air, is not nearly as dangerous as living with a patient with so-called chronic bronchitis, or with the thin man who has stomach trouble and clears his throat. Forget about the infection that was supposed to come from inhalations or swallowing of dust from the street and remember that personal contact, particularly in the family, is the great source of infection. When the world appreciates that three out of four of the so-called delicate people are delicate because they have tubercle bacilli concealed about their persons unknown to them, then will we begin to get some action that will go a long way toward the solution of the problem.

In conclusion let me urge that ,as health officers, we more actively fight the greatest of all diseases—that we pay at least as much attention to it as to some of the more virulent and rapidly fatal diseases. To do this we must prepare the people—we must preach to them the things we know. Preach cleanliness, personal cleanliness—the cleanliness that demands clean hands before eating, separate eating and drinking utensils, separate beds—the cleanliness that demands the destruction of sputum or its expectoration in the gutter—that requires a cloth held in front of the mouth during coughing. Preach cleanliness because tuberculosis is a filth disease. Preach fresh air and sunlight—fresh air for the baby, for the school child, for the worker, for everyone—and sunlight to bathe the nursery, the bedroom, the living room, the school room, the workshop, the office, for tuberculosis is a disease of impure air and darkness. Preach pure food, good food and plenty of it, for tuberculosis is a disease of insufficient and improper feeding. Preach sufficient rest for the scholar, for the artisan, the clerk, and the laborer, for tuberculosis is a disease of over-work. When you have preached these things long enough and earnestly enough you will find that the demand will become great for well-ventilated buildings, for proper working houses and proper food. Then, with the knowledge we have and the increased skill in diagnosis we possess, we can hasten the time when tuberculosis will be but another of the diseases conquered by the medical health officer.

THE RELATION OF THE SANITARIAN TO VOCATIONAL GUIDANCE.*

By WM. SIMPSON, M. D., Health Officer of Santa Clara County, San Jose.

Every sanitarian, and particularly every health officer, must be an instructor and, as such, interested either for or against every educational movement. He must be for such movements as favor the physical development of the race which is the health officials' especial care. He must be against those which take from the boy or girl the full measure of growth to which each is entitled.

Thus far the boy has never been sized up by anybody but himself. No university graduates the girl in the knowledge of the duties and pleasures of motherhood, the one employment man can never take from her, and which she is taught to fear rather than welcome. Can we help these boys and girls to know their abilities and opportunities, or must they still blunder along and take their chances? Vocational guidance attempts to show the boy and girl how to grasp the opportunity and how to escape the blunders.

This is not the trade school masquerading under a new name, nor is it limited in its scope, but includes all possible types of vocational activity, professional, industrial, commercial. Its prime object is to ascertain the natural inclination of the child and fit him for his place in the community in which he is to exist, not as a parasite, not as an idler, but as a happy and willing doer of those things in which he is most interested, and the reward of whose work well done, shall be more work to be better done, work which shall afford him a competent reward, but for which the real reward shall be the joy of accomplishment. Teach him that money for work is a legitimate reward, but that work simply for money is drudgery of the lowest type.

Vocational guidance must face its problems from two standpoints. First, individual, which must consider mental and physical limitations; second, communal, which must take into account social and economic conditions. In each of these the sanitarian, be he physician or layman, is vitally interested. The health officer as a social servant owes his influence to all movements for the betterment of the community in which he works, and the personal welfare of the children should always be his special care. Vocational guidance originated in Boston where it was first developed for poor boys by Professor Parsons of the Civic Service House, who soon found it was needed by all boys, and now, when so many are co-workers, by all girls as well. It was later taken up and developed in New York, Cleveland and many other cities. It means an attempt to conserve *human resources*. Just now the whole world is alive to the conservation of material resources, water, coal, forests, in short anything which adds to the material comfort of the race. How much more important the conservation of human resources, the providing for each individual an occupation suited to his mental and physical limitations, and equal to his highest possibilities. An occupation which will give to him not only a material support, but which will satisfy his ambition, whether it be for money, fame, or any return which seems desirable, and for which he is willing to strive. No person ever achieved anything worth while in an occupation of which he was ashamed, or for which he had a dislike. The lack of knowledge of just what he was fitted for and the pressure of environment force many into work for which they have no liking, and hence no adaptation, and there they grow up discontented, disappointed individuals, the proverbial square peg in the round hole, and unless they have unusually happy dispositions they are apt to become pro-

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* Read before the Fifth Annual Conference of State, County, and Municipal Health Officials, Venice, October 6 to 11, 1913.

moters of discord from whose ranks are recruited the soap box orators.

