Domestic Science Colleges. The length of the courses varies from 6 months to 2 years.

Medical Supervision

Provision is made in all of these centres enumerated under (a), (b) and (c) for proper medical supervision so as to ensure that as far as possible the training is suited to the particular disablement. Adequate rest intervals are granted between the classes and a dinner meal, or 5s. per week in lieu is provided.

Payment during Training

For all these trainees in groups (a), (b) and (c) an adequate monetary allowance plus travelling expenses is granted, thus placing the trainee and his dependents in economic security, the total lack of which was little short of a nightmarish apprehension in the mind of the long-term hospital patient.

These are the allowances:

Age	Weekly rate	
	Men and Boys	Women and Girls
21 and over	42s.	33s.
20 " "	33s.	31s.
19 " "	30s.	28s.
18 " "	23s.	21s.
16 - 17	17s.	15s.

Dependents' allowances at the rate of

7s. 6d. per week for a wife (or, in certain circumstances - other adult dependent)

3s. per week for each child.

In the (d) group trainees go straight from their periods of treatment

at clinic or hospital to employers of industry. It is well if these cases can be accommodated in sheltered workshops. The number of these, both cases and shops, is much smaller than is supposed. Cardiac cases and cases subject to eleptiform seizures are the most common types for whom such sheltered conditions, with a certain amount of medical supervision, will be necessary. The special workshops should be on the ground floor and if possible without steps, otherwise lifts must be available from one floor to another.

For Epileptics

In a private workshop in Glasgow there are employed at present a large number of epileptic subjects. These lads work under conditions that are ideal environmentally and psychologically. They know that should a seizure overtake them, they will be cared for, restored, and welcomed back among their mates without comment upon the interruption. Consequently no nervous tension hampers them. The three occupations provided are graded in difficulty and comprise simple canework, toy-making, perambulator-making. The whole business is reported to be run on profitable lines.

Residential Settlements

It is necessary that the trainees in all four groups be accommodated in certain cases in hostels or carefully chosen lodgings; but there are residential settlements which are provided for workers who are fit for work only under special conditions or in their own homes. We have already referred in another section to the village settlements for tuberculosis cases and certain Cripples' Training Colleges; but there is room for a further supply of residential settlements or occupational centres for cases that have hitherto been homebound or are discharged from hospital without hope of ever being employed in the usual types of industry. It has been observed by prominent officials of the Ministry

of Labour and Juvenile Employment Committee that the ex-hospital patient, particularly the quiescent T.B. case is very hard to place in industry and difficult to supervise. From the report sent by the Queen Elizabeth College it will be observed that 27 per cent of the trainees drop out, presumably for medical reasons. In the Scottish training centres those who lapse are reckoned to be about 25 per cent. It has been suggested to the writer that these cases may have embarked too soon, despite medical advice, upon the training courses. Residence for 18 months to 2 years in a Residential Special Open-Air School which would serve as a bridge between hospital treatment and their entrance into an intensive training course or directly into industry would benefit them in two respects:

1. their chances of recuperating are prolonged;
2. it takes a considerable time for certain cases who have developed an illness complex to become mentally adjusted to normal life.

With a view to developing future schemes on the above lines, investigations were made by officials of the Ministry of Labour (Juvenile Employment Section) into the possible number of trainees at present homebound and on the register of the Glasgow Cripple Children's League (1944).

Classification of Potential Trainees in Glasgow

	Girls	Boys	Total
Suitable for residential workshop	7	5	12
Able to travel to a factory (Glasgow area)	66	40	106
Suitable for home work only	31	3	34
Number in outside employment meantime	53	22	75

Of the above number 30 are juveniles (14 - 18 years), 17 girls and 13 boys.

The Tomlinson Committee Report

Since this famous Report of 1943 is the apex of all forward efforts towards the physical and social welfare of the handicapped which we have examined, it is only necessary to refer the reader to the text of the Report and to draw attention briefly to a few salient points that affect the future of the hospital-school pupil. These are:

1. The Committee's definition of the word 'disabled' (C. 82) 'A disabled person is a person who, on account of injury or disease of a character which is likely to last for more than six months, or on account of congenital deformity, is substantially handicapped in obtaining or keeping employment of a kind generally suited to his age, previous experience and qualifications.
2. The creation of a national register of persons handicapped by disablement. (C. 82)
3. Scheduled occupations for disabled persons (B. 78). 'It will be noted that the prohibition is of the engagement and not of the employment of non-registered persons in the scheduled occupations'. (B. 79)
4. Firms should, under certain circumstances, employ a definite quota of disabled persons on their staffs. (A. 74) Disabled Persons Employment Bill (Second Reading, December 10, 1943)
5. Value of occupational therapy in hospitals and sanatoria recognised. (III, 27) 'The Committee recommend that the Health Departments should keep before Local Authorities the importance of developing these facilities to the fullest extent under their schemes for the treatment of tuberculosis.'

Post-Hospital Rehabilitation of Children (VI, 109)

6. 'The Committee recommend that a specific obligation should be placed upon Local Education Authorities under the scheme to provide for the education, training and post-hospital rehabilitation of disabled children up to the age of 16, and the present powers of Authorities should be extended to permit them to make similar provision for young disabled persons beyond that age - whether or not they are attending an educational institution.'

It is evident that we are fast approaching a status of equality with existing American schemes for the rehabilitation of the disabled of all ages and categories of diseases which culminated in the legislative measures of the Federal Security Act of 1935. It is to be confessed that at least fifteen years ago, in a Nazi Germany, several of the proposals in the Tomlinson Report, for example, the recommendations for the quota of the employment of disabled persons in industry, were in operation. Similar provisions had also been made in Denmark.

SECTION IV. PART 2. ADULT EDUCATIONAL SCHEMES
FOR SANATORIUM PATIENTS

Considering the difficulty in pre-seeing the future (of permanent invalidism or sheltered employment) of the pulmonary-tubercular patient, a difficulty emphasised by the Tomlinson Committee in Section II, 25, of the Report, a draft of some educational courses has been prepared by the National Association for the Prevention of Tuberculosis. In view of the fact that some '20,000 - most of whom were under full-time treatment in hospitals or sanatoria - were regarded as unlikely ever to return to any form of employment', and that 'in the remaining 50,000' out of a tubercular population of 140,000 in Great Britain 'the disease had been arrested or had become quiescent and there was good prospect of achieving full recovery provided that special measures of rehabilitation were made available', the absolute necessity for such educational schemes becomes apparent. To the writer it appeared significant that to Question 16 of the survey questionnaire, 'How many discharged patients have entered upon the Training Courses for Disabled Persons at Technical Colleges?', only 51 hospitals, 21 per cent, gave replies. In all, 93 cases from 147 hospitals were specified as having gone straight from the hospital-school to these classes by the end of 1942. A few teachers and medical superintendents confessed to being unaware of the scheme. Some reported that '2 or 3 patients went to these courses yearly'; others recorded 'occasionally', others 'a few'. Some considered with justification, as we have seen, that their own surgical-appliance workshops and training centres took the place of the Interim Scheme courses, or at least served as a bridge between the earlier stage of hospital treatment and final discharge. But, we

repeat, the problems facing those who plan educational programmes for all long-term adolescent and juvenile patients will be solved when advanced or secondary education is provided by statute. It is more than possible that these programmes will be designed along the lines of existing ones and that, ultimately, the discharged patient will be prepared, as far as possible, to compete in the examinations for academic, commercial and technical careers and for Civil Service.

