REPORT ON APPLIED SOCIOLOGY

BY

THE COMMITTEE OF THE PUBLIC HEALTH SECTION

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Report of the Committee on Applied Sociology

THE Committee in attempting to formulate its report on Applied Sociology recognizes the two standpoints from which the subject may be viewed, viz., that of society and that of the individual and especially of the individual physician. It observes further that as sociology refers to individuals in the mass, so the various matters dealt with in such a report must apply especially to the association of individuals as members of communities. Critical observers of the great world movements have everywhere been noting, especially with the twentieth century, the evolution of what is called a social consciousness in the western world, which for a century had been especially dominated by the theories most elaborately taught by John Stuart Mill in his political economy in which individualistic competition was set forth as the real basis upon which a progressive society could exist. Plainly, however, there is a higher ideal, and that is that the members of society should exist for the good of one another. In public health such a theory had its genesis largely in Edwin Chadwick, the slum worker, who was instrumental in getting the Registration Act for births, marriages, and deaths of England placed on the Statute Book in 1838 and later the first Public Health Act in 1849. With these two agencies it became possible, through the facts obtained, to apply remedies under Acts relating to nuisances, to housing, to pollution of streams, to contagious diseases and so on. But not until Pasteur and other workers established the germ theory of disease did it become possible to formulate methods for attacking disease systematically, whether in the individual or in the group. The first comprehensive means to this end is to be found in the Consolidated Public Health Act of England of 1875 which summarizes much found in previous isolated Acts. Nine years later this formed the basis of the Public Health Act of Ontario, which again was the model upon which all provincial legislation in Canada has been founded. Year by year thereafter amendments to the Act were added dealing with many problems, each coming closer in its bearing upon the daily life of the people. Speaking of anti-

tuberculosis work Dr. Hermann Biggs, general medical officer of New York, has said:

"Step by step with the growth of our knowledge of the causes of the disease, the scope of the work has broadened, first one, then another agency was enlisted in the campaign, and we are striking nearer and nearer to the essential cause of the prevalence of the disease, namely the social environment."

The bearing of these facts upon the work of the practising physician is apparent, and he too has been as greatly aided as directed in his benevolent work in the cause of humanity. Its extent, its possibilities, and the nobility of it have been made ever more apparent to him, and to-day he enters ever more largely into the life of the community of which he is so important a member and constantly is asked to perform some public function as a duty which is complied with as a privilege.

In the matter of the compulsory notification of contagious diseases, it is interesting to note the gradual extension of legislation beyond what formerly included only smallpox, scarlatina, diphtheria and measles, to all acute contagions; since to-day the whole range of diseases in any way communicable are one after the other coming within the purview of what we call preventive, but what is more exactly termed state medicine.

From such facts as that Bismarck's Compulsory Insurance Act was passed in Germany in 1882 and that in 1912 even a wider Act of the same sort was passed in Great Britain including within its provisions 15,000,000 people, it has become evident that the needs of modern society in the matter of the health of its individual citizens are to be the only limitations set to what the legalized functions and social duties of the practitioner of medicine shall be.

Your Committee, however, desires rather to present the second phase of the subject, viz., that dealing with the *ethical* responsibilities of every disciple of the Father of Medicine, who has taken in spirit, if not in so many words, the Hippocratic oath. While it is true that the physician ought to maintain a proper secrecy with regard to the ailments of the individual patient, so far as no injury to the public may result therefrom, yet in view of our ever widening knowledge of disease it seems plain that from the position the physician is constantly placed in because of his very knowledge he can no longer, and would not indeed, avoid the issue of what his duty as a good citizen and patriot demands of him.

