THE RELATION OF THE MANUAL ARTS TO HEALTH

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THE relation of the manual arts to health may be considered under two aspects: as they affect the immediate well-being of the pupils and teachers concerned, or in their ultimate influence upon the individual and upon society. Under the former caption belong the hygienic rules pertaining to the performance of the manual occupations in the school, these mostly of negative and precautionary nature. The latter relation has to do with the positive contribution which the manual arts are capable of making toward the final attainment of mental and physical health.

Regarding the former, there is probably little to be said that would be new to those who know the manual arts practises from within. The well-trained teachers of this work are aware that the manual arts, inasmuch as they frequently involve “near-work” and sedentary posture, share with other school subjects the danger of injury to eyes, lungs, nervous control and symmetry of form. Teachers of the household arts, for example, appreciate the fact that sewing, in particular, makes demands upon the eyes and the spine of hardly less hygienic import than the much-berated practises of reading and writing. The forward inclination of the head, however occasioned, produces spinal curvature, sub-normal vital capacity and myopia. It is hardly necessary to point out that these dangers are greatly intensified by the use of small models, too fine stitches, dark colored goods, or any materials which, because of a lack of color contrast, make visual discrimination difficult. Professor Schuyten, of Antwerp, investigated the handwork of some four thousand schoolgirls of Belgium and found that about one third testified to visual difficulties in connection with their sewing. Austria has found it necessary to limit by law the fineness of materials which may be used in the manual work of children under ten years of age and to adopt other regulations pertaining to this line of school practise. The German investigators have endeavored to elaborate norms to govern various matters of manual occupations, including posture, delicacy of muscular coordination, kind and amount of light, length of the period of instruction, and its location in the school day.

Teachers of sloyd know that the use of the plane may throw the child into a more unfavorable position than the use of the pen, and
that special and unremitting attention is necessary to minimize the dangers of such incorrect postures. Asymmetrical growth can not be avoided except by a frequent change of muscular tension. Tools and materials must not be pressed against the breast. Ventilation is more important in the shop than in the class room. Sand-paper and injurious colorings should be used as little as possible.

Drawing teachers likewise are now fully cognizant that there are hygienic aspects of their work which can not be safely neglected. For example, the necessity of avoiding accuracy of detail as an aim in the lower grades of instruction, the use of sharp-pointed pencils, intricate models, trying color contrasts, poisonous coloring ingredients, cross-lined paper, etc.

Although all the above requirements and others relating to the internal hygiene of the domestic arts are of extremely great importance and suffer frequent neglect, it is the purpose of this paper to point out some of the larger and more positive relations of the manual arts to national health.

The problem of vitality underlies almost every social and political situation confronting us. We are becoming acutely conscious of the possibilities of conservation in the line of health and efficiency. Professor Irving Fisher estimates that of the one and one half million deaths occurring annually in the United States at least six hundred and thirty thousand are due to preventable causes. He computes that the economic loss from these postponable deaths is more than one billion dollars every year. Preventable illnesses are still more numerous and are accountable for the waste of almost another billion per year. The running expenses of tuberculosis alone are sufficient to support six hundred Stanford universities, or three fourths of all the common schools in the United States. Typhoid fever robs us of half as much as tuberculosis. Infant mortality, despite all the advances of preventive medicine, has not appreciably decreased in thirty years. In the most civilized countries from fifteen to twenty-five per cent. of the children do not live to the age of one year, mostly because of parental ignorance and the neglect of a few simple hygienic measures. If our present stock of knowledge pertaining to health prophylaxis were made universally effective the average length of human life would be immediately increased by not less than sixteen years. Certain diseases we know are even now on the wane and the spread of some others has been checked, but the ravages of a few seem to derive impetus from the unnatural strains and conditions of civilized life. Among the latter are, first of all, the nervous disorders of insanity, hysteria and neurasthenia, and, until a few decades ago, the two most wide-spread and terrible plagues of recent centuries, tuberculosis and syphilis.