The Need for Adult Education in Sanatoria

It is not too much to claim that the nature of the long-term hospital patient's future is wholly dependent upon his degree of literacy. Upon that rest his chances of happiness, usefulness and self-realisation both physically and psychologically, whether or not he be among those 20,000 who are unlikely to enter any form of employment.

As the writer has said in an article in the N.A.P.T. Bulletin of October 1944, 'The same mental retardation and limitation of ideas and interests (as exists in the over-hospitalised child-patient) will begin to exist in the mind of the adult who is content to read nothing but a few headlines per day from the same daily newspaper; to play the same card game; or who, over a period of years, has been content with one type of simple, repetitive handwork.

The forces of nature, the winds, the light of day and night, the forms of plant and flower, change continually about us; it must be so if the earth is to be refreshed. Therefore the adult patient must seek change and refreshment of mind in his ward. While he is there he may be making or marring his own future in the world.'

The Proposed Plan of the Adult Education Scheme

It should be said that the whole scheme could with great advantage be modelled on the programme of Practical and Vocational Courses provided by the New Zealand Board of Education Correspondence School, samples of

which have already been given, and the Leaflet Courses arranged for advanced pupils in the hospital-schools of New South Wales. Further examples of the New Zealand Practical Courses assigned to both sexes are given below.

Commercial Courses

Book-keeping, advanced book-keeping, farm accounts, shorthand, typewriting, economics, conduct of meetings and duties of secretaries, business correspondence, commercial practice - advanced (legal side and contracts, etc.) (No prescribed textbooks for three last subjects.)

Practical Courses

Woodwork and allied subjects, building construction, instrumental drawing, trade drawing, motor engineering drawing.

Art Courses

Freehand drawing, watercolour painting, lino-block cutting and printing by hand, pen and ink sketching, figure drawing from life.

Commercial art, ticket and showcard writing, fashion drawing, design.

Needlework

Use and care of sewing machine, plain sewing, mending, darning and patching, garmentmaking, baby and children's clothing, hand and machine sewn, smocking, etc., notes on textiles.

Dress-making

Embroidery and design, design, colour and decoration of household articles

Knitting

Weaving, looms

Needle-weaving

Colour harmony

Housecraft Courses

Personal hygiene, home hygiene, housewifery, laundry, first aid, home nursing, preservation of foods, diet, foods and cookery

Handcraft Courses

Cane basketry, felt work, raffia work, parchment work, stencilling, soft metal work, soft toy making, decoration of white wood articles, bead work, passe-partout, papier-mâché, rug-making.

The H.A.P.T. scheme which is already in operation in some subjects, is designed specifically for the pulmonary patient 'who does not take easily to handcrafts or has few mechanical gifts, or cannot see how he is going to build up his life on this basis after he leaves the sanatorium.'

Such patients are to be encouraged to enter upon some course of study which could be undertaken directly under the supervision of teachers supplied by the Evening Institutes and Technical Institutes of local Education Authorities; or indirectly through extra-mural extension correspondence courses conducted by colleges affiliated to the Universities of Oxford, Cambridge and London. These provide training and prepare students for matriculation examinations for entrance to all universities and entrance to various professions and Civil Service; but the courses organised by two of the adult-education movements, the Workers' Educational Association and the National Council of Labour Colleges just 'cater for those who are interested in a particular subject and want to know more about it.'

The latter courses are very suitable for the chronic T.B. patient, because

- (a) he will in a pleasant manner supplement the education he had at school; and he will be equipped with a clearer understanding of human affairs;
- (b) the individual fees are small;
- (c) the cost could be shared if study or listening groups could be formed and an instructor appointed.

Under these adult-education bodies there are courses on

Industrial law and industrial relations;

Economics, local government, political and economic history;

Psychology, philosophy and logic;

English literature - poetry, novel, drama.

On the whole the courses are of six months' duration with no examination in view.

A correspondence course with a reliable School of Journalism might encourage those who have latent ambitions to write the poem, story or novel of the century.[†]

Art Therapy

In several sanatoria practical courses on Art have already been begun under the direction of a distinguished painter, Adrian Hill, R.O.I., the first experiment being made at the King Edward VII Sanatorium at Midhurst. 'Art therapy,' writes the artist, 'is only a new shoot from the parent tree (occupational therapy); it is still a tender growth and needs careful nurturing. But there are many factors which could help it grow to a sturdy tree. When the work of making something becomes mechanical, its value to the hospital patient is lost, for though the hands are employed, the mind is left to wander back into unprofitable channels. When the patient is drawing or painting, however, he or she becomes completely absorbed in the job in hand. With regard to the actual method of instruction, it must always be remembered that much depends upon the 'slowed-up' level of the patient's mental energy, the result of lack of stimulation from the outside world; and also that his physical condition may prevent him from carrying out some of the ideas which he has developed. When this is the case, we talk instead, about some interesting aspect of picture-making, or look together at some large prints of old or contemporary masters. So the cultural interest is retained until such time as the patient feels strong enough to take up his pencils and brushes.¹

A similar experiment in art therapy has had astonishing success

¹Adrian Hill, "Art as an Aid to Illness", N.A.P.T. Bulletin, October 1944. "Healing through Art" - editorial in same issue.

[†]See Appendix to this section, Adult Education in Sanatoria, p. 238.

among epileptic patients in Lingfield Colony. So normal were the results obtained that the art teacher could authoritatively state that there is no such thing as 'epileptic art',¹.

Textbooks for all Courses

It should be said emphatically that an adequate number of copies of textbooks required for any of the above courses should be placed in the hospital library. They should not be lent or borrowed by or from outside libraries. It is not generally known that it is illegal for visitors to take books to and from local libraries to hospitals for notifiable diseases. In the writer's opinion, the custom of sending 'withdrawn' copies from rural and city libraries to hospitals is both unhygienic and discourteous. No eager reader welcomes a soiled or tattered book. We might well emulate a scheme in operation among homebound invalids in Ohio, whereby Girl Guides have undertaken to deliver the freshest copies of the latest books to the cripples assigned to their care².

In reply to Question 12 in the questionnaire, Does the controlling authority of the hospital supply books and educational apparatus?, the replies are almost 100 per cent in the affirmative. All hospitals possess at least a poor or rich nucleus of a library, and all have books suitable for children. Several hospitals reported, however, that books, presumably 'withdrawn' copies, were supplied by city or corporation libraries.

If all future educational schemes are to function smoothly, however, a great deal of difficulty in obtaining textbooks could be obviated by

¹ Charles Handley Read, "Children's Painting and Epilepsy", The Studio

² Charles E. Lucioli, "The Library goes to the Handicapped", The Crippled Child, February 1944.

establishing a county circulating library for hospital patients, through which certain categories of books, for example, fiction, travel, etc., could be exchanged regularly; but, as we observed above, all textbooks for individual or group study (commercial, technical, perhaps also belles lettres) should be permanent fixtures in the hospital library.

Some Considerations of Adult Education among Chronic Ambulant T.B. Patients

If such a patient will not agree to go to a village settlement, some difficulty will be experienced in planning for his future and finally placing him. After the first period of his hospital treatment is over, he may be persuaded to join such training centres as the After-Care Colony at Wathington, Kingston-upon-Hull or the Burrow Hill Sanatorium and Training Centre. These two have been chosen for reference because in addition to completing the questionnaire the medical superintendents contributed some provocative and constructive statements about the success of work in their institutions. Both emphasised on the whole the need for consideration of

- (a) the trainee's disability;
- (b) the type of area to which he would ultimately return, generally his home environment;
- (c) the trend of modern industrialism and its effect upon the schemes undertaken at such institutions or colonies.

