SPECIAL HOSPITALS

FOR THE

TREATMENT

OF

TUBERCULOSIS

BY

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Treatment of Tuberculosis.[1]

By LAWRENCE F. FLICK, M.D.

ONE of the sarcastic flings of the skeptic at the student of the etiology of tuberculosis is that his much-vaunted discoveries have, as yet, led to no practical results in the prevention of the disease. If this is true, it is so because the lessons taught by those discoveries have not been put into practice.

The knowledge which we have gained about tuberculosis during the last few years, points strongly to the conclusion that it is a preventable disease, and that for its prevention three sanitary measures are indicated: first, a compulsory report of all cases of tuberculosis, whether in human beings or animals, to the Board of Health; secondly, a governmental destruction of all infectious material with the necessary disinfection of the surroundings; and, thirdly, the institution of special hospitals for the treatment of tuberculosis. In this paper I will consider the last named only: first, because it is practicable; secondly, because it can be demonstrated to be effective; and, third, because it will enlist the co-operation of those who are as yet not ready to accept the theory of the contagiousness of tuberculosis.

The country in which special hospitals for the treatment of tuberculosis have been given the most extensive trial, at least as far as I have been able to learn, is England. The Englishman, without having any idea that he was instituting a sanitary measure, but purely out of kindness of heart, and from a keen appreciation of the wants of his sick neighbor, al-

[1]Read before the College of Physicians of Philadelphia, February 5, 1890.

ready began his humanitarian work for those afflicted with tuberculosis in the last century. In 1791 the Royal Sea-bathing Infirmary for Scrofula, was founded at Kent County, England. Whilst this hospital never did, and does not now, take consumptive patients, so-called, it nevertheless has been, and is now, a special hospital for tuberculous diseases. It seems to confine itself to those forms of tuberculosis which come under the old term of scrofula. The medical directory of the United Kingdom for 1889 states that the number of in-patients which can be treated in the hospital during a year is 580, and the superintendent, Mr. George H. Chexfiled, kindly informs me by post that the capacity of the hospital for in-patients is 220, and that the percentage of recoveries in the hospital for the year 1888 was forty-five per cent.

The next institution that sprang up in England, which approaches anything near to being a special hospital for tuberculous diseases, is the Royal Hospital for the Diseases of the Chest. It was established in London, City Road, E. C., in 1814; was rebuilt in 1863, and enlarged in 1885. In 1878 it could accommodate 165 in-patients yearly, and in 1889 its average had arisen to 305. From the title, I judge that it takes in all kinds of diseases of the chest.[1]

In 1841 the first hospital was instituted in England, which had for its object the treatment of persons suffering from consumption. This was the Brompton Hospital for Consumption and Diseases of the Chest. Although instituted in 1841, it was not incorporated until 1850. It is located at Brompton, S. W. London. It averaged 1330 in-patients annually in 1878, and 1784 in 1888. It is incorporated by Act of Parliament, and receives patients from all parts of the kingdom. It is under the immediate patronage of "Her Most Gracious Majesty the Queen," "His Royal Highness the Prince of Wales, K. G.," "Her Royal Highness the Princess of Wales," and has for vice-patron "His Royal Highness the Duke of Cambridge, K. G." It is strictly a charity institution,

[1] Medical Directory of United Kingdom.