It is not contended that the physical salvation of the nation is to be
attained solely through the remedy here offered i.e., the extension and proper teaching of the manual arts. The problem is much too vast to admit of any such simple solution. It must be attacked from a hundred angles. The resources of science, education, politics, religion and art will have to be marshaled to this purpose as they have not yet been. There must be persistent and intelligent effort directed at every opening. No one measure nor any set of measures will suffice, and therefore in presenting the claims of the manual arts for recognition in this work let it be understood that no specific, or panacea, is advocated.

Let us consider, however, the contribution which domestic science is capable of making toward this end, and for our purpose let us conceive of domestic science in the broadest possible sense, including all the internal factors that go to mold the home: household economics, the science and art of preparing food, the hygienic oversight of the domestic appointments, the elements of personal hygiene, and most central of all, the care and instruction of young children. Where else can we find an array of subjects promising so much for the well-being of humanity? The problem of national vitality is a politico-social, economic-industrial and medico-educational problem, but it is first and last a problem of the home. Tuberculosis is a disease of the home rather than of the factory or shop, and can not be eliminated short of a material regeneration of household conditions. Typhoid fever will linger after the purification of all water supplies unless the hygiene of the poorer homes is vastly improved. A quarter million of our babies will continue to die every year regardless of progress in the affairs of government, industry and science, unless prospective parents are liberally educated in this most sacred and most difficult of all human duties.

During all the years of plasticity before the child can be reached directly by society through legal or educational measures it is wholly at the mercy of the home. Perfect nutrition, for example, is the foundation stone of happiness and morality as well as our chief defense against disease; and nutrition is an affair of the home. Malnutrition through the period of childhood permits no complete recovery. Efficiency is more dependent upon food and the hygiene of the digestive tract than upon any other one factor. The child that is permitted to bolt its food at the domestic table is not very likely to profit greatly from school instruction in the virtues of mastication. Not less than five to ten per cent. of all school children suffer from imperfect nutrition. They are the ones who develop most readily into nervous wrecks or fall victims of contagious diseases. The hygiene of the mouth alone is considered by Dr. Osler as important from the standpoint of health as the alcohol question. Many of the most important contagious diseases are ingested through this source. Most mouths will continue to be unspeakably dirty until practises of oral hygiene are made habitual
in the home. Ninety to ninety-five per cent. of our school children have one or more defective teeth. The sixth-year molars, as a rule, begin to decay within two years after their appearance. The teeth can only be saved by intelligent attention in the home. An individual's ideals of personal cleanliness are an off-shoot of the semi-instinctive sentiments of disgust and are pretty well molded, once for all, in the years preceding school age.

Again over-stimulation in the early years of childhood will leave its permanent influence upon health and character. A large proportion of parents do not half appreciate the importance of sufficient sleep for children. I have known a four-year-old child to be dragged out to a whist party, there to be kept awake till midnight, and then allowed to drink two cups of strong coffee. Investigations into the hours of sleep of school children show that more than half our school children sleep fewer hours per day than authorities have set as the safe minimum. Innumerable children are kept in a state of semi-intoxication by tea and coffee, drinks which are probably as injurious to the young as beer to the adult. Is it not inevitable that as long as such conditions obtain in the home the legal campaign for temperance will be empty of results, and even the artificial restrictions of vice sorely disappointing? Is it not evident that the first condition of moral development is physical health and perfect emotional balance? Neither the juvenile court, nor the playground, nor ethical instruction in the schools can undo the vicious work of the unfavorable home environment.

All of the above and much besides must be conceived and taught as part of domestic hygiene, which too often has concerned itself exclusively with the externals, such as architecture, plumbing, heating, ventilation, etc. The scope of the subject must be enlarged to include everything having to do with the physical and mental health of the family. In a thousand ways there are intimate and delicate relations of personal hygiene which can be adequately dealt with by no other agency than the home. As an example of this may be mentioned the instruction of children in the functions and hygiene of sex. Society faces few problems more important than this one and, considering the prevailing parental ignorance and neglect, certainly few more difficult ones. Havelock Ellis, after twenty years of scientific investigation of the pathology of sex development, reaches the conclusion that only a small minority of children reach maturity without suffering some of the results of sexual ignorance. The problem is equally one of national health and national morals, as is eloquently but awfully attested by the existence of between one and two million syphilitics in the United States. It is doubtful whether the question of sex hygiene can be satisfactorily solved in this country by instruction on the subject in the public schools, and much is to be said against this solution, but unless
the home can be educated to deal more wisely with the situation than it has yet done it will be necessary for us to follow the example of Italy and certain other countries by placing part of this responsibility upon the schools.

