Most authorities agree that silicates produce no nodular fibrosis in the lungs, but one silicate (that of aluminium and potassium) known as sericite has been put forward as a cause. The general opinion, however, is that it cannot produce these changes by itself, but when present it hastens the action of the silica in producing fibrosis. Leroy Gardner states that sericite will produce inflammation and necrosis but not fibrosis. Asbestos, a silicate of magnesium, produces a diffuse fibrosis and not the nodular fibrosis of silica.

Hawkesbury sandstone contains upwards of 80 per cent. of free silica, metalliferous ores 20 to 60 per cent., while coal carries 2 to 4 per cent. It must be remembered, however, that coal miners are frequently cutting through seams of rock containing 30 per cent. or more of silica, and in many mines sandstone dusting is used to carry down the fine coal dust which is so liable to cause explosions. The analyses of our coal mine dusts as supplied are rather surprising in the small amounts of silica found; from the condition of the lungs of these coal miners a higher percentage of silica would be expected.

Individual susceptibility may play a part in the occurrence of silicosis; some men after forty and fifty years of mining in sandstone are frequently unaffected, while others will show changes after six or eight years. With a high silica content in the dust the onset of the disease is more rapid, and in lungs with damaged lymphatic circulation, whether due to tuberculosis or to chronic bronchitis, the condition develops more rapidly. From other parts of the world cases of silicosis are reported after only a few years' work; this may be due to the greater prevalence of catarrhal conditions with consequent damaged lymphatic circulation and to less healthy conditions of employment abroad.

The extent of the condition as shown in the film cannot be taken as a guide to the worker's disability. Early stages of fibrosis as indicated in the film may be associated with grave disability, while men with a most advanced fibrosis will show no disability.

When silica is inhaled the majority of the particles are arrested in the larger bronchi and expectorated. Only the finer particles (less than 5 microns in diameter) reach the alveoli. The mechanical irritation of dust is not looked upon as of importance, but these particles go into a colloidal solution which acts as tissue irritant producing fibrosis. It is suggested that the silica solution destroys the phagocyte, which stagnates in the lymph stream and by irritation produces the fibrous nodule. Coal particles of similar size are taken up by the phagocyte and carried to the nearest lymph gland area.

The silica nodule is similar to the tuberculous nodule, but it never goes on to caseation. The nodular fibrosis of silicosis is a bilateral condition, and it spreads from the hilum on each side—somewhat more advanced on the right side—and gradually involves the whole of the lung fields. The apices and the lung in the costo-phrenic angles are affected in the very late stages.

In the early stages there is an increase in the shadows of the lung reticulum, but these changes are indistinguishable from the markings in ordinary catarrhal conditions, in asthma, and in the lungs of the aged. At this stage a diagnosis is not possible, but when the nodules are definitely developed there is seen a "stippling" of the lung fields which is characteristic. Of course, there must be changes in the lungs before this stage is reached, but it is not possible, radiographically, to diagnose a "pre-silicotic" stage. A series of many hundreds of men were tentatively classed as "pre-silicotic" in an investigation carried out by my brother, but the majority failed to develop the typical nodular fibrosis of silicosis.

Once established, silicosis continues to advance, even if the man is removed from his dusty occupation. Pleurisy

is a common complication, and extensive adhesions occur to the diaphragm and to the mediastinum, causing distortion of the shadows of the mediastinal contents. The majority of silicotics develop tuberculosis, and when such infection is superadded the condition rapidly approaches a fatal termination. The silicotic lung is a most favourable soil for the tubercle bacillus to flourish in. Coal miners, especially men who have mined in Great Britain, often develop extensive areas of subpleural consolidation of tuberculous origin. This is a very slowly advancing condition, and is probably held in check by the well-known anti-tuberculous action of coal dust. The appearance of denser areas of mottling in the upper lobes is the sign of superadded tuberculosis; in the silicotic tuberculosis is almost invariably an apical infection.

The differential diagnosis between ordinary tuberculosis and silicosis is generally easy, but it is impossible to make a diagnosis from miliary tuberculosis radiographically. However, the absence of temperature points to a silicosis; while in tuberculosis there is a tendency for the nodules to coalesce, in silicosis they remain discrete. The fibrosis seen in chronic catarrhal conditions is more a streaking along the bronchial tree than a symmetrically distributed nodular fibrosis.