and depends for its support upon bequests and contributions. "The government and management of the institution are entrusted to a general court of governors, and a committee of management," and the hospital itself is in the hands of what is called an "Establishment," which consists of a president and vice-president, a chaplain, a treasurer, a secretary, a resident medical officer, a lady superintendent, a collector, consulting physicians, a surgeon, not more than six assistant physicians, a pathologist (and curator of the museum), and a dental surgeon." Every donor of fifty-two pounds and ten shillings, or upwards, at one time, or at different periods within three years, becomes a "governor for life;" and every subscriber of five pounds and five shillings, or upwards, per annum, becomes a "governor." "Every person making a bequest of one hundred pounds, or upwards, to the hospital, may nominate a life governor; and in the event of such nomination not being made, one of the executors mentioned in the will shall be entitled to the privileges of a life governor." "Every governor is entitled to one vote at the courts of governors, and to one additional vote for every additional donation of one hundred pounds, or annual subscription of ten pounds, provided that in no case shall the number of votes acquired by any governor exceed five." "Persons becoming governors by donation or annual subscription are entitled to recommend one in-patient and eight out-patients annually for every donation of fifty-two pounds and ten shillings, or annual subscription of five pounds and five shillings," while "Annual subscribers of less than five pounds and five shillings are entitled to recommend four out-patients for each pound and shilling subscribed." "Every incumbent or other minister who shall permit a collection to be made in his church or chapel for the benefit of the hospital, shall be entitled to the privilege of recommending, for every fifty-two pounds and ten shillings so collected, one in-patient and eight out-patients annually during five years; but in all cases where the collection is less than fifty-two pounds and ten shillings, the incumbent or minister shall be entitled to a set of letters for one in-patient and eight out-patients for each sum of

ten guineas collected, such sets of letters to be issued for consecutive years. And every clergyman or other minister not being the incumbent, who shall preach for the benefit of the hospital (the sum collected not being less than fifty-two pounds and ten shillings) shall be entitled to the privileges during the year ensuing the day on which the collection was made of recommending one in-patient and four out-patients."[1]

By this excellent system, as briefly outlined by the quotations which I have made from the standing rules, the hospital not only supplies itself with machinery for government and means of subsistence, but justly distributes its patronage among its benefactors.

During the year 1888, £7,773, 16*s*, were raised by annual subscriptions, £5,445, 12*s*, by donations, £2,595, 14*s*, 2*d*, by church collections, and £65,179, 12*s*, 11*d*, by legacies. That the money is well expended, and that the institution is well governed, would appear from the fact that during the same year the total expenditure was £30,474, 0*s*, 7*d*, leaving a handsome balance to be added to its funded property. The funded property of the institution was, on December 31, 1888, £130,605, 9*s*. 11*d*.[2]

The Brompton Hospital is probably the largest institution of the kind in existence, and consists of a parent hospital and an extension building. The parent building is "built in the shape of the letter H, the depth of each wing being 190 feet, and the width of the building 200 feet. It stands in a square piece of ground covering three acres, and faces the public road. . . . The grounds have been laid out at considerable expense, and are thoroughly drained, so that the broad terrace walks, which they present, become available for the patient very soon after the heaviest rain."[3]

"The ground floor is on a level with the gardens. The west wing contains physicians' rooms, laboratory, museum, rooms for the resident medical officer

[1] Quotations are from forty-eighth Annual Report of the Hospital for Consumption and Diseases of the Chest, Brompton.

[2] Supra Cito.

[3] Supra Cito.

and clinical assistants, and servants' hall. The warming of the hospital . . . is effected by hot water constantly circulating in large pipes extending throughout the building. The ventilation is obtained by means of extracting shafts consisting of two lofty towers, heated with steam, into which the vitiated air is drawn through large ducts leading from all the wards and corridors. There are also fires in all the wards, both on account of their cheering appearance and warmth, and their use as ventilating agents. The kitchen and sculleries abut on the north side of the central basement corridor, and are built outside of the hospital altogether. . . . Immediately adjoining is the boiler house, in which are the two boilers for supplying hot water to the systems of pipes for warming the building. It also contains a powerful steam boiler, which generates steam for heating the extracting coils in the ventilating towers. This boiler likewise supplies steam to heat the water in the kitchen and the sculleries, lavatories, and baths, as also to grind the coffee, and to raise the lift which takes up the patients' meals hot from the kitchen, as well as other necessaries; also to raise a lift for conveying to and from the galleries those patients for whom exercise in the grounds is desirable. . . . The first floor is devoted exclusively to female patients, saving small rooms for the chaplain and for each of the two head nurses, and the two requisite sculleries, baths, and lavatories. The temperature is the same in the galleries as in the wards; patients are therefore able to read or work in these well-lighted, roomy corridors, without inconvenience or exposure; or, they may walk when the weather will permit of their going out; they are also provided with easy couches and seats and movable tables for meals. . . . The first floor accommodates 103 female patients."[1]

"Second floor.—The arrangements of this floor are precisely the same as those of the first floor, the wards being occupied by male patients, for whom there are 107 beds. . . . The breadth of the galleries in both floors is ten feet, and their height and that of the wards is fourteen feet."