The After-Care Colony at Hull was founded in the early post-Great War years in order to help, chiefly, the large numbers of ex-service sufferers from T.B. They received a part-training in horticulture, poultry-rearing, boot-repairing, motor-driving, etc. Some of these activities fell into abeyance. The Colony like others of a similar nature may be developed into a rehabilitation centre with toy-making as a branch of the proposed work. 'Work,' writes the superintendent, 'has been so easily obtained in the past few years that we find it very difficult to persuade men who have spent 6 months in a sanatorium to

prolong their convalescence by going to the colony. The days of colonies like ours are over. Firstly, T.B. ex-patients do badly 'on the land' and should seldom be advised to undertake such work. It was, of course, the fashionable advice to give such men 20 odd years ago when the colony was founded. As the late Sir Fendrill Varrrier-Jones of Papworth said, 'This is the age of the machine; let the machine do the work, and the ex-patient look after the machine.' All modern schemes for rehabilitation of T.B. sufferers should develop along the lines of light industry where a man can work at a bench in good factory conditions under supervision. The lesson of Papworth is staring us in the face, if we would only learn it - and as Varrrier-Jones preached in the latter years of his life here and in Canada.'

It would appear from the points we have gathered from the schemes of the Ministry of Labour's Interim Scheme of 1941 and the Tomlinson Report of 1945 that the main trends of the rehabilitation of the tuberculous will be along the lines of light industry in sheltered conditions, the work to be either part-time under ordinary industrial conditions or 'full-time work modified as regards speed or otherwise, and in providing this modified work under sheltered conditions for the chronic active type of case' (Tomlinson Report, Section IV, 62).

There is also a recommendation that, with a view to relieving patients from financial anxiety likely to militate against their cure and discouraging them from engaging in work beyond what is desirable in their own and the community's interest, some provision should be made for the payment of allowances for patients (with dependents) who are undergoing institutional treatment or conforming to a prescribed course of employment as part of their treatment.

The Adolescent T.B. Patient and his Future

The federated forces of four legislative bodies, the Ministry of Health, the Board of Education, the Ministry of Labour and the Ministry

of Pensions, are therefore planning a future for all categories of disabled persons that will meet their needs physically, mentally and socially. In concluding this section, however, the writer would like to refer once more to one salient feature in the joint scheme for the treatment and technical education of boys at Barrow Hill Colony. It catered, it will be remembered, for both the orthopaedic and pulmonary tuberculous case, and, after careful deliberation, the two courses of instruction finally chosen as being most suitable for these two types of disease were clerical work and horticulture with the addition of some continued general education for backward subjects. The writer does not wish to offer any opinion upon the advisability of such convalescents being 'on the land'; that is a topic for the medical expert to discuss. But much difficulty in arranging matters happily for the patient from every aspect (physical, mental and social) will be obviated if, as the medical superintendent of Barrow Hill pointed out, the boys are drafted into this kind of training-during-convalescence at a pre-eminently teachable age. In this impressionable stage of their development, their future will be planned or modified in consideration of

- (a) their disability;
- (b) their residual abilities, physical and mental;
- (c) their individual human needs qualified by environment and heredity.

Consideration of point (c) will ensure that the lad, or girl, will receive training which will settle them happily in the urban or rural area to which they belong; for, it must be recognised, that with advancement of improved housing conditions and of all the branches of preventive medicine the cry of 'Back to the land' for the T.B. convalescent will have lost its urgency.

The spread of such residential settlements, modelled on Barrow Hill, Papworth, Wrenbury Hall, Hinwick Hall for severely crippled boys, Derwen Cripples' Training College for girls and boys, the Hostel for

Crippled Women Workers, Denmark Hill, etc., will ensure that the particular needs attached to all types of chronic diseases will be satisfied.

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Appendix

Adult Education in Sanatoria

The adult education scheme proposed by N.A.P.T. for long-term patients in sanatoria is more cultural and academic in its choice of subjects than that now suggested at the beginning of 1945 by the Ministry of Education in its Circular to local Education Authorities. The latter is mainly a course of practical subjects which would prepare the patient for new jobs in post-hospital life. The suggested subjects are, Accountancy, Baking, Banking, Estate Management, Grocery, Horticulture, Printing, Rating and Valuation, Salesmanship, Secretarial Work and Transport. The fees will be 5s. or 10s. and in suitable cases may be waived entirely. The arrangements will be made conjointly by the Education Authorities and the hospital authorities, though the latter must specify the patient's fitness to undertake the study, which will be conducted either by visiting tutors or through correspondence courses.

SECTION V. A NEW CURATIVE EDUCATION

It will be recalled that only one of the institutions covered by our survey reported that the teaching method employed was that of Rudolf Steiner. At the moment of writing there are only seven schools in Britain for normal children and one for sub-normal children which have been developed to carry out the principles of Steiner, who, though but recently dead, may be described as a contemporary, since the first school to give practical trial to his theories upon education was inaugurated in Waldorf in Germany in 1917. The pupils were the families of workers in a cigarette factory whose owner was an admirer of the universal human appeal of Steiner's doctrines. Steiner was first and foremost a natural scientist and that he happened to be a theosophist and ultimately gave to Central Europe at the most critical age of its history the science of Anthroposophy, the science of the knowledge of man and his divine origin, is merely incidental. What will matter in the future is his claim to have evolved an art of education that satisfies the fundamental requirements of the individual in relation to the society and age in which he lives. According to Steiner, it would be possible to create a New Age from which the general disintegration caused by sectarianism in philosophies and religions and by a social caste system would disappear, if one thing were known thoroughly - Man himself, or the Ego which moulds and controls the three separate parts of man, defined by Steiner as the sentient being or soul, the intellectual soul, and the spiritual soul¹. These terms, it might be argued, are not new;

¹Rudolf Steiner, The Education of the Child. P. 19

men have heard, down the ages, about the eternal triangle of man's nature in fashions of terminology, colouring the theories of Plato, Locke, Froebel, Seguin, Rousseau, and by their mere repetition dangerously disintegrating the very unity they venture to build up or portray of body, mind and spirit; hand, head and heart; physical, mental and spiritual; body, intellect and soul; their separate claims being overweighted one way or another according as the trends in the educational systems of different ages were physical, humanistic, materialistic or psychological. It might appear to the casual observer that because of the theosophical background of the founder's personality, the Steiner system of education could be swamped in the 'spiritual'; for it is in its approach to the tripartite being of man that it is different from preceding systems. Its developmental processes move as it were backwards from the spiritual to the physical, from the abstract to the concrete, and not in the opposite direction as the Froebelian methods did. Once more, it might be objected, Froebel's conception of education as the development in the child of a sense of his unity with nature, man and God, is essentially the same as Steiner's desire to create in the child a sense of his unity with the whole cosmos. Any confusion that might arise in an attempt to compare the two systems is clarified somewhat by the introduction by Steiner of a fourth element in man's being, the 'vehicle', Ego, which controls the three others. This 'I', it must be understood, does not emerge until the first stage of development of the earliest sense-perceptions is past. 'In designating himself as I, man has to name himself within himself. A being who can say I to himself is a world in himself. Those religions which are founded on spiritual knowledge have always had a feeling for this truth. Hence they have said: With the I the 'God' - who in the lower creatures reveals himself only from without, in the phenomena of the surrounding world - begins to speak from within.¹

¹Rudolf Steiner, The Education of the Child. P. 14

It is therefore this individual Ego which the teacher must know if he is to be able to follow the child upon the road to education which his own inner nature would have him take. This desire to know the child, almost to taste him, has led to a distrust among disciples of Steiner of modern standardised intelligence testing. 'Let us go,' they seem to say, 'straight to the centre of the child's being; past his heredity and his environment; past his parents; let us go, if we can, past the very embryo of his being to his soul. Only so can we understand his desires and needs. If we become lost in the search for the individual, only then we can search for him in the tribe, the race and in the nation.'