Some of the questions which the practitioner of to-day has pressed upon him are such as the following:

Compulsory Notification of Tuberculosis

It is just twenty years since this matter was first pressed upon the Government of Ontario by the Provincial Board of Health. The then premier listened sympathetically, but asked: "What, for instance, are you going to do with the sick persons whom you will have practically forced out of boarding houses and hotels?" It was in the same year 1894 that Dr. Hermann Biggs, under the New York Board of Health, instituted the practice of the examination of the sputum in all cases coming within the knowledge of the Board, and it was in 1897 that notification of tuberculosis was there made compulsory. In 1894 only 511 specimens of sputum were examined and in 1911 there were 41,820. The logical sequence of notification was the disinfection of premises vacated by death or removal and the disinfection periodically of infected houses. As tuberculosis is so chronic and thus may be a source of infection to many, it further soon followed that supervision of cases in the houses and the education of both patient and members of his family became obviously necessary. So district trained nurses under the Board of Health or the Antituberculosis League were appointed as the next step. Such measures were, however, elementary in the same manner as treating acute contagions in their homes formerly existed when compulsory notification first began. It soon became apparent that to deal effectively with the many families where tuberculosis had induced privation or poverty, various institutions became necessary both for the care of the sick and for the protection of their families and associates. Logically the first step was the clinic to which any person wishing free examination and attention could go or be sent by social workers, clergymen, etc. Thus arose what is called the Tuberculosis Clinic, now operative in every progressive city, New York having twenty-nine such clinics, while Glasgow has six. Such being directly associated, as they ought to be, with the local board of health and the charity departments of a city, become clearing houses for the disposition of cases in the manner most suited to their individual condition and needs.

Such divisions of work in their natural order, as given by Dr. H. Biggs, are:

1. Sanatoria for early and curable cases.
2. Hospitals for advanced cases.

3. A detention hospital for compulsory handling of undesirable patients from these institutions, or from charitable or corrective institutions, or from their homes where poverty or insanitary surroundings require that patients be compulsorily removed.

4. Open air camps—as day camps, roof gardens and tents.

5. Hospitals, especially marine or lakeside hospitals, for diseases of bones, joints and glands in children.

6. The preventorium for children.

7. The day nursery for the care of children of tuberculous families.

8. Open air schools.

9. Home treatment of tuberculous families.

10. A colony farm to give occupation to persons having recovered so as to be able to work.

Such is as admirable an illustration of applied sociology as can anywhere be found; but Dr. Biggs, after referring to the fact of New York's density of population—600 to 1,600 per acre, exceeding that of London which is not more than 400, makes the notable statement: "The whole problem of the prevention of tuberculosis is inextricably interwoven with various economic features in the lives of the working classes, but this applies to a much larger extent to the inhabitants of the great cities than elsewhere. It cannot be wholly solved until the questions relating to sanitary housing and the general welfare of the poorest classes have been satisfactorily answered."

We have presented this rather full outline, since nowhere has there been seen so extended and systematized an illustration of applied sociology based upon the data gained by compulsory notification and complete death returns as in New York, and nowhere have results been more striking, since the returns for 1911 in the boroughs of Manhattan and the Bronx show the following:

	Population	Total deaths Per 1,000	Deaths from tuberculosis per 1,000	Per centage of tuberculosis deaths	Total notifications
1881.....	1,244,511	31.04	4.92	15.85	.....
1894.....	1,809,353	22.70	3.16	13.89	4,166
1911.....	2,872,428	15.78	2.35	14.90	51,211

The total tuberculosis deaths in 1911 were 6,760 and the reported cases for the year, not including duplicates, were 17,360, so that the notified cases, even excluding duplicates carried over from

a preceding year, were 257 for every 100 deaths. That the principle of compulsory notification has grown gradually, and only as a part of applied sociological methods, as seen in New York, may be judged from the fact that it was made compulsory in England and Scotland only in 1910. That its completeness, even in a country where compulsory methods are proverbially well enforced, varies greatly is seen in the following table:

RATIO OF NOTIFICATIONS TO DEATHS FROM TUBERCULOSIS (PHTHISIS) FOR THE YEARS 1910-12.