[1] Supra Cito.

"The attic floor has comfortable dormitories for the nurses and servants, and in the tower are the sleeping apartments of the clinical assistants."

"The new extension building . . . has been constructed for 137 additional in-patients, and an extensive out-patient department. It is situated on the south side of Fulham Road, and connected with the parent hospital by a tunnel beneath the roadway. Built of red brick, with terra-cotta and Ancester stone, it takes the form of the letter E, the two wings looking south, the main body of the building facing north; it is 200 feet long and 100 feet high." "The basement contains compressed air and Turkish baths, rooms and stores for steward and housekeeper, etc.[1]"

"The ground floor has a central entrance hall, flanked on the east by a large out-patient department (19½ feet high), and on the west by rooms for the resident staff, a mezzanine for the nurses, and a lecture-room." "The first, second, and third floors are devoted to in-patients, each floor consisting of a corridor (10 feet in width), which runs round to the north and east sides of the building, in the center of which is a large dining hall, ten wards (13½ feet high), holding from one to eight beds—forty-six in all; two nurses rooms, baths and lavatories, and two inhaling rooms. The average floor space per bed is 115 feet, the cubic space being 1,400 cubic feet."

"The top floor contains the kitchen, with rooms for night nurses and servants."

"The ventilation is maintained independently of the windows and fire-places, and supplies 4,000 cubic feet of air per hour to each patient. The air is admitted by numerous openings, placed on a level with different floors: on the east and north into the galleries, on the west and south in to the wards, the greater portion being heated by passing over coils of hot water pipe; part is admitted directly, the quantity of hot and cold air being modified at will, and the temperature capable of being evenly maintained. The vitiated air is drawn off from the corridors, wards, etc., through extracting flues built in the walls, and furnished with openings at floor and ceil

[1] Supra Cito.

ing. These flues run into large air-ducts beneath the roof, which communicate with four towers heated by steam coils forming the exhausting chambers." [1]

"Lavatories (twelve) and baths (two) stand on the north of the corridors by themselves, and the slop-sinks (two on each floor) are situated in small annexes." "The flooring is constructed on . . . . fire-proof principle, and has a sub-floor of deal, with teak above, which is waxed."

"There are two principal stair-cases of teak in the center of the building, and two stone stair-cases in the wings."

"There are three hydraulic lifts: one for passengers, etc., two others, smaller, for food, etc., from the kitchen to the basement."

In connection with the Brompton Hospital, and as an auxiliary to it, there is what is called "The Home," which is an institution maintained by benevolent ladies, for the purpose of giving the poor who are waiting for their turn in the hospital, or who are looking for employment after leaving the hospital, a temporary home. This is located at 27 Smith Street, Kings Road, Chelsea. It admits only males.[2]

By the regulations of the hospital, "Persons unable, from necessitous circumstances, to pay for medical advice, are alone eligible for treatment, either as in- or out-patients;" and "only those whose cases admit of more or less permanent relief from treatment can be received." A person desiring admission to the hospital must have a letter of recommendation from a governor, must forward a certificate from his medical attendant, setting forth his condition, to the secretary, may have to pass a medical examination before the hospital physician, and if found "eligible," will be "admitted strictly in turn," for which he will probably have to wait from two to about eight or ten weeks, according to the number before "him" on the list." In the meantime, he may attend as an out-patient.[3]

In connection with the hospital there is a fund called the Rose Fund, from which the very poor are

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[1] Supra Cito.
[2] Supra Cito.
[3] Supra Cito.

furnished with clothing. Donations of clothing are also received from the charitable contributors. The hospital yearly sends a large number of properly selected cases to convalescent homes and seaside resorts at its own expense. During the year 1888, it sent 290 such to the seaside.

Every want and need is supplied to the unfortunate sick, and everything is done to make them happy. "Weekly musical and other entertainments" are given for the enjoyment and benefit of the patients during the winter, and "the more delicate patients" who are unable to take walks, are given "drives in the fine weather."