'In short, we shall place him where he ought to stand biologically in the history of his own development.' But that also, the critics will say, is not new; Froebel, Seguin, Montessori, built up their systems from scientific observations of physiological developments in the race and the individual. Impulses, urges, desires, activities of body, mind and spirit were studied and given appropriate expression at the proper biological age. Education towards individual freedom became the battle-cry of the educationists¹. It therefore came about among these and other modern systems that science and art, religion and morality, became widely and almost permanently separated. Whereas the Steiner system would claim to re-unite them (as they seem to have been united in the days of the Greek palaestra, schools in which the cult of body and spirit was bilateral) at every stage of the child's development; for in the organism of the child lies not only the seed of his future but his whole future. (Here again we recall the Froebelian

¹Steiner preferred to use the phrase 'inner freedom' of the individual, emphasising again the theory that even the idea of the free development of the individual cannot be separated from his organic growth.

comparison of the growth of the child with that of the plant.) The processes of intellectual development in the child must not be forced, says Steiner, just as the plant ought not to be forced to bud or flower prematurely; yet, all along, 'in the gradual groping and striving upwards of the shoots of physical, mental and spiritual growth, the consciousness of the child as a complete being, like the picture of the full flower, is never lost. The child of three or four is as complete as he might be as the child of eight. The thought, speech and memory faculties of the latter are more fully developed but only in relation to the child's chronological and physical metabolism. He is still a heaven-born spirit for whom the Ego of his inner being demands a gradual accumulation of concepts and experiences that will unite him to the plant, the animal and the human world he sees around him.' And, says Steiner, it is not his mere sense perception of these (the sentient being) that matters but, as to the blind man, the stimulus that is 'reflected in an inner process' 'Unless we hold fast to this criterion, we should be justified in saying that blue litmus-paper has a sensation of certain substances, because it turns red by contact with them¹.'

In a footnote to the above quotation Steiner says, 'It is necessary to lay stress on this point, for there is in our time a great want of clearness on such matters. Many people obscure the distinction between a plant and a sentient being, because they are not clear themselves as to the real nature of sensation. If a being or thing acts in some way in response to an impression that is made on it from without, one is not therefore justified in saying that it has a sensation of the impression. It can only be said to have a sensation if it experiences the impression in its inner life, that is, to say if there is a kind of inward reflection

¹Rudolf Steiner, The Education of the Child. P. 13

of the outer stimulus.'

One might draw parallels of the above point by observations drawn from two widely separated fields; from that of modern physio-therapy in the inner, mental process set up by external stimulus to the motor-neurones of certain cases of paralysis; and from literary theory in Wordsworth's late eighteenth century definition of poetry as 'emotion recollected in tranquillity'. Even so noble a thing as the inspiration that itself gives birth to a great poem must have originated in a primarily physical stimulus or picture that gives place to a concept or idea; but, Steiner would go on to say, not even the stimulus would have been forthcoming had not the inherent artistic qualities of the observer been brought into play. As in poetry, so in Steiner's theory of education, it is the accumulated powers of thought, will and feeling that produce what is complete and whole. He infers that if these processes of thinking, willing and feeling, which have been gradually developing from birth to the time of the change of teeth at 7 years are coerced, or if in school subjects are 'taught in a purely intellectual way', what is produced will be incomplete and distorted. What must be avoided at all costs, one concludes from reading Steiner's The New Art of Education, is this distortion or disintegration of the child's inner nature, his 'individuality' or Ego. How is it to be done? It is to be achieved by educating the child in the same rhythmic way as his bodily organs develop; for only according to the rhythmic principles of nature are the system of veins, blood circulation, **breathing**, also the motility of walking, speaking and even of thinking and imitation, built up. The building up can be helped if the teaching is done in a rhythmic or artistic way. And the speed of the child's advancement will depend upon the depth of his power to feel. So it was that, amongst the early Greeks, music formed part of the tuition of young children. They were made first of all to feel so deeply the rhythm of the dance or the song that later in the actual execution of the melodies the music seemed to flow through their very finger-tips into the strings of the lute.

'Teaching that is permeated by an artistic quality flows into the rhythmic system. To coerce the child to think is to generate forces connected with salt-deposits and the forming of bone. Thus if writing is taught in a purely intellectual way, the tendency to sclerosis in later life is set up.' Many similar sentences occur in The New Art of Education which concern the doctor rather than the teacher, though Steiner admits 'how necessary it is for the teacher and educationist to have some understanding of tendencies to health and disease in the human being.¹' 'Working from the basis of the artistic, we can educate the human being in such a way that he will feel a sense of inner well-being with every step and every movement of the hand.²'

The Steiner Principle of Education and the Physically Handicapped

Would it be possible to work from the 'basis of the artistic' in educating the physically handicapped child in the hospital- or Residential Special School? Could a sense of inner wellbeing be given him despite his inability to take a step or move a hand? We think it could; for from developing in the child a sense of his oneness with the cosmos in body, mind and spirit - the root aim of Steiner's system - there grows up in his mind a well-balanced store of activities which induce a remedial and spiritual calm. The system may therefore be legitimately described as 'curative' in purpose.

The Sense of Unity

We observed earlier that the Steiner principles differed from the

¹ Rudolf Steiner, The New Art of Education. P. 203

² Ibid., p. 16

Froebelian and other principles in their approach to the understanding of the triple nature of man's being. The difference may be illustrated very simply by referring to the methods of each in teaching Number in its basic steps; and the tenets laid down here are adopted in the approach to, and presentation of, every subject in the curriculum of the Steiner schools, that is, the development of body and mind by and through the influence of spirit.

Froebel moves from the concrete to the abstract, or from the perception of the unit to the contemplation of unity, thus:

'Here are (showing them)

1. An apple; another apple; yet another apple.
2. One apple; two apples; three apples.
3. One, two, three apples.
4. Three apples.
5. Three.' (It is difficult to separate the concept 'three' from the enumeration of 1, 2, 3.)

Steiner moves from the abstract to the concrete, or from the whole (unity) to the unit, thus:

'Here is (holding it up)

1. Apple. This is 1.
2. Now we go on from the whole to the parts or members. We cut the apple into two. We have made of the 1 a 2, but the 1 still remains. The unit has been divided into two. Thus we arrive at 2.
3. By a further partition of one of the parts of the apple the 3 appears. But the 1 or unity remains as the all-embracing whole.'

'The whole point is that everything conveyed in an external way to the child by arithmetic or even by counting (or enumeration) deadens something in the human organism. To start from the unit and add to it piece by piece (i.e., This might be applied to the teaching of every subject in the school curriculum) is simply to deaden the organism of man. But if we first awaken a conception of the whole, then a con-

ception of the members of the whole - starting from the whole and then proceeding to its parts - the organism is made more alive¹.'

'Continuing in this way,' says Steiner, 'from the living whole to the separate parts (the human hand and its five fingers as units of the whole might be chosen as starting-point in the lesson also), one teaches the reality underlying all arithmetical calculations.'