THE CHILD GUIDANCE CLINIC*

BY

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Problems in behaviour, especially bad habits—the "everyday problems of the everyday child"—have been for many years discussed by parents and others interested in children. Controversy as to school discipline and corporal punishment seems to have originated in England with the appearance of grammar schools of the early sixteenth century. In Elizabethan days schoolmasters showed an implicit belief in the maxim of Solomon, "spare the rod and spoil the child," and the ability to flog pupils became for over two centuries one of the vocational attributes of the pedagogue. Ascham, the tutor of Queen Elizabeth, protested against the universal indiscriminate use of corporal punishment. It is interesting to note the corporal punishment of schoolgirls lately discussed in the *British Medical Journal*.

John Locke, who, as is sometimes forgotten, was a physician as well as a philosopher and a politician, wrote a book, in every way a modern work, on *How to Bring up your Children*. The pronoun *your* is significant, for Locke was a bachelor and exercised the perennial right of the unmarried to instruct parents in their duties. Corporal punishment is shown by him to be a failure, yet its practice was, and to some extent still is, extensively followed. It required a generation of universal (compulsory) education to discredit its use except in a few limited definite breaches of the school rules. Making the punishment fit the crime by making "the prisoner pent—unwillingly represent—a source of innocent merriment" may prove a solution, for ridicule and shame are, as Locke pointed out, powerful influences. Increasing experience, however, points to other methods: just and unemotional criticism, encouragement of good efforts, the selection of sound, interesting outlets for energy, and better personal understanding between teacher and pupil.

* Read in opening a discussion in the Section of Medical Sociology at the Annual Meeting of the British Medical Association, Melbourne, 1935.

These positive and often indirect controls give better results than more obvious direct and drastic repressive action, and this agrees with the study of human behaviour or human nature. Children, especially, react best to indirect influences. It is often difficult for parents or teachers or doctors to realize this trait in which they resemble the gyroscope. Press sideways on the top of a gyroscope and instead of tilting over it turns inwards towards the deflecting force and rights itself. Ask a child to breathe deeply in and out, and he will expand his chest like a pouter pigeon and remain distended as long as his breath holds. Ask him to take a big breath, and then get him to tell you his name and where he lives, and he will, in order to talk easily, effect a good complete expiration. A good children's doctor soon finds that he must stalk his patient down like a shy wild animal. In the adult similar methods may be useful, but in school life the direct attack tends to be predominant, yet disregard of the indirect method may end in waste of much time and trouble. How often do we find the longest way round the shortest way home?

Bad Habits and their Correction

The development of the study of children and children's diseases in the latter half of the nineteenth century drew attention to many of these difficulties, especially bad habits. Parents worried particularly over such unfortunate happenings as bed-wetting or as masturbation. Spanking and the dark room, threats and cajolings, wallings and pleadings having failed, the exasperated parent sought the doctor for help. Could this persistent habit of "swamping the bed" mean that there might be something "wrong with him"? The doctor, little wiser, though perhaps more experienced in having to deal with many cases, took refuge in drugs, regimen of life, amount of fluid, waking up after an interval, removal of irritation—whether preputial or urinary in origin—operative intervention, etc. This indirect attack has often succeeded, but not always. Especially in intractable cases does the full social investigation of the home as well as the patient—the explanation to the parent of the need for quiet automatic control, the direct suggestion *à la Coué* to the child (which, incidentally, I have seen notably successful), together with the creation of an atmosphere of understanding and sympathy and encouragement—restore to the bewildered child the necessary sphincteric control.

To disregard the parental and home phases of this habit is to run a very definite risk of failure in treatment, even though a physical basis initiating or aggravating the difficulty can be discovered by the doctor and medical treatment is a necessary procedure. Because of these physical origins and their undoubted frequency, a medical overhaul is an essential in this and indeed in other behaviour problems, if only to clear the decks, as it were, and to leave the field clear for the psychological control. Best still would it be if we could combine in one person the physician who has both paediatric and psychiatric training, and reinforce his efforts with the educational psychologist and the social worker. Any one of these three working on his own may do much, but a person combining all three would be in a far better position to solve the situation.