Of the 1,784 patients treated in the hospital during the year 1888, there were discharged during the year "many greatly benefitted," 1,231, and there died 229. "The average period of residence of each in-patient was 61½ days.[1]

The next hospital, in the order of time, which was established in England for the treatment of persons suffering from consumption, is the Infirmary for Consumption and Diseases of the Chest, at 26 Margate Street, Cavendish Square, W. London. It was instituted in 1847. It is stated in the Medical Directory for the United Kingdom, that 2,000 patients are treated in the institution annually; but it is not stated whether they are in- or out-patients.

In 1848, the City of London Hospital for Diseases of the Chest was founded at Victoria Park, E. London, and in 1855 it began to admit in-patients. It is a strictly charity institution, and is maintained and governed in almost the same way as the Brompton Hospital. It is under the patronage of the Royal Family, and members of the nobility, and has for its supporters prominent Englishmen—both professional and lay. Its average in-patient capacity was 781 annually in 1878, and 1073 annually in 1888.[2]

"Annual subscribers of one guinea are governers for the time being, and donors of ten guineas are governors for life." "Donors of thirty guineas are entitled to recommend one in-patient and six out-

[1] Supra Cito.

[2] Forty-first Annual Report of the City of London Hospital for Diseases of the Chest. Victoria Park.

patients during each year, for life. Donors of ten guineas are entitled to recommend one in-patient during each year, for life. Donors of five guineas are entitled to recommend one in-patient and four out-patients, for one year only. Donors of five guineas and upwards will be further entitled to the privileges of donors of ten and thirty guineas, on increasing their donations to the above amounts." "Annual subscribers of three guineas are entitled to recommend one in-patient and four out-patients. Annual subscribers of one guinea to recommend four out-patients. Donations and subscriptions paid by firms, companies, or societies, confer the above privileges upon one named member only."[1]

Similar provisions to those of the Brompton Hospital are made in favor of those who leave bequests, and of ministers who allow collections to be taken up in their churches, or who preach for the Hospital. The privileges, however, are graded by the standard of thirty guineas, as set forth above.[2]

The method of governing and conducting the institution, and the regulations as to admission of patients, are so similar to those of the Brompton that it would be repetition to set them down.

The receipts of the hospital for the year 1888 were: donations, £2437, 3*s*, 2*d*; annual subscriptions, £2488, 4*s*, 8*d*; bequests, £4626, 8*s*, 7*d*; dividends, £404, 9*s*, 7*d*; Hospital Sunday Fund, £866, 13*s*, 6*d*; Hospital Saturday Fund, £263; church and church parade collections, £99, 17*s*, 11*d*; incidental receipts, £165, 9*s*, 9*d*; making a total income of £11,351, 7*s*, 2*d*. The expenditures for the year were £10,199, 5*s*, 1*d*.

Of the 972 patients admitted during the year 1888, 877 were more or less relieved, and 95 died. From the time that patients were first admitted to the hospital in 1855, to December 31, 1888, there were admitted into the institution, 22,360 patients. So great is the demand for admission that patients have to await their turn at all times.

In 1850, the Western Hospital for Incipient Consumption was established at Torquay, Devonshire

[1] Supra Cito.
[2] Supra Cito.

County, England. Its average annual in-patient capacity is 40.[1]

In 1855, the National Sanitarium for Consumption and Diseases of the Chest was founded at Bournemouth, Hampshire County, England. In 1878 it could accommodate 248 in-patients annually, and in 1888 its capacity was 286.[2]

In 1860, the North London Hospital for Consumption was established at 216 Tottenham Court Road, W. London. It could accommodate 228 in-patients annually in 1878, and 320 in 1888.[3]

In 1864, the Liverpool Hospital for Consumption and Diseases of the Chest was founded in Liverpool, Lancashire County, England. Its annual in-patient capacity in 1888 was 180.[4]

In 1867, the Alexander Hospital, for children with hip-disease, was established at 18 Queen Square, Bloomsbury, W. C. In 1888 its annual in-patient capacity was 145.[5]