Other Subjects and the Sense of Unity

So in the teaching of other subjects to the ill or hospitalised child the idea of ^{the} human being and his relation to the world must never be lost. History and Geography must be presented to him, pictorially as far as possible, as parts of a great pageant showing the evolution of mankind. In the music lesson, where if absorbed he surrenders will and heart to his subject, he should be taken into those higher reaches of the spirit that will restore to him as no other lesson will a sense of physical wholeness and oneness with life. But before imbibing more advanced History and Geography, the child will have studied 'plants in their connection with the earth and the different animal species in their connection with man', so that gradually he will see in the human being 'a living synthesis of the whole animal kingdom.'

The writer recalls with pleasure her visit to the Rudolf Steiner School for Delicate Children at Camphill, Deeside, when during a morning session she heard a class of boys and girls whose ages ranged from 10 to 13, and who were suffering from nervous disorders such as Chorea, spastic paralysis, post-operational debility, etc., receiving one of their plant-lore lessons. It was a simple one on the Apple-Tree; yet it gathered into its short compass all the Steiner principles of teaching, in the presentation of the Apple-Tree from mythological and biblical times as the parent of a family, in its wild crab-apple

¹Rudolf Steiner, The New Art of Education. P. 173

state, then in its cultured, domesticated or garden-state as the bearer of sweet fruit, as the mate of the rose-tree, as the ancestor of the tiny strawberry plant; while over and under all, the children were made aware of the relationship between these plants and the forces of the sun and the living sap of the earth. Following the short lecture the older pupils wrote down something about the Apple-Tree to the dictation of the teacher while younger and more backward ones drew and coloured apples and appleblossom, or wrote short sentences about them. It was evident that the children were already familiar through similar lessons with most of the plants and trees in the school grounds. They were their living friends.

'The one great object of education is to enable the human being to find his way through life by his intelligence and will. These two will develop from the life of feeling that has unfolded in the child between the ages of seven and nine and a half. Thinking and feeling and willing are then brought into a right relationship instead of developing in a chaotic way. Everything is rooted in feeling. We must begin with the child's sentient life and from feeling engender the faculty of thought through a comprehension of the kingdom of the plants. For the life of the plants will never admit of dead conceptions. The will is developed if we lead the child to a knowledge of his connection with the animals and of the human spirit that lifts man above them¹.'

Surely among the ambulant cases in sanatoria and Residential Special Schools there could be no more restorative way of teaching than this.

The Approach through Art

The application of the plastic arts to teaching methods would be less adaptable to hospital-schools as a whole. The writing lessons

¹Rudolf Steiner, The New Art of Education. P. 165

begin with a kind of painting, and from this develops the first lesson
begin with a kind of painting, and from this develops the first lesson
in phonetics and ultimately in reading. Thus:

'Let us all draw with our brushes the wind or a wave of the sea.

We have all a picture in our minds of the waves or of flowing water.

So



that is our 'w' sound. Now let the surface of the water rise into
waves. So:



That is 'w' in writing.

So also with the Boy who caught a Fish

and



for the 'sighing' of the wind¹. Much can be left to the ingenuity
of teacher and pupils.

Phonetics are taught principally by eurhythmy; but in place of
the human exponents of the sounds, particularly of the vowels, small
carved and coloured symbolic wooden figures may be made.

'It is of incalculable benefit to the child if we develop this
element of feeling in writing and then allow a faint echo of the intellect
to enter as he rediscovers in reading what he has already experienced in
writing. Between the ages of seven and nine-and-a-half, it is
essential that the teaching shall make a direct appeal to the element of
feeling. The child must learn to feel the various forms of the letters.
This is very important. We harden the child's nature unduly, we over-
strengthen the forces of bone and cartilage and sinew in relation to the
rest of the organism, if we teach him to write mechanically, making him
trace arbitrary curves and lines for the letters, making use only of his
bodily mechanisms without calling upon the eye as well². If we also

¹It was impossible owing to war-conditions to obtain technical books on
the teaching methods of reading and writing in the Steiner schools.

²Notice that this process of feeling is not the concrete tactile feeling
obtained when the child traces with his finger the outline form of the
Montessori sandpaper letters. It is emotional or impassioned and is

call upon the eye - and the eye is of course connected with the movements of the hand - by developing the letters in an artistic way, so that the letter does not spring from merely mechanical movements of the hand, they will then have an individual character in which the eye itself will take pleasure. Qualities of the soul are thus brought into play and the life of feeling develops at an age when it can best flow into the physical organism with remedial power¹.

Some teachers refer to this introduction of the plastic arts of painting - and modelling - into the presentation of the basic subjects as 'pictorial' methods. It must therefore not be confused with many of the visual aids to instruction already adopted in other systems of education. It is possible, because of its combination of feeling with activity, that its merits as a curative or remedial system are correspondingly greater.

The Artistic Basis in Teaching and Speech Defect

In the Steiner schools for delicate children 'education is a social concern in the widest possible sense for it begins immediately after birth.' It could be claimed, then, that for these unfortunate children who show early signs of defects in walking and speaking, there is no system more remedial. Teaching technique begins at once from the artistic basis, for between the ages of 1 and 7, according to the anthroposophist, body, mind and spirit are still inseparable parts of the child's being. He is one great sense-organ and learns by imitation and by feeling. Stimulus and excitement through art, through

Footnote continued)

only 'symbolised' in the Steiner technique in the carved forms of the vowel sounds, expressive of anger or astonishment, 'Ah!' or 'I' or 'Oh!' in eurhythmy.

¹Rudolf Steiner, The New Art of Education. Pp. 153-154

the presentation of music in song and instrument, through sound and gesture in plays, the backward child, the Mongol case, or the spastic with speech defect due to birth injury, is taught to make sounds and eventually to converse.

'Speech develops from this process of orientation in space (walking). Modern physiology knows something of this, but not very much. It knows that the movements of the right hand correspond to a certain activity of the left side of the brain, which is related to speech. Physiology admits the correspondence between the right hand movements and the so-called convolution of Broca on the left side of the brain. The hand moves, makes gestures; forces pour into it, pass into the brain where they become the impulse of speech. Science only knows a fragment of the process, for the truth is this: Speech does not arise merely because a movement of the right hand coincides with a convolution in the left portion of the brain; speech arises from the entire motor-organism of the human being. How the child learns to walk, to orientate himself in space, to transmute the first erratic and uncontrolled movements of the arms into gestures definitely related to the outer world - all this is carried over by the mysterious processes of the human organism to the head, and manifests as speech.

Anyone who is able to understand these things realises that children who shuffle their feet as they walk pronounce every sound, and especially the palate sounds, quite differently from those whose gait is firm. Every nuance of speech is reflected in organic movement; life to begin with is all gesture, and gesture is inwardly transformed into speech¹.

¹Rudolf Steiner, The New Art of Education. Pp. 122-123.

Speech Training through Plays

At Myrtle House, one of the colleges of the Steiner School at Deeside, the writer saw a group of children, mostly suffering from speech defects due to severe birth injuries, rehearse a scene from The Sleeping Beauty. Their age-range was from 7 to 10. One forenoon per week was devoted entirely to this form of activity. The intense feeling and interest aroused in the children by the story was evident in the sounds, more or less articulate, which they all emitted as they moved. Their teacher was entirely absorbed in his demonstration of gestures and speech and the children equally so. It was little to be wondered at that sooner or later all of these children would speak in the real sense of the word. They acted, needless to say, with astonishing dramatic vigour.