	Death rate per 1,000	Total Notifications	Proportion of cases to 100 deaths
Birmingham	1.28	4,394	404
Liverpool	1.49	3,690	329
Manchester	1.53	2,398	216
Bradford	1.26	921	253
Portsmouth	1.13	1,267	475
Sheffield	1.22	980	173
Edinburgh	1.26	1,255	309
Glasgow	1.32	2,330	225

A careful analysis by Dr. A. S. McGregor, tuberculosis officer for Glasgow, of these figures, and especially of the ratio of notification by age periods, indicates very different proportions in the degree that certain kinds of health and social work are carried on. For instance, the ratio of schooi-children notified has always been found high where systematic medical inspection of schools is carried out, or where a tuberculosis dispensary is actively carried on, as in Edinburgh where notified cases rose from 448 to 1,221 from 1910 to 1911 owing to a critical and extended home examination of the relatives of consumptive patients coming to the Royal Victoria Dispensary. Remarking upon such variations, Dr. McGregor speaks of the marked differences in notification, depending upon the variations in interpreting physical signs by different physicians who deal especially with tuberculosis, and states that it is apparent that some special officer, such as the superintendent of a tuberculosis sanatorium, must be given the opportunity to follow up notified dispensary or other cases. For instance, Glasgow has six tuberculosis dispensaries, and the special tuberculosis officer with his sanitary visitors watches over suspected cases, which are treated for catarrhs, anæmias, etc., and tested with tuberculin when deemed necessary. During the years 1910-14 in Glasgow

all notified cases were followed up, and it was found at the end of the period that of 3,425 notified cases, 1,775 had died in the four years, or 54 per cent. Speaking of 493 or 14·2 per cent. of the cases which could not be found, Dr. McGregor remarks that the operation of the Compulsory Insurance Act with better organization will largely eliminate these difficulties. Dr. McGregor points out the enormous advantage to be gained from observation of notified school children, since it confirms the general experience of the existence of a very chronic and easily arrested type, that of tuberculosis of the lungs in children. When it is remembered that so many of such cases follow measles and whooping cough, it is obvious that the medical health officer cannot in practice limit the extent to which his relations with physicians in charge of such cases should extend. What is of further interest is the evidence from the statistics of cases alive, over fifteen years of age, that at the end of four years 67·5 per cent. were considered definitely tubercular and nearly 10 per cent. more definitely well, while the balance, about 20 per cent., had bronchitis, asthma, etc. Of extreme interest in Dr. McGregor's study of cases were those where subsequent cases had been notified. Thus, 130 cases in 1910 were followed by 150 secondary notifications within three years, or 74 in 1911, 51 in 1912 and 25 in 1914. Over all, the figures show that in three years 411 notifications were made respecting members of houses previously reported as having had 375 primary cases.

We have dealt thus fully with both the statistics of New York and Glasgow because these present two of the best illustrations of science applied to social and public health problems, which are indeed one; while the work done and the means applied in both cities for studying and dealing with tuberculosis are in keeping with what is almost axiomatic, that "the degree of prevalence of tuberculosis in a peculiar degree becomes the gauge of individual or communal effectiveness, measured from the physical, ethical or economic standpoint." The same truth is expressed in another way in an address by the Hon. James Bryce at a Housing Comference in New York on "The Menace of Great Cities," when he said, "Whatever you are trying to accomplish for the benefit of the poorer classes leads you, by one path and another, to the housing problems. The place where a man or woman lives is vital to the character of the man or woman."

From the illustations given your Committee turns to Canada for similar evidences of applied sociology. In 1900 the Canadian Association for the Prevention of Tuberculosis was organized and

in the same year the first Sanatorium Act was passed in Ontario. The success of the educational work, both national and provincial, has in recent years become more marked, as is witnessed by sanatoria being established in all the provinces, whether developed by government or by large grants-in-aid to municipalities or districts. As an illustration of a splendid advance in applied sociology with a highly evolved social consciousness, your Committee finds in the work of the city of Hamilton as admirable an example as almost any elsewhere and deems it appropriate to refer to it.