Let us then as sanitarians and medical officers learn the viewpoint of the educators, and give them our help in determining the physical abilities of the youth for their life work, for the subject naturally separates itself into two divisions, the mental and physical. The mental may, perhaps, properly be relegated to the teacher and the psychologist, but, surely the condition of the individual, and the conditions under which he is to work are the problems of the physician. Hours of labor, child labor, ventilation, lighting, heating (which often means "cooling"), crowding, are all receiving attention, but much is yet to be desired, and much remains to be done, and the fitness of the child for the occupation to which it is either forced or inclined should be determined by qualified examiners, for not only its future comfort, but even the very life of the individual may be at stake.

For example, no child whose physical condition is below par, should be allowed to engage in mining, metal working, stone cutting, glass cutting, occupations which are known to develop occupational diseases, and to which only well developed vigorous persons should be apprenticed. Individuals who have any suspicion of tubercular taint must be guided away from all sedentery occupations. For them, stenography, typewriting, typesetting, the telephone exchange, factory work, desk work, should be forbidden and such pursuits chosen as require exercise and fresh air. Unless the vision is perfect or can be made so by glasses, the multigraph and the adding machine, the sewing machine and all forms of lace making and embroidery, coloring and retouching photographs will prove disappointing and unsatisfactory. This is particularly true of such individuals as have different vision for each eye, as these will always suffer more or less from eye strain. It is hardly necessary to specify the occupations which are closed to defective hearing, they will suggest themselves.

Corporations controlling large interests are learning that it is economy to spend money to ascertain and insure the competency of those who are to become employees before giving them positions. At its office in lower Broadway in New York the Standard Oil Company conducts a school for applicants for positions, paying them a salary during their three months' course, teaching them, not only everything about oil from the well to the consumer, but in the case of salesmen, how to live and conduct themselves to gain and retain the confidence and respect of the customer. An examination and thesis completes the course, which if successfully accomplished by the student insures him a three years' contract, his salary graduating itself to the measure of ability shown. This system enables them to select the proper peg for the proper hole, one student developing as a refiner, another for the lubricating oils, another for the sales department, and each assigned where his talent directs, and no one minus sufficient preliminary education can take the course.

Without special training, observation on the part of the teacher will show which boy is a trader and should be guided into commercial life, which is a student and should be guided toward a literary or professional career, or which is mechanical and should be guided toward the use of his hands.

If mechanical, then a special study must be made, first, of the community and the class of mechanical employment possible, and second of the student and his deftness which will show whether he is adapted to fine work, such as jewelry, art glass, cutlery, or wood working, electrical engineering, a work which requires judgment and caution, or for the girls, color sense for designing and the artistic trades, a quick ear and eye and the gift of attention and exactness for office employment, in short, individual study of each which should mean for the teacher smaller classes and more time for personal study of the members of the class.

Shall we not consider that the time is past when the student is fed to a machine, however perfect, and each one shaped to an exact likness of every other one as shown by his ability to answer the same set of questions?

The teacher should be able to recognize physical defects, particularly adenoids, mouth breathing, defects, even slight, of sight and hearing, not from an examination, but from the appearance, positions taken by the students at their desks, and in their classes, and should know the relations of these defects to mental deficiencies, and it goes without saying that what is true of the teacher is many times over more important to the health officer. His faculty of observation should be so cultivated that the first time in the school room by simply glancing over the class he can place the majority of the defectives. A demonstration of this to a class will inspire confidence and make it much easier to secure individual examinations of the entire class if thought desirable.

Then further, both the teacher and sanitarian must know the general disposition of the population as to vocations, as to the country in general, which he can obtain from the U. S. Statistical Reports, and particularly for his own locality. For example, the occupations of the Santa Clara Valley at present are agricultural pursuits 3054, professional service 1784, domestic and personal service 5017, trade and transportation 5819, manufacturing and mechanical 3650. It is obvious that in that valley the children must be guided toward these vocations until such time as there is an interchange over the whole country showing just where pupils showing aptitude for certain things can be guided not only to the choice, but to the location where that choice can be successfully followed.

The California climate is exceptionally well adapted to the development of both mental and physical defectives, as it offers so much pleasant out-of-door employment both for boys and girls. The cultivation of flowers, first, for the florist, second, for the seed grower or for the perfumer, has never been given the attention it deserves, and is

both a fit and healthful employment for the boy or girl of low vitality who promises to become tubercular. Curiosity and love of color are often characteristics of a low grade of intelligence, and both can be advantageously used in guiding such in the cultivation of plants and small animals.