Moral and Religious Teaching

This also is given in close relationship to biological development to every case in the Steiner school. It is not the apex but the root of all their educational system. It claims, also, to be absolutely non-sectarian, since it endeavours to inculcate in the child a religious feeling that is universally human in its appeal. It is Christian in the deepest sense, but it is presented to the child according to his age in the simplest sense.

'When the child first comes to school between the ages of seven and ten, we let plants, clouds, springs and the like speak their own language. The child's whole environment is living and articulate! (Notice, disease as such is never obtruded upon the consciousness of the children, all of whom, however, have diseases of some sort.)

'From this we can readily lead on to the Universal Father-Principle imminent in the world. So we form a link with the knowledge of nature conveyed to the child in the form of fantasy and fairy-tales.

Our aim in so doing is to awaken in him, first of all a sense of gratitude for all that happens in the world - this is what will guide religious feeling in the right path.' It is not till the age of 9 or 10 that any explanation of the personality and divinity of Christ is given to the child. He has been prepared to receive it by learning how divinity is imminent in all nature. 'In no sense,' writes Steiner, 'do we work towards a blind, rationalistic Christianity, but towards promoting a true understanding of the Christ Impulse in the evolution of mankind. Our one aim is to give the human being something he still needs, even if all his other teaching has endowed him with the qualities of manhood¹.'

At Camphill this religious feeling is developed in the cases in a very marked degree. It has been achieved through the simplest of ritual, in the simplest of surroundings - a barn converted into a chapel - yet made to appear to the child as something of paramount importance to his whole physical, mental and spiritual being. If he cannot walk to Chapel he is taken pickaback by his teacher or wheeled in his chair. He is taken individually by the hand by the doctor who is healer, teacher and preacher, and receives a message for himself. It is no exaggeration to say that even the dumb respond by soundless movement of the lips or by gesture of the limbs; so that apparently even those terribly ill children can thank their Maker for 'all the joys of existence.'

The Communal Life in the Steiner School

As an experiment in social education it is remarkable for the ordinary as well as for the sub-normal child who may be physically or mentally defective or both. Abnormality may be said to exist beside the curative influences of normality; for the ill children are bred and educated in close proximity to the normal and healthy children of

¹Rudolf Steiner, Lecture X, The New Art of Education

the doctors and teachers. In this way the home atmosphere is produced which can be lost in an institutional ward. Nor do the ordinary derive any harm from the below-par children. The only rather unhealthy element may occur in the tendency of the delicate child to hero-worship the strong one. On the other hand, say the teachers, the robust child benefits by being taught to be gentle and considerate towards the weakly one.

Social Background

Class barriers simply do not exist in the community, for all types of children from all grades of society are admitted. The parents who can afford to do so, contribute substantial fees for the board, medical treatment and education of their children; while the children of less affluent parents are provided for by grants from Education Authorities, Board of Control, Public Assistance or Social Welfare Bodies.

Distinction in social status is also eradicated by the fact that the community is practically self-supporting in its domestic arrangements and food supplies. Indeed, the motto of the school might be: 'He or she who does not work does not eat.' Consequently, each member of the staff and each pupil, the latter according to the nature and stage of his illness, does his daily chores of sweeping, dusting, bed-making, preparing vegetables, washing up, laundering, bee-keeping, poultry-feeding, wood-chopping, boot-repairing, etc. There are no servants, for all serve each other.

Educational Activities

It will be apparent that all these social activities which arise from the necessities of the community form part of the educational structure. At one period of the day the Art teacher may be encountered sweeping out the hall; at another helping a group of adolescent youths

to paint a fresco on the dining-room wall (Incidentally, reproductions of the finest Old and New Masters in every school of painting clothe the walls of living and class-rooms); and in the afternoon giving a group of apparently helpless boys individual jobs to tackle in building a henhouse, hoeing the garden, or making a cutlery-box. These educational and social activities are all communal; for the whole colony may be seen on occasion taking part in plays and pageants; in rambles and games and foremost of all, as we have seen, in religious services. In the activities every case, be he chair-ridden or ambulant, has his allotted part. Even if he is confined to the sick-room his treatment continues to be medical and educational since the essence of his cure lies in his attempts at self-development. In the execution of the simple orders given him by his nurse who may be a teacher or doctor in training, he is taking the first steps in physiological education.

School and Clinic Combined

Not only the teacher but the doctor must take into account the mental struggle of the individual human being, be he normal or handicapped. Only so can the hospitalised or institutionalised child be educated and healed, as far as possible in the case of the disabled, to a state of wholeness in body, mind and spirit. It must be obvious, therefore, that the ideal school for all types of children who require not an isolated but a sheltered environment, should be a place where medical and pedagogical teaching go hand in hand. That is, it should be a combination of clinic and school, not necessarily always of the residential type; for example, day-school clinics such as the Neurological Institute in New York already mentioned; the Children's Hospital (Spastic Centre) at Mount Elizabeth, Victoria, Australia; and a new centre for cerebral palsied children at the Surgical Institute for Children, a unit of

the Research and Educational Hospitals of the University of Illinois, are good models of such an experiment. However, it must be admitted that though the disciples of Steiner claim to have evolved a new curative education, in their administrative methods at least they have but continued the century-old experiments of Edouard Seguin's physiological teaching. The staff at Camphill comprises fully qualified members and members in training, for the school prefers to be recognised as a teaching seminary. Some are doctors, some are teachers; some are both. Each week collegiate meetings are held in which, firstly, the staff hold discussions upon the nature of man; then the case histories of several children are taken in turn and examined from every angle. The teacher as well as the doctor gets to know the entire physical and mental nature of the child. After ten years' stay in such a school community the teachers are practically doctors and the doctors teachers in the fullest sense of the word, so close a study they must make of the physiological and spiritual character of each pupil.

Conclusion

These references, perhaps disproportionately developed, to a Steiner School for Delicate Children are yet but a fragmentary example of the whole system. 'People,' wrote Steiner in 1923, 'will understand the Waldorf School much better by studying its principles, its whole structure, the organic connection between the eighth class and the fourth class, for instance, or between the first and the tenth, than by acquainting themselves with one isolated fragment of the teaching. The organisation of the school is so conceived that each activity has its rightful place and time and fits in with the whole. It is based wholly on this principle: the measures adopted in education and teaching must be derived from the very being of man, so that on the one hand he shall develop full manhood in body, soul and spirit, and on the other hand he shall find his place in life, having in childhood - again in body, soul and spirit -

grown up in a religious, ethical, artistic and intellectual life and so have been able to develop virtues best fitted to be of use to his fellow men¹.

That appears a formidable aim for the hospital teacher to hold before herself and her pupil; and yet the underlying principles of the Steiner methods seem to contain most of the ingredients necessary to build up an educational system that will satisfy the individual needs of the whole man; an aim which was indicated in our introductory pages. Nor need the schemes be too much modified though the pupil may never be a whole man in the physical sense. It is not his permanent disability that matters, but his residual abilities, physical, mental and spiritual. The writer once overheard one of her adolescent patients, a lad of 18 who had never walked, say to his neighbour (a spinal-fracture case, caused by an accident in a mine), 'I believe, Bill, that if it were not for our minds, we would all be better dead!'