In 1868, Fir's Home for Advanced Consumption was founded at Bournemouth, Hampshire County, England. Its annual in-patient capacity in 1888 was 55.[6]

In 1869, the Royal National Hospital for Consumption and Diseases of the Chest was founded at Ventnor, Undercliff, in the Isle of Wight. Like the Brompton and the City of London, it is under the patronage of the Royal Family, and counts among its promotors many of the most prominent men in England. Whilst it is governed and managed much in the same manner as the two afore-mentioned institutions, it is not entirely a charity hospital. It, moreover, differs from the former in being conducted on what is called the separate principle—that is, placing each patient in a room by himself.[7]

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[1] Medical Directory of the United Kingdom.
[2] Supra Cito.
[3] Supra Cito.
[4] Supra Cito.
[5] Supra Cito.
[6] Supra Cito.
[7] The Royal National Hospital for Consumption and Diseases of the Chest, on the Separate Principle, Ventnor Undercliff, Isle of Wight, 1888.

"£31, 10*s* (paid either in one sum, or by instalments within three years) constitutes the donor a life governor;" "£10, 10*s* constitutes the donor a governor for one year, with the privilege of recommending one patient;" "£3, 3*s* annual subscription constitutes an annual governor, with the privilege of recommending one patient every year;" "£2, 2*s*, annual subscription entitles the subscriber to recommend one patient every second year;" "£1, 1*s*, annual subscription entitles the subscriber to recommend one patient every third year." "Every clergyman or minister collecting £10, 10*s*, in his church or chapel, for the hospital, will become a governor for one year, with the privilege of recommending one patient." "Donors of £350, or subscribers of £35 annually, are entitled always to have one patient in the hospital." The first-named executor acting under a will by which a legacy of not less than £100 is left to the hospital, and collectors of not less than 10 guineas are eligible to governorships by the Board.[1]

The Royal National Hospital consists of twenty houses joined together in ten blocks. It is beautifully situated on a tract of land 22 acres in extent, and enjoys both a country and ocean climate. Sixteen of the houses were built at the expense of private individuals, and bear their names. Everything about the institution, both as to its construction and its management, is in accordance with modern views of hygiene and physical comfort. It can accommodate 140 patients at one time, and, from the time of its foundation to the present, has extended its aid to nearly 9,000 in-patients.[2]

During the year 1888, the Hospital received: by annual subscriptions, £1687; by donations, £2181; by Hospital Sunday and Saturday funds, £318; by church collections, £35; by legacies, £252; by patients' payments, £2893; by interest and dividends, £1493; by sundry receipts, £54; in all, £8913. During the same year the expenditures were £9280, a trifle above the income. The hospital owns funded property to the value of upwards of thirty thousand pounds.[3]

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[1] Supra Cito.
[2] Supra Cito.
[3] Supra Cito.

The regulations bearing upon the admission of patients are much the same as those of the Brompton and the City of London Hospitals. "Applicants without distinction of creed or sect, from all parts of the United Kingdom," are admitted, but a payment of 10*s* per week is required of them to help defray the expense of maintenance. That this small fee does not interfere with filling the hospital would appear from the fact that at times there are "upwards of fifty applicants waiting their turns of admission."[1]

During the year 1888, there were 735 patients under treatment in the hospital, of which 603 completed their terms of residence during the year. Of these 603, 64 left very much improved, 94 left much improved, 221 left improved, 109 left in *statu quo*, 82 left in worse condition than they entered, and 33 died during the year. Of the improved patients, 29 gained over 14 pounds each during their stay.[2]

In 1872, the hospital for children with hip-diseases was established at Sevenoaks, Kent county, England. It averages 27 in-patients a year.[3]

In 1875, the Manchester Hospital for Consumption and Diseases of the Chest was founded at Deargate, Hardman street, Manchester, England. Its average annual number of in-patients, in 1888, was 128.[4]

During the same year, 1875, the Belfast Royal Hospital, at Belfast, Ireland, opened a consumption department. What number of in-patients it can accommodate, I have been unable to learn.[5]

In 1878, the "Northern Counties Hospital for Diseases of the Chest" was opened at Newcastle-upon-Tyne, in Northumberland County, England. Its annual average number of patients is 30.[6]

In 1880, the "Belfast Hospital for Consumption and Diseases of the Throat" was established in Belfast. In 1888, its annual average number of patients was 820.[7]

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[1] Supra Cito.
[2] Supra Cito.
[3] Medical Directory of United Kingdom.
[4] Supra Cito.
[5] Medical Directory of United Kingdom.
[6] Supra cito.
[7] Supra cito.