In the judgment of many, too much attention has been given to helping and prodding and coaxing the defectives, and not enough to properly directing the bright ones. It is not the slowcoach who is the menace to the commonwealth. It is the one who is educated to the point where he is ashamed of work, and has not been guided into any suitable occupation.

It is often the very bright pupil who has the idle time that leads into mischief, and whose easy time in school leaves him unfitted for the plodding which is a part of every vocation.

In New Orleans the schools have taken up the study of the exceptional child, and through his parents and without attracting his attention to the fact that he is being studied, trying to ascertain why he is strong, healthy and happy, and so create an ideal for which others will strive.

As this child is the *really normal* child, these studies will show the results and comparative value of heredity and environment, and the time and effort lost on dullards can be spent on these normal pupils.

MODIFICATIONS IN ADMINISTRATIVE MEASURES NECESSITATED BY THE CARRIER PROBLEM.*

By F. W. BROWNING, M. D., Health Officer, Hayward.

The "carrier" problem confronts us very seriously in California for the reason that as yet the State Board of Health has not promulgated any regulations for the guidance of the health officer. Criticism, however, is not called for because no practical solution of the problem has been found. It is brought before this body of health officers at this time in the hope that practical recommendations, even though of a temporary nature, may be offered for the consideration of the State Board of Health.

Rosenau makes the trite remark that "the relief of bacillus carriers is one of the rewardful problems in preventive medicine," whilst Albert of Iowa City, after reading a very excellent paper on the problem of the diphtheria "carrier" at the last meeting of the American Medical Association last June, which was freely discussed by eminent men, closes the discussion thus: "The number of methods that have been discussed emphasizes one of the conclusions that we made, viz: that no one method has as yet proved satisfactory for the proper treatment of the carrier condition."

Let us briefly consider the situation in California at this time in so far as it concerns *diphtheria.*

The ruling of the State Board of Health is that "release from quarantine for diphtheria must be based upon the determination of two consecutive negative cultures from the nose and throat, these two cultures to be taken on separate days" (see Order dated January 8, 1910).

I also have a ruling from the President of the State Board of Health as follows: "All children in whose throats the Loeffler bacilli are found should be isolated." And again from the same authority: "Just so long as the Loeffler bacilli are found in a child's throat, that child should be quarantined." These rulings only deal with clinical cases of diphtheria and post-diphtheria carriers, whilst the vastly more numerous class of persistent "carriers" are allowed to roam at will, and because they are not in any way restricted they are unquestionably the more frequent source for the dissemination of diphtheria.

In some countries, Austria to wit, bacillus carriers are to be regarded exactly like persons ill of the contagious diseases, or like suspects. In Toronto, Canada, all diphtheria carriers are isolated and thus prevented from coming in contact with other children.

According to an investigation made by the Research Laboratory of Johns Hopkins Hospital there was an average of 3.61% of carriers among the 80,000 school children of Baltimore, whilst 3.48% was the average number of carriers among the general population of the city, which, with an estimated population of 600,000 would give 20,880 carriers in the city. This works out, according to the report, with an average of 20 carriers to every case of diphtheria.

Taking these figures as a standard the actual conditions in California are that the *one* case of diphtheria is quarantined, perhaps for six months or more (an actual experience in my own practice), and the *twenty* carriers are allowed to roam at large, each one a focus of more or less severity for the further dissemination of the disease. Yet according to the above standard it is not practical to isolate every carrier, for public opinion would not consent. It is, therefore, very essential that some reasonable plan should be devised, even if it is only a temporary one, to meet the present necessities.

Ledingham, in discussing the supervision of diphtheria carriers, says: "The difficulty arises in the case of carriers who have for long periods yielded cultures regarded as positive. In such cases it is advisable to prepare a pure culture, in order to make certain that the bacillus is properly classed as B. diphtheria and not one of the rarer forms of diphtheria which closely resemble B. diphtheria morphologically. If the bacillus after isolation proves culturally and biochemically indistinguishable from B. diphtheria, but completely nonvirulent, the question of the isolation of the carrier arises. If there is good reason for believing that only nonvirulent B. diphtheria are present, i. e., if the culture appears to contain only one form of B. diphtheria, then it may sometimes be necessary to relax the isolation in certain cases, but under no circumstances should such a child or person be allowed to return to school or to undertake the care of small children."

Would it not be reasonable for the State Board

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