Perhaps of all bad habits masturbation is the best example of the failure of ignorance. For years moral propaganda described alleged rotten effects on the central nervous system. Even accidental artificial stimulation by young children was included as an actual habit. We now know that masturbation is a symptom of mental instability rather than a cause of many serious nervous diseases, and that its occasional occurrence has no serious effects on the body. Even its constant habitual practice

is injurious only to certain special types, as is seen in the early history of dementia praecox.

We do not even know what should be the rate of appearance of the male emission; it is obviously much more irregular than its female counterpart. In a group of a hundred medical and other university men students inquiry demonstrated a regular rhythm of about fourteen days' interval, usually beginning the fifteenth year, a little before the sixteenth birthday, and after years of irregularity becoming much more regular in the adult after about 21. This emission is strictly physiological, but thousands believe it as a fount of every evil thing. It is difficult to convince parents that the proper preliminary is to tell even young children the simple facts of life, meeting natural curiosity with simple truthfulness. Especially should the facts of their own sex be presented to them in a wholesome correct fashion before the occurrence of these phenomena of early adolescence. Attention to general health, especially personal hygiene, and the diversion of interest into attractive and valuable changes, such as outdoor sports and interesting occupations, are of value. A limited amount of free discussion of the defect quietly and incidentally arising gives the suitable opportunity of direct suggestion by the examiner.

The Problem of Stammering

A constant problem in school life is stammering. In New South Wales about 1 in 40 boys showed disorders of speech, chiefly stammering. Only 1 in 120 girls experienced speech difficulty, and that, as a rule, not to any marked degree. In Australia very little has been attempted of any organized character to deal with this defect, which may be a very real nuisance to the individual, markedly influencing his personality, and quite possibly adversely affecting his occupational chances. The idea of classes and clinics collecting groups of stammerers used to be viewed adversely, but the atmosphere of success and the expert teaching made possible more than overcome any such handicap.

The proportion of left-handed children among stammerers is higher than the proportion in the school population. Dr. Jean Greig of Victoria gives twenty-five "left-handers" among 1,000 children, and four among thirty-one stammerers, or about five times as many among stammerers as would have been expected from an ordinary sample of the population. Evidence seems to show that the left-handed who stammer are those who have been changed to right-hand writers under pressure or penalty, whether at home or (rarely nowadays) at school. Left-handed children whose left-handedness has been accepted apparently get on as well as the right-handed—another example of the danger and futility of repressive methods.

The introduction of compulsory education, the greatest social experiment of modern times, brought to light many of these problems of childhood. The teacher, at any rate during the hours at school, seven hours (9 to 4) for five days a week, or 210 each year, or about one-fifth of the child's life, becomes at this period the official parent, and so responsible for his pupil's well-being and progress. Soon teachers and departments began to realize their responsibility, not for instruction in the "three R's" alone, but for health, both physical and mental, and for the development of the boy's personality and character. In discipline, in instruction, in progress, in promotion, on the playground as well as in the schoolroom, they began to sense new difficulties previously hardly dreamt of.

In institutional life many of these difficulties became still more important—sleep-walking, bed-wetting, for example—and residential schools must necessarily take a much fuller responsibility than day schools, for their control covers the whole life of the boy and for a longer period.

Minor Defects: Their Influence on Mental and Physical Progress

The appreciation of the official responsibility for the child's health and the finding of extensive defects in the population—defects which could, and should, have been remedied in childhood—caused the introduction of school medical inspection in 1907. The medical examination of school children brought the realization of an enormous amount of minor defects in apparently healthy children. Defects of vision, hearing, nose and throat, nutrition, heart, etc., which required medical attention and which interfered with educational progress or handicapped physical development, were present in at least thirty out of every 100. With it, too, came the precipitation of medical officers into all sorts of new problems—notably mental deficiency, truancy, delinquency—on which departments requested their opinion; while parents increasingly sought their advice regarding bad habits, disorders of speech, of sleep, and of conduct generally, and teachers, especially head masters, discussed with them the physical and mental background of difficult children.

Recently, in the *Medical Journal of Australia*, I have given examples drawn from such experience and demonstrating the profound and persistent effects which can be produced by various minor defects—defects often unsuspected by parent or teacher or by the child itself. Myopia may prevent the child taking part in games and foster the creation of a bookworm, a "shut in" personality. Deafness, especially on one side only, was found far more common in a large group of incorrigible boys, and in many instances was the origin of misunderstanding and conflict with the teacher which led to truancy and defiance. The effect of colour-blindness in flattening the tone of life as of colour, and the intense mental conflicts of the stammerer, were noted.