For these and many other reasons, a biological view of human progress counsels us to give more heed to matters of domestic and personal hygiene. Under the present conditions of civilization, more than ever before, man’s body, mind and morals are being subjected to difficulties which they were not evolved to meet. Among primitive men, morals were natural and easy, intellectual strain was intermittent and of short duration, while the body thrrove in its natural habitat of fresh air, sunlight and varied muscular activity. The problem of existence reduced itself chiefly to obtaining food and avoidance of becoming food for others. To-day, conditions are quite the reverse. Possessed of the same animal and egoistic instincts so necessary for the very existence of our ancestors we are required to overcome these in the interests of a higher and more difficult moral standard. The complexity of industrial and social life, with its rivalries, competition and absurdly artificial standards of living, has brought the necessity of continuous mental and physical exertion. The body has been exiled from its Garden of Eden to the unnatural and unwholesome environment of house, office, factory and mine. The human body is not exempt from the consequences of the biological law that the existence of an organism is jeopardized whenever it is exposed to conditions widely different from those which directed its evolution. Fortunately we are not reduced to a choice between extinction, on the one hand, and a return to nature, as advocated by Rousseau, on the other. A diligent application of the laws of personal and social hygiene will preserve us from this dilemma. Nothing else will, and the contribution of domestic science to this end is absolutely essential to its ultimate success.

Almost if not quite as much can be said for that branch of the manual arts technically designated as manual training.

Ever since Seguin’s classical experiments with manual training in the education of feeble-minded children, nearly three quarters of a century ago, the school has moved rapidly toward a clearer recognition of the close inter-relation between mind and body. For hundreds of years education had been controlled by a bifurcated educational aim, with most of its emphasis on the side of mind. In the last few years, however, the psychologists have learned a great deal about the motor aspects of mental activity. They have demonstrated that almost any simple act of attention involves muscular innervation and, contrariwise, that motor exercise quickens intelligence. Psychology teaches that body and mind have grown up together and that the latter has no raison d’être apart from motor adjustment. When educational practise
neglects either aspect of the duplex organism with which it deals, the results are bound to be unsatisfactory.

Let us consider more specifically the contribution of the manual arts to the attainment of perfect mental balance. Statistics are unanimous that insanity, hysteria and neurasthenia are rapidly increasing in all civilized lands. Now, the newer psychological interpretations of insanity are of the utmost suggestiveness for education. Originally, the insane person was thought to be possessed of devils, cursed of God, etc. Later the scientific studies in neurology led to the theory that insanity in all cases is due to lesions of the brain; to actual degeneration of the nervous tissues induced by hypothetical toxins of disease. This is demonstrably true for certain forms of insanity. But for a very large proportion of insanities and for most, if not all, of that border-line group designated in psychiatry as the psychasthenias, the theory of lesions remains absolutely without positive confirmatory evidence. In regard to these the belief is rapidly gaining ground among psychiatrists that we have to do not with diseased tissues in the ordinary sense, but rather with disturbances of function which in greater or less degree are amenable to correction by the so-called "method of re-education." This system of therapeutics has already proved successful in numberless cases of depression, hysteria and neurasthenia, and is believed by America's leading authority on insanity, Dr. Adolph Meyer, to be hardly less applicable to the form of adolescent insanity known as dementia praecox. Recent extensions of our knowledge of this disease are so pertinent to our theme as to warrant a brief discussion of it here. Dementia praecox is one of the most interesting forms of insanity for three reasons. In the first place, it is extremely common, accounting for some thirty per cent. of the total admissions to insane hospitals. In the second place, it does not prey upon the old or mentally decrepit and is not allied in any way with the diseases of immorality. Instead, it attacks the youth, and not infrequently the youth of most marked intellectual promise. In the third place, some of the newer studies of the disease show that it is due to definite ascertainable functional disturbances of the individual's mental evolution and that it will yield to the right kind of educational treatment. As characterized by Dr. Meyer, dementia praecox is "a miscarriage of instincts through lack of balance"; a deterioration of habits, "due to progressively faulty modes of meeting difficulties." We are informed further that it is most likely to develop in the youth of the "repressive type," characterized by exclusiveness and what is likely to be taken for "depth of thought." It usually involves fantastic day-dreaming, sexual imagination, brooding over disappointments and (the most central symptom) a discrepancy between thought and action. As described by Dr. Meyer:
There develops an insidious tendency to substitute for an efficient way of meeting difficulties a superficial moralizing and self-deception, and an uncanny drift into so many varieties of shallow mysticism and metaphysical ponderings, or into fantastic ideas which can not possibly be put to the test of action. All this is at the expense of really fruitful activity, which tends to appear insignificant to the patient in comparison with what he regards as far loftier achievements. Thus there develops an ever-widening cleavage between mere thought life and the life of actual application such as would bring with it the corrections found in concrete experience. Then under some strain which a normal person would be prepared for, a sufficiently weakened and sensitive individual will react with manifestations which constitute the disorders of the so-called 'deterioration process,' or dementia praecox. Unfinished or chronically sub-efficient action, a life apart from the wholesome influence of companionship and concrete test, and finally a progressive incongruity in meeting the inevitably complex demands of the higher instincts—this is practically the formula for the deterioration process.¹