The seventh annual report in 1912 of the Hamilton Health Association states that with a population of 50,000 the tuberculosis deaths were 87, and in 1912 with a population of 80,000 the total was 64, or 7·5 per cent. and 5·3 per cent., respectively, of the total death rate. With the collective days at the sanatorium being 19,781 the expenditures were $18,556.15, or 0·94 per diem, the lowest cost of any similar institution in Canada. When the Sanatorium began, the admissions were as follows: In 1906, 71; 1910-11, 139; 1911-12, 109; and 65 were in residence at the time of the report being made. It is of great interest to compare this with Ottawa where the provision of a hospital for advanced cases and now a sanatorium for early cases exists. The report of Ottawa for 1912 states:

Patients admitted 1912-13	118
Patients died in hospital in 1913	39
Hospital patients who died outside	2
Total deaths in city	130
Population	100,000

At the Hamilton dispensary the number of persons examined in 1912 was 718, of whom 76 were children. There were 2,032 visits to the dispensary, an increase of 1,268 over 1911. Visits to the homes of patients numbered 1,212. At the Ottawa dispensary the number examined in 1912 was 137, of whom 32 were children, an increase of 52 over 1911; and there were 905 visits to the dispensary. The cost per diem per capita in Ottawa at the Sanatorium was $1.10. We find in each of these cities, as in most other progressive centres, the several means of applied social work well illustrated, namely (1) the sanatorium for early cases, (2) the hospital for advanced cases, (3) the home for far advanced cases, (4) the dispensary, (5) the visiting nurse, and (6) the ladies' auxiliary. Hamilton has in addition its preventorium, or open-air school. The work done in both these cities which are so comparable illustrates

well a remark by Viscount Bryce in the paper already quoted, "But, when everything that the state can do has been done, there will remain a large field in which the action of private men and women will be more helpful than the action of the state can be, because it will be better adapted to the needs and conditions of the people whom it is intended to help, because it will be more flexible, more personal, more human, more animated by that spirit of helping the weak which is the essence of every effort to raise them."

In another quarter I find illustrated applied sociology in a recent review in the New York *Sun* of the life of that remarkable social reformer, the late Jacob Riis, a newspaper reporter and native of Denmark. His work led him everywhere into the slums and he greatly stimulated and aided Theodore Roosevelt when Police Commissioner of New York:

"Mr. Riis did the work that won small parks for bad spots in in the city. He laboured years to have more schoolhouses built. The evils he exposed he discovered in his work as a reporter. He knew how to write so as to wring men's hearts with his news of oppression, misery, and hopelessness. He compelled indifferent city officials to concede the reforms he suggested or approval. It was Riis who exposed the contaminated state of the city's water-supply, and thus brought about the purchase of the whole Croton watershed. It was Riis who forced the destruction of rear tenements, and thus relieved the hideous darkness and density of life among the very poor. He forced the obliteration of Mulberry Bend, the worst tenement block in the city, and had the space turned into a park. He spoke the word that induced Commissioner Roosevelt to abolish the police lodging-houses. He fought for and secured a truant school. He drove bakeshops out of tenement basements. He demanded light for dark tenements, thus illuminating the hiding-places of dirt, filth and crime."

Before passing on to another phase of the report your Committee would refer to the status of compulsory notification of tuberculosis as the measure of administrative effectiveness in public health departments. Dr. Herman Biggs, from 1892 onwards the general medical officer of New York and now chief medical officer of New York State, introduced, after much discussion in medical societies, compulsory notification of tuberculosis. Speaking of it in a paper in August 1913, he says:

"Of the various features of the antituberculosis work, none is more fundamentally important than notification and registration

of cases; and none has been more misunderstood or opposed by the medical profession. In spite of almost innumerable objections at first urged, it has finally been realized that no adequate control of tuberculosis can be effected without such notification and the objectors one by one have been silenced. . . . Certain it is that not one of the disastrous consequences urged against notification has materialized and in New York City such notification has now been in force for almost twenty years."