In 1884, the "St. Leonard's Hospital for Diseases of the Chest and Throat" was founded at St. Leonard's, Sussex County, England. Its annual average number of in-patients in 1888 was 167.[1]

As far as I have been able to learn, the United Kingdom of Great Britain has at present eighteen hospitals, which are, in a certain sense, special hospitals for the treatment of tuberculous diseases, and which in the aggregate can accommodate between six and seven thousand in-patients annually. Of the eighteen, only three are exclusively for tuberculous diseases: namely, the North London Hospital for Consumption, the Western Hospital for Incipient Consumption, and Fir's Home for Advanced Consumption.

Another country in which consumption hospitals have been in operation on a somewhat extensive scale is Germany. In 1857, Dr. Herman Brehmer published some original observations, under the title of "Chronic Pulmonary Consumption and Tuberculosis of the Lungs, its Cause and Cure," which, having attracted the attention of Alexander von Humboldt, obtained for him, through the latter, government permission to establish his now celebrated sanatarium for consumptives at Gerbersdorf, a small village "on the floor of a sinuous valley in the mountainous region of Waldenburg, in Silesia. The first building, a modest cottage, was put up in 1859;[2] but it was soon too small, and in 1862 a larger and more pretentious one was erected. So well did Dr. Brehmer's undertaking prosper that he now owns an estate of "270 acres, of which no less than 70 acres are cultivated woodland, available for promenades," on which he has erected most stately, magnificent buildings, capable of accommodating over two hundred patients in separate rooms.

Everything about Dr. Brehmer's Sanatarium, either in the buildings or about the grounds, is arranged scientifically for the benefit of the patients. A large dairy is kept on the farm, from which a plentiful sup-

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[1] Supra cito.

[2] In the Hospital's advertisement in Preussischer Medicinal Kalendar, it is stated that the hospital was founded in 1854.

ply of fresh milk is to be had at all times. The patients are constantly under the care of a physician, and eat, sleep and exercise in accordance with his directions. "The minimum charge for board and lodging, including baths, etc., is 36 marks (£1, 16*s*), and, whilst higher prices are charged, according to the room (the maximum being 60 marks), there is no difference in the dietary. Patients are attracted to the institution from all parts of the world, and a respectable number come from America.

In connection with the institution there is a chemical and bacteriological laboratory, and a meteorological observatory. Every patient is individually studied with a view of restoring him to health, and all his thoughts, movements and actions are directed to that end. As co laborers, Dr. Brehmer has five assistants.[1]

In 1874, a sanatarium for the treatment of consumptives was established at Falkenstein, "on the southern slope of the Taunus mountains, about fourteen hundred feet above sea-level, near the city of Cronberg," and "about two hours' ride by rail and stage from Frankfort." "It consists at present of three large buildings, together with such necessary annexes as gas-works, cow-stables, laundry, etc. The largest of the three buildings presents the form of a horse-shoe, to protect the inhabitants from the rather heavy north winds which prevail there occasionally, and contains eighty rooms, with over one hundred beds, and post and telegraph offices, parlors, reading-rooms, billiard-room, offices, examination-room and the douche in the basement. The next building, connected with the others by an arcade, contains the large, high, and well ventilated dining-room, which seats about two hundred people comfortably, the kitchen being outside of the building. The third building contains the residences of the medical superintendent and his associates." [2]

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[1] Illustrated Europe. Nos. 29, 30. Gorbersdorf, etc. Z. R. Artman.

[2] Dr. Dettweiler's Method of Treating Pulmonary Consumption. By Paul H. Kretzschmar, M.D. Pages 11, 12.