Froebel, Seguin, Steiner; great doctors, teachers, natural-scientists, yes, and political economists, have had this belief in the unconquerable dominion of mind or spirit over matter. How fitting it is that we should hasten to his aid if the handicapped person himself voices his belief in that fact! And now with the best of every proven educational system before us, we can set about our quest for an ideal system of education for the disabled person that will imbue him with a sense, however figurative, of wholeness in every part of his being. We have in various sections, spoken of the efforts made on his behalf by philanthropic, social and voluntary agencies and finally by the law. We have seen these efforts combined in a spate of federated schemes for physical, mental and social security. We are therefore well guided for the race towards the goal of health or the new wholeness of man. His physical condition, his individual mental endowments, his appropriate

¹ Rudolf Steiner, Lecture on Education towards Inner Freedom, The New Art of Education. Pp. 217-235.

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APPENDIX

List of orthopaedic hospitals, sanatoria and residential special schools from which replies to the questionnaire were received

Scotland

Aberdeenshire:	Linn Moor Home, Peterculter Rudolf Steiner Schools, Milltimber
Angus:	Sidlaw Sanatorium Arbroath Infirmary
Argyll:	St Andrew's Home, Isle of Cumbrae
Ayrshire:	East Park Home, Largs Ashgrove, Maybole (Evacuated children) St Leonard's School, Ayr Biggart Memorial Hospital, Prestwick*
Berwickshire:	Cowdenknowes, Earlston
Edinburgh:	Princess Margaret Rose Hospital The Astley Ainslie Institution* Challenger Lodge (Evacuated to Lamington House)
Glasgow:	Mearnskirck Children's Hospital
Lenarkshire:	Philipshill Hospital Stonehouse Orthopaedic Hospital Wishaw Sanatorium
East Lothian:	East Fortune Sanatorium*
Perthshire:	Hillside Sanatorium
Renfrewshire:	Bridge of Weir Sanatorium
Stirlingshire:	Bannockburn County Hospital Children's Home Hospital, Strathblane

*Suspended during war, 1939 -

Wales

- Breconshire: Adelina Patti Hospital, Craig-y-ros
- Caernarvon: St Patrick's Open Air School, Hayling Island
- Denbighshire: Bethesda Home for Crippled Children, Tonllwyfan,
Colwyn Bay
Abergele Sanatorium
North Wales Sanatorium, Llangwyfan
- Flint: Cleaver Sanatorium, Heswall
Woolton Vale Open Air School, Holywell
- Glamorgan: Glan Ely Hospital, Cardiff
Prince of Wales Orthopaedic Hospital, Cardiff
- Pembrokeshire: Kensington Hospital, St Brides.
- Radnorshire: Highland Moors Sanatorium, Llandrindod Wells

England

- Bedfordshire: Alexandra Hospital School, Swanley
Hinwick Hall Residential School, Wellingborough ? *Northants*
- Berkshire: Victoria Home for Invalid Children, Clewer, Windsor
Heatherwood Hospital, Ascot
Cold Ash Children's Hospital, Newbury
Kingswick, Sunninghill
- Berks. and Bucks. Joint Sanatorium, Henley-on-Thames
- Buckinghamshire: Horsley's Green Camp, near Stokenchurch
- Cheshire: Manchester Residential Special School, Moberley Hall, Moberley
Peckforton Castle Residential School, Tarpurley
(Evacuated from London)
Fresh Air Home and School for Jewish Children, Delamere
Torpenhow School, Frankby, Birkenhead
The Royal Liverpool Children's Hospital, Heswall
The Children's Orthopaedic Hospital, Marple
Greengate Hospital School, Salford (Evacuated to Lynn)
Manchester Residential Open Air School, Styal
Barnes Hospital, Cheadle

- Cheshire (cont.):** Convalescent Home, West Kirby
 Birkenhead Orthopaedic Hospital, Barnston, Wirral
 The Royal Liverpool Children's Hospital
 School of Recovery, Kingwall, Birkenhead
 Liverpool Open Air Hospital for Children, Leasowe
- Cornwall:** Royal Cornwall Infirmary Orthopaedic Hospital,
 Truro
 Tehidy Sanatorium
- Derbyshire:** Bretby Hall Orthopaedic Hospital, Burton-on-Trent
- Devon:** Winchmore Hill Halliwick Cripples' Home for
 Girls, Lavernock, Haldon Road, Torquay
 Seaford, Hamilton House School of Recovery,
 Knowle, Sidford
 Dame Hannah Rogers Orthopaedic Hospital, Ivybridge
 Angela Convalescent Home Orthopaedic Hospital,
 Tipton St John
 St Loyes' Training College for Cripples, Exeter
 The Princess Elizabeth Orthopaedic Hospital, Exeter
 Honeylands Sanatorium, Whipton, Exeter
 Mount Gold Orthopaedic Hospital, Plymouth
 Clevedon Home School of Recovery, Sidmouth
- Dorset:** Riviera, Bowleaze Cove, Weymouth
 Charlton House School of Recovery, Shaftesbury
 Red Cross Memorial Hospital, Swanage
- Durham:** Grindon Hall Sanatorium, Durham
 Hartlepool Hospital
- Essex:** Sandon Home of Recovery, Chelmsford
 Black Notley Sanatorium
 High Wood Hospital, Brentwood
 St John's Roman Catholic Open Air School, Chigwell
 Langdon Hills Sanatorium, Laindon
- Gloucestershire:** Frenchay Park Sanatorium
 Standish Home, Stonehouse
 St Rose's Roman Catholic Residential School, Stroud
- Hampshire:** Lord Mayor Treloar Cripples' Hospital, Alton
 St Leonards-on-Sea, St Vincent's Open Air School,
 Liphook
 Zachary Merton Convalescent Home and School, Grayshott
 Victoria Home for Crippled Children, Bournemouth

- Hertfordshire: Cheyne Hospital, Fanham's Hall, near Ware
Zachary Merton Home, Barnet
Hayes Common, Coney Hill Home, Kimpton
National Children's Home, Harpenden
Benslow Lane Convalescent Home, Hitchin
- Herefordshire: Nieuport Sanatorium
- Kent: Rob Roy Home for Crippled Girls, Margate
Shaftesbury Society's Homes for Crippled Boys,
Sevenoaks
Fairlawne, Tonbridge
Children's Hospital for Treatment of Hip Disease,
Sevenoaks
Royal Sea Bathing Hospital, Margate
- Lancashire: Whitehough Camp Open Air School
Oubus House Hospital, Ulverston
Wrightington Hospital
Lostock Hospital, Bolton
Royal Infirmary, Preston
Royal Manchester Children's Hospital, Pendlebury
Booth Hall Hospital for Sick Children, Blackley,
Manchester
Memorial Home for Crippled Children, Rochdale
Bradstock Lockett School of Recovery, Southport
- Leicestershire: Anstey Lane Sanatorium, Leicester
Leicester City General Hospital
- Lincolnshire: Barrow Hall, Barrow-on-Humber
Branston Sanatorium
Grimsby Corporation Hospital
- Middlesex: The Pawling Home Hospital for Children, Barnet
St Vincent's Roman Catholic Orthopaedic Hospital,
Pinner
County Sanatorium, Clare Hall, Barnet
Royal National Orthopaedic Hospital, Stanmore
Winifred House, Barnet
- Norfolk: The Children's Sanatorium, Holt
Jenny Lind Hospital, Norwich
- Northants: *n/* *↪* Maxfield Orthopaedic Hospital, Northampton
Creaton Sanatorium
John Greenwood Shipman Convalescent Home, Northampton