The Quebec Public Health Act 1909 states that every householder and physician is obliged to notify tuberculosis, as other diseases, and is liable to a fine of $20.00 for each day he neglects it, yet I find the Report of the Royal Commission 1909-10 stating: "The Commissioners are not unaware that there is a law in our Province ordaining that physicians declare all cases of tuberculosis to the health authorities, but they have ascertained that the law remains a dead letter." The Public Health Act of Ontario of 1912 makes the notification of tuberculosis compulsory, yet it is found that the deaths in Ottawa in 1913 were 136 while the cases notified, mostly through public institutions, were only 108. It is probable that these two instances illustrate the situation in most Canadian cities; although in the instance of Hamilton there were in 1911 only 64 deaths from tuberculosis and 83 notified, while with rather fewer cases in the sanatorium there were 150 cases notified, whether directly through physicians or through the institutions in 1912.

The Quebec Commission report says: "In order to combat a disease it is necessary to know where it exists." Dr. Biggs speaking of house visitation, which of course is conditioned by *notification*, says: "And just as tuberculosis has been found to be, in the final analysis, not a mere bacterial invasion but a symptom of social pathology, so it is gradually being realized that many other diseases affecting mankind have a social pathology." The possibility of notification has depended upon the public sentiment which has assisted in erecting hospitals and sanatoria, and the fact that every province has local and provincial sanatoria and hospitals for advanced cases, either special or general, points to the logical gradual increase in notification, wherever a medical officer receives the support of the social workers of his municipality.

As an adjunct illustrative of applied social work, the education of the people by moving pictures supplied by the boards of health has come to be of great value, being often associated with tuberculosis exhibits.

Child Hygiene and Inspection of Schools

The ways by which modern scientific knowledge is being applied to social needs are so many that time fails to present such in all their aspects; but in nothing has the social conscience been more aroused than in the care of the children. Every progressive city has recognized that, through trained district nurses either under the direction of the board of health or some social service committee whether of hospitals or charitable organizations, what may be called first aid is given by nurses' visits to the homes of the poor when infants are born, this being the first step to be taken to save the babies. This work has in recent years been greatly supplemented by the milk stations, similarly under trained nurses, where the women come with their sick children and after medical examination are supplied with certified milk and taught how to care for the baby and its food. It is in these ways that accurate knowledge is being daily gained of the actual conditions in the homes of the poorer people and through which organized methods may be adopted for dealing with other problems as sanitary houses, overcrowding and contagious diseases. But at five or six years of age one seventh of the total population, the school children, pass under the direct supervision of the State. Here we see the beginning of public supervision by the State and the test of public progress and social efficiency applied at once. For instance in a series of Indian children awaiting admission to some boarding school in Alberta, not one was examined who did not show signs of initial tuberculosis; but we need not go farther than the reports of school nurses in any of our city schools to show the need of adding to the supervision of the teacher, exact trained medical knowledge. Speaking of a Toronto suburban area the school nurse thus describes the situation:

"The population until recently was made up of new comers from the British Isles: the majority being English. These families occupied tar paper shacks of from one to three or four rooms. In many cases a house twenty feet square, divided or curtained off into living room and bed-room was the home of six or eight persons. Fathers came out from the old land, purchased a small piece of ground, erected a shack."

Through the kindness of Dr. Bentley, of Sarnia, the district medical officer for south-western Ontario, I have been enabled to supply the actual results of a medical inspection carried out by himself and the local medical health officers. It was found that over 60 per cent. had some physical defect demanding skilled

attention, of which defects of vision and the teeth were the most numerous. It is thus, as Dr. Bentley illustrates, that the wide range of sanitary influences becomes educative and the child becomes the medium through which light and leading enter the home as well as through which trustees become informed and cognizant of their duties. This application of sociology is of the widest character and, like the work done with regard to tuberculosis, can be pushed to limits measured only by the degree to which medical officers, inspectors, teachers and school trustees recognize the extent of work to be done and appreciate the social responsibilities resting upon them. Dr. Bentley writes as follows:

"In the months of October and November, 1913, I inspected all the school children and the High School students in Parkhill, Lucan and Ailsa Craig as well as those in 17 country schools. The defects noted were: defective vision, defective nasal breathing, enlarged tonsils, carious teeth. Total number of inspected, 821; of defective, 432; of defects, 659. After these inspections had been completed the school nurse made visits to 191 homes. In March and April of this year I inspected the school children in Forest and Thedford, as well as those in 11 country schools. The total number of those inspected was 571; of defective, 347; of defects, 512.