The following is Dr. Meyer's clinical description of a typical case:

She began school at seven years, was smart, and applied herself well, but at the age of eleven she seemed to be failing and was thought to be studying too hard. She grew thin, seemed nervous, and complained of headaches. At twelve she was in poor health... [later] She was disappointed at home, for some time dreamt of becoming a teacher, but soon sank into hypochondriacal ruminations, and finally, at twenty-one, after useless operations, passed into a confused religious excitement, followed by stupor, in which she sits inactive and irresponsive, with the top-heavy and yet empty notion of being good, of saving the world, etc.

The next few decades may witness the complete demonstration that such cases can usually be saved by being taken early in hand and trained to more complete activity and appropriate self-objectification.

But, as already indicated, the importance of this principle of the sanifying influence of wholesome activity does not lie merely or chiefly in the insurance it offers against outright insanity. Sanity, be it remembered, is a relative term, and therefore the importance of manual training in this connection goes far beyond its prophylactic value as an insurance against admission to an insane hospital. In a sense no one is perfectly sane. A noted American psychologist, after making a careful inventory of his absurd crotchets, phobias and other mental extravagances, pronounces himself insane on at least seventeen different counts! It is doubtful whether many of us, if truly honest with ourselves, could make any better claim to perfect sanity. Just as there are millions of physically inefficient persons who are in no immediate danger of death, and relatively few who are perfect of body, so there are no end of people who are in no danger of trial for lunacy, but who nevertheless are decidedly below their own best level of mental balance. Dementia praecox has been mentioned at length only because it reveals, writ large, what to a less degree is true of most of us. The causes which

¹ Adolph Meyer, in the Psychological Clinic, 1908, pp. 96–97.
produce complete deterioration in the individual of nervous instability may, in the person of better hereditary endowment, result in nothing more serious than a temporary nervous break-down, "a slump of relative inactivity" (Meyer), or some other manifestation tending to rob life of its due zest and render success more difficult. To escape such dangers, every individual needs to be taught to "avail himself of the power of the concrete." We must find for every child the level where he can function successfully if we would have him escape the shocks of disappointment, the habits of failure and the resulting inactivity, daydreaming, vain wishing and chasm between thinking and doing. It behooves us "to make doing just as attractive as knowing," and to explore ways and means of enlarging the child's opportunities for the accomplishment of simple, wholesome and enjoyable things. Every person can be taught to do something well and take pleasure in doing it, and the result will contribute much more to the person's own mental balance and to the welfare of the world in general than will a smouldering volcano of sentiment and frothy, but inactive desire.