The rapid reduction of the birth rate has meant an increase in families of one and two children. The one-child family tends to set up a series of conditions, such as excessive parental and adult influence and reduced opportunities of child contacts, which may prove very unfair to the child. The increased city life—the relative isolation of residential areas—and the gross overcrowding of industrial suburbs introduce artificial conditions which may handicap more or less seriously the children involved. The lack of playgrounds, the natural training ground of the young child, bears hard on these unfortunates, and so delinquency is a constant association of the overcrowded suburbs; add to that the complete disregard by the community of the need for training in parenthood before marriage.

In all these problems, whether in school or in pre-school life, it is the parents, as controlling the family and the home, the real units of human society, who most deserve to receive our consideration. To solve these ever-recurring and almost universal everyday problems of everyday children, child guidance clinics have been called into being. The name is somewhat misleading. The person eventually to be guided is undoubtedly the child, and its physical and mental make-up and its family environment are our prime study, but more and more investigation shows the failure to be referable to the parent, whose wrong methods or attitudes or emotional irregularities, apart from economic difficulties, decide the child's responses. Children have grown up sound in mind and limb, with well-developed personality, mental poise, and stable character even in the most unfavourable home conditions—for example, when the father is a criminal, the mother a drunkard, and there is poverty, overcrowding, lack of the amenities of existence and of play, and so on. But these are the exception rather than the rule.

The Importance of the Pre-School Period

Every person is the resultant of a wide series of influences, and none of these are so powerful, so profound and persistent in their effects, as those in the early period of life experienced in the home and decided by the parent. That we have personally forgotten them as adults does not affect the matter. Hence, in the work of the child guidance clinic, while the object of diagnosis is the child, treatment is most often only effective after study of the home and the parents, and operates chiefly by and through the parents. The home is the laboratory of character, the parents the executives, and the doctor the expert available for the anxious parent who is faced with the very real difficulty of rearing this complex human machine. The child is knitted to him so closely, his own flesh and blood, that impersonal criticism, so valuable in these emergencies, has become impossible to the parent, and he must seek help elsewhere. The whole tendency of modern medicine and psychology alike is to take a longitudinal view of life and of the individual. The test of the adult or of the school child forms a valuable cross-section revealing the present appearances, but these cannot be properly understood unless we trace them back to their origin.

This reference to early life is common to Freud, Jung, and Adler's hypotheses. It is a commonplace of paediatric experience. Repeatedly we find definite evidence of occurrences in the second to the fifth year of life—the pre-school period of life—occurrences which represent the beginning of asthma, adenoids, stammering, etc. More and more adult fears and phobias are found to arise in this garden of childhood. This is the age of habit development, of habit control, of speech, of sleep, and of bodily functions. All sorts of tricks, capricious appetites, and eccentric behaviour are now recognized. The rapid growth of brain and body, the new contacts with the new worlds of the home and of the street, the steadily improving discovery and control of the individual's body, all give possibilities of maladjustment in relatively plastic personality. The frequency of mild rickets, which affects the stability of brain as well as of body, is an important factor.

The Doctor's Part

When one thinks of the many doubtful habits which may persist at this age period and worry parents, one realizes how these difficulties tend to gravitate to the doctor. Some of these habits may be of little moment, such as nail-biting, nose-picking, thumb-sucking, hair-biting, teeth-grinding; others may be more annoying, such as head-rolling, head-banging, habit-spasm, yet all are due to local irritation. On the other hand, the impulse in the background may be gratification in such habits as rumination, masturbation, and even enuresis, while subconscious factors may be responsible for speech disorders, sleep disorders, capricious appetite, tantrums, persistent lying, thieving, running away, and so on. In all the medical contribution is a very real one.

Again in the pre-school period for the first time we can recognize the varying and blossoming personalities. No doubt even in the first year of life some types can be identified, but before the fifth year they are usually well developed. The difficulty of gaining control depends greatly on the particular type of child. Different types may occur in the same house, similar types in very different homes, while the children may differ markedly in type from either or both parents. All these variables must be appreciated before we deal adequately with the variable product and the problem itself. The reaction of the young child to certain home stresses will depend much on whether it is shy or friendly, timid or bold, subdued or boisterous, quiet or excitable, slow or alert, dull or

sensitive, overbearing or affable. Behind these personality phases can at times be sensed a whole series of biochemical states or changes, perhaps periodic changes such as are seen in epilepsy, asthma, migraine. The endocrinal balance, allergic incompatibilities, and immunity development may all be actively manifest in the young child.