The school nurse made visits to 162 homes and found many of the children already under treatment. Of 38 children in one room in Forest we found 19 with defective vision, and of 50 children in another school in Thedford 21 had defective vision. In both cases we found that these children had been allowed to attend classes for a year and over in poorly lighted buildings, while new schools were under construction. As an indication of the importance of inspections being made, I give you here a report which applies to the one recently made: impaired vision, 104; carious teeth, 207; defective nasal breathing, 69; enlarged glands, 19; anæmia, 37; ringworm, 1; pediculosis, 12; total 512 in 821 inspected."

Control of the Social Evil

This problem will doubtless be dealt with by the special committee; but no report on applied sociology would to-day be considered complete without reference to it. It is impossible to separate from the complex factors which enter into the problem any single one as being that to be specially attacked; but in every direction to-day the clinic, psychopathology, and heredity are being ex-

ploited in endeavours to determine what is the true direction in which social work can best cope with this evil. There are, however, several elementary facts which serve to guide society in its more simple efforts, as when it is stated that if alcoholism is associated with 25 or 35 per cent. of cases of venereal disease, the plain fact must exist that under the influence of intoxicants many first cases have become infected. Hence society to-day is concentrating its efforts as never before on curbing the national vice of alcoholism, basing its arguments on physical, mental, moral, industrial and national grounds. Where the old argument is used that only the hereditary degenerate gets drunk, and that the ordinary use of alcohol by the normal man in society is harmless we only pity the superficiality of the observer or question either his good faith or his intelligence. When we are taught by most extended statistics, as those of Dr. Mott of London, that practically all paretics and tabetics are syphilitics, that 40 to 50 per cent. of the children of such are feeble-minded and show the spirochætes in their blood, and that many of these were alcoholics, we are again met by the argument that it is inevitable. When we learn that 80 per cent. of the children in the juvenile courts of New York, or 10,000 in a single year, were feeble-minded, and and that some 50 per cent. of the young women sent to reformatories are feeble-minded, we hear the statement that such is inevitable, and from many quarters are met with the old chestnut: "What is the use of talking about these things, drunkenness, vice and feeble-mindedness even to insanity, all have been and will be. Better leave well enough alone." It is indeed like a fresh breeze from the Laurentians blowing over thousands of miles of evergreen forest, uncontaminated by the presence of humanity, to find a man like Dr. Herman Biggs, for a quarter of a century general medical officer of a city like New York, taking for his motto everywhere: "Public Health is purchasable: within natural limitations a community can determine its own death rate." Where women are demanding, with fury even, the vote to devote it to social ends, where Scotland possesses a general Act preventing drinking places from opening till 10 a.m. and where the leader of a political party in Canada's most important province makes "Abolish the Bar" his battle cry, it is quite clear that social forces taught by statistics, by physiology, by economics and above all by the cost of vice and its logical consequences in individual, social and natural enfeeblement, and where especially the cry is going up from the diseased, the feeble-minded, insane, and neurotics, all of

whom bear the stigmata of hereditary or induced defects, physical, mental and moral, it is abundantly apparent that a social consciousness has become developed which must find expression in common action through means both individual and collective, whereby society as a whole will be uplifted, and humanity find, as the Hindoo poet, Dr. Tagore, teaches, the realization of life in action:

> The gods addressed the mighty Vishnu thus,
> "Conquered in battle by the evil demons,
> We fly to thee for succour, Soul of all:
> Pity, and by thy might deliver us."
> Heri, the lord, creator of the world,
> Thus by the gods implored, all graciously
> Replied: "Your strength shall be restored, ye gods
> Only accomplish what I do command."

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