- Northumberland:** The W. J. Sanderson Orthopaedic Hospital School,
Morpeth
Stannington, The Hydro
- Nottinghamshire:** Gringley-on-the-Hill Children's Hospital
Harlow Wood Orthopaedic Hospital
Ransome Sanatorium
Nottingham City Hospital
- Oxfordshire:** Kathleen Schlesinger Home, Henley
Wingfield-Morris Orthopaedic Hospital, Headington
- Rutland:** Deanscroft, Oakham
- Shropshire:** The Robert Jones and Agnes Hunt Orthopaedic
Hospital, Oswestry
Derwen Cripples' Training Colleges, Oswestry
Lancasterian Residential Special School, Whitchurch
- Somerset:** Rectory Farm, Compton Bishop
Winford Orthopaedic Hospital
Bath and Wessex Orthopaedic Hospital
- Staffordshire:** Biddulph Orthopaedic Hospital, Stoke-on-Trent
Standon Hall Orthopaedic Hospital
Bagnall Hospital, Stoke-on-Trent
Hartshill Orthopaedic Hospital, Stoke-on-Trent
- Surrey:** Brighton Kemp Town, St John's Home School of
Recovery, Whitehanger, Marley Common
Queen Mary's Hospital, Carshalton
Frimley, Burrow Hill Colony
Heath End Sanatorium, Farnham
Queen Elizabeth Training College for the Disabled,
Leatherhead
Uplands Residential Open Air School, Oxted
St Nicholas' and St Martin's Orthopaedic Hospital,
Pyrford
Downs Hospital, Sutton
- Sussex:** The Heritage Craft Schools, Chailey
Dedisham Residential Open Air School for Young Children
Children's Heart Home, Cuckfield
- Warwickshire:** King Edward VII Memorial Hospital
St Cross Hospital, Rugby
Orthopaedic Hospital for Children, Coleshill
Baskerville, Birmingham

- Warwickshire (cont.): The Woodlands, Birmingham
Royal Cripples' Hospital, Birmingham
Paybody Hospital and Convalescent Home, Coventry
- Westmorland: Ethel Hedley Hospital for Crippled Children,
Windermere
- Worcestershire: Cropwood Open Air School, Blackwell*
The Forelands, Bromsgrove
The Times Sanatorium, Himley, Dudley
- Yorkshire: The Hollies Sanatorium, Meanwood Park Colony,
Leeds
After-Care Colony, Beverley, Hull
Fairfield Sanatorium, York
The Adela Shaw Orthopaedic Hospital, Kirbymoorside
Thorntonlodge Sanatorium, Wensleydale
Middleton Sanatorium
Mitchell Memorial Home Residential School,
Rawdon, Leeds
Scotton Banks Sanatorium, Knaresborough
The Marguerite Hepton Memorial Orthopaedic
Hospital, Thorp Arch
Bermerside Residential School, Halifax
Bradley Wood Sanatorium, Huddersfield
Bents Green Residential School, Sheffield
Children's Hospital, Gringley-on-the-Hill,
Doncaster
King Edward VII Memorial Hospital, Sheffield
Morris Grange Sanatorium, Thornton Rust

OverseasAustralia

The Victorian Society for Crippled Children reported on:

Yooralla Hospital School for Crippled Children
The Spastic Centre, Children's Hospital,
Orthopaedic Section, The Austin Hospital

Reports from Director of Education, Sydney, New South Wales on
Orthopaedic Hospital, Waratah

* See prospectus of this school attached at end.

New South Wales (cont.)

General Hospital, Pacific Street, Newcastle
 The Margaret Reid Orthopaedic Hospital,
 St Ives, Sydney
 The Royal North Shore Hospital, St Leonards
 Waterfall Sanatorium, Waterfall
 The Far West Home, Wentworth Street, Manly
 Beverley Park Hospital, Campbeltown
 The Royal Alexandra Hospital, Camperdown
 The Royal Alexandra Hospital for Children,
 Collaroy
 St George Hospital, Kogarah

New Zealand

Correspondence School, Education Department,
 Wellington
 Auckland Branch of New Zealand Crippled
 Children Society
 The Wilson Home for Crippled Children,
 Takapura, Auckland

South Africa

National Council for the Care of Cripples,
 Cape Town

Cape Province:

Orthopaedic Department, Groote Schuur Hospital
 Lady Michaelis Orthopaedic Home
 Lady Michaelis Orthopaedic Workshop
 Princess Alice Home of Recovery, Cape Town
 Maitland Cottage Homes (native teachers)
 St Joseph's Home, Cape Town
 Victoria Hospital, Lovedale (native crippled
 children)
 Orthopaedic Wards, National Hospital,
 Bloemfontein

Orange Free State:

Frieda Olleman's Orthopaedic After-Care
 Home, Bloemfontein

Transvaal:

Hope Convalescent Home, Johannesburg
 (Nursery school for those under 6,
 and Girls, 2 - 14 and Boys, 2 - 14)
 Hope Training Home, Johannesburg
 (Pre-vocational training)
 Hope Homes School (Academic education and
 occupational and pre-vocational
 training)
 Meerhof (Chronic cripples)

Natal: Addington Hospital, Orthopaedic Workshop, Durban
 Uplands Orthopaedic Home, near Pietermaritzburg
 Open Air School, Durban
 St Elmo's Special School, Umzumbi, South Coast
 (Spastic paralysis cases admitted)

Union Education Department prepared to subsidise provinces for the general education of physically defective children.

Department of Social Welfare has settlements for disabled coloured people at Potsdam, Cape Division, housing 200 families.

Canada

Report from the Ontario Society for Crippled Children, Toronto, 1940.

Estimate of 24,000 crippled children in Canada is probably conservative.

Education: 'There are 21 teachers for cripples in Canadian hospitals. Four provinces provide correspondence courses. In 5 larger cities there are special classes, with transportation provided to and from school. Ontario has an arrangement for the after-school visiting by regular teachers of pupils confined to their homes. Sixty teachers are now doing this work, and an additional 19 teachers are employed full-time, visiting patients in their own homes.'

Schools: In Prince Edward Island the Junior Red Cross has made arrangements for correspondence courses and visiting teachers.

In Saskatchewan no special attention is provided.

In Alberta the Poliomyelitis Sufferers' Act, 1938, gives assistance.

In Quebec there are two fine schools in the city of Montreal and classes in three hospitals.'

'Vocational Training: There is little variation in the reports from all parts of Canada. Despite the need, seven provinces report 'no arrangements'; one states that the provision of training is in its infancy; and another (a small province) says that there is not much of a problem as the numbers are small. Alberta, under the provisions of the Poliomyelitis Sufferers Act provided training for 40 patients in 1938 and 1939.'

Village Settlements for the Tuberculous

The chief of these are:

Papworth Village Settlement, Papworth Everard, near Cambridge
Preston Hall, British Legion Village, near Maidstone, Kent
East Lancashire Tuberculosis Colony and Sanatorium, Barrowmore Hall,
Cheshire

Wrenbury Hall Colony, Cheshire

Sherwood Forest Settlement, near Mansfield, Nottinghamshire

and in Scotland

Hairmyres Colony, East Kilbride, Lanarkshire

Southfield Sanatorium Colony, Liberton, Edinburgh.

These two colonies are not village settlements in the full sense.

Special Hospital Workshops

Broad Street Workshop, Birmingham

Cripples' Home and Industrial School for Girls, Winchmore Hill

Cripples Institute Workshops, Belfast

Cripple and Invalid Children's Aid Society Workshop, Edinburgh

John Groom's Crippleage, Edgware

Papworth Village Settlement

Spero Wood and Leather Workers and Glove Makers, London