The child is adjusting itself to two worlds, the world within as well as the world without, while new roads are being developed in its central nervous system. At the same time it is exposed to fire—the, at times, dangerous or damaging fire of infection—and its nutritional needs are not adequately recognized. The whole future of the child depends on the few years before school, a period when its character is in the melting-pot and will receive the stamp the impress of which will depend on the parent and home. The period of which the teacher has so little experience is the most important of all, and the parent can alone find help in the doctor. By the frequent repetition of various types, whether of environment, of response, or of personality, by all this experience the doctor keen on his work becomes increasingly expert, surer in diagnosis and sounder in treatment. Work as a school doctor can form an excellent background to his work.

Situation and Personnel of the Ideal Clinic

Presuming child guidance clinics are developed, where should they be located? By whom should they be staffed? What will be their objective? Hospitals are frequently chosen. Aids to diagnosis are more ample and contacts more extensive with a large out-patient population. The medical control is unquestioned. Education departments also provide suitable locations, and much of the work on which modern practice is based was carried out at school, at a departmental office, or at an institution like the Children's Court, and so on.

Outside these two official relationships separate private clinics are known. Many parents do not wish to go near a hospital, and their child may not be of school age, they do not naturally seek departmental help, and so private organizations cater for them. Unless some definite control could be established over the bona fides and training of the organizers these clinics might prove failures and the quality of the work be low. The ideal head of the clinic is a young man (or woman). Best of all he is a doctor (medical) with wide sympathies, a deep personal interest in children, and the gift of handling them. Among doctors the choice would be one who is versed in the study of paediatrics, while, in addition, some knowledge of psychiatry is helpful. School doctors make excellent recruits for this work, and possess a clearer idea of the normal and abnormal and of the needs of the growth period of life.

The combined physician, paediatrist, psychiatrist, and school doctor will have, as his second in command, a trained educational psychologist, who will explore the happenings at school and the reaction of the child to mental tests. The final member of this trio is the trained health or home visitor, who evaluates the parents in the home.

In conclusion, may I again emphasize the importance of biological, physiological, and medical training for the fullest appreciation of these problems of personality. This does not mean that the psychologist cannot, and does not, do excellent work in these problems, and a definite field of activity should be allowed to him. The same may be said of the home visitor or probation officer, or social science student, who estimates the parental attitude and home conditions. But we cannot regard these children as disembodied spirits any more than we should treat them merely as if they were animal bodies—a higher group of animal it is true, but merely biological

entities. Both attitudes are incomplete. Mind and body are inextricably interwoven and dependent one on the other. The very integration that makes the individual organism must be recognized by an all-round view which watches every phase of its multiple reactions and responses.

WIRE EXTENSION IN TREATMENT OF MANDIBULAR FRACTURES

BY

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Among the large number of road accidents admitted to hospital in these days severe fractures of the lower jaw are not uncommon. The bone is usually fractured in more than one place, the fracture line is comminuted, and at one or other site is compound into the mouth. The patient is often unconscious on admission, suffering from mild or severe concussion, or a fractured base in addition to the fractured jaw. This complication, together with

FIG. 1.—Extension is applied by means of a Kirschner's wire passing through the symphysis of the mandible. The patient's head is fixed to the bed by webbing straps.

the oedema and swelling of the soft tissues, and the sepsis attendant on the difficulty in getting the mouth open for cleansing purposes, renders any immediate local treatment of the fracture difficult if not impossible, and adds considerably to the risk of inhalation pneumonia from any form of anaesthesia. In most cases the patient is therefore given a four-tailed jaw bandage, which is worse than useless, and serves only to exaggerate any displacement of the fragments which may be present, while not immobilizing the jaw in the least. Nothing further is done until such time as the oedema and swelling has subsided, the sepsis in the mouth lessened, and the patient has reached a stage of convalescence.

In hospital practice this takes usually from ten to twenty-one days, and during that time the fragments have been left out of alignment and unreduced, and in that