The institution was founded by a stock company, the shareholders of which are "not to receive more than five per cent. dividend on their investment. The surplus income is to be used for the improvement of the institution, and later on for the establishment of similar places for the treatment of the poorer classes." Its medical direction and management is in the hands of Drs. Dettweiler and Meissen, the former of whom was at one time a patient and pupil of Dr. Brehmer.[1]

In 1875, Dr. Theodore Roempler started a private hospital for diseases of the lungs, throat, nose and ears, at Goebersdorf, Silesia. It at present consists of a main building and two cottages, with necessary annexes, douche and bath-rooms, and an extensive winter garden. Although in close proximity to Dr. Brehmer's institution, it seems to have been well patronized, and is reported to be in a flourishing condition.[2]

Within the last few years, quite a number of private institutions for the treatment of consumption and diseases of the chest and throat have sprung up in various parts of the German Empire. As among the former may be mentioned that of Dr. Hirsh, at Falkenstein; that of Dr. Watzka, at Geltshberg, in Bohemia; that of Dr. Dietz, at Kissingen, in Bavaria; that of Dr. E. Kaatzer, at Rehburg, in Hanover; that of Dr. Driver, at Reiboldsgruen, in Saxony, and that of Dr. Schreiber, at Aussee. Among the latter may be named Dr. Pintschovius' institution for the treatment of asthma, at Altenbrak; Dr. Schliep's hospital for diseases of the chest, at Baden-Baden, in Baden, at the foot of the Black Forest (Pneumotherapie Institut); Dr. Kollman's chest and throat hospital, at Badenweiler, in Baden; Dr. Friedman's sanataria for diseases of the chest, at Blankenheim and at Berka, in Thüringen; Dr. Speck's hospital (Pneumo-therap. Inst.), at Dillenburg; Dr. Huber's hospital (Pneumo-therap. Inst.), at Meran, in South Tyrol; Dr. Haufe's chest hospital, at St. Blasien, in the Black Forest; Dr. Wehner's hospital (Pneumotherap. Inst.), at Brueckenau, in Bavaria; Dr. Levenstein and Dr. Jastrowitz's institutions at Schoeneberg,

[1] Supra cito.
[2] Preussischer Medicinal Kalendar. 1890.

near Berlin; Dr. Wunderlich's institution (Pneumatic Cabinet), at Schoeneck, in Switzerland; Drs. Andressen and Henning's hospital at Sophienbad, near Hamburg,[1] and Dr. Jacubasch's hospital at St. Andreasburg, in the Hartz mountains.[2]

In addition to these, there are a few institutions which seem to be partly under the control of the government: namely, the consumption hospital at Inselbad, near Paderborn; the consumption hospital at Reichenhall, near the Austria-Bavarian boundaries, and the chest hospital (Pneumo-therapie Institut), at Ems, in the Taunus mountains. At Frankenhausen, n the Black Forest, there is a hospital for scrofulous children, under the direction of Dr. Hesse.[3]

In 1880, a number of French gentlemen founded a hospital for the gratuitous treatment of children suffering from tuberculosis in Villepinte, France. This institution has at present over two hundred beds. More recently a similar hospital has been established at Aemesson for boys. The subject of special hospitals for tuberculosis will probably receive considerable attention in France in the near future, as there is an association in existence to further the work.[4]

The question of establishing special hospitals for the treatment of tuberculosis has, so far, attracted but little attention in America. In 1884, the Adirondack cottage sanatarium of New York was started, through the instrumentality of Drs. A. L. Loomis and E. L. Trudeau, and by the benevolence of some New York ladies and gentlemen. It is built on the cottage plan, and at present consists of eleven cottages, and can accommodate fifty patients. "The location . . . . is a very pleasant one, about 1,750 feet above tide-water, covering an area of over eight acres, about one mile from Saranac Lake, and seven miles from Paul Smith's," in the Adirondacks. It is conducted in accordance with all modern knowledge of the etiology and therapeutics of tuberculosis. It

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[1] All of the foregoing quoted from Preussische Medicinal Kalendar.

[3] Dr. Dettweiler's Method of Treating Pulmonary Consumption. Kretzschmar.

[3] Preussische Medicinal Kalendar.

[4] *The Medical and Surgical Reporter*, vol. lxii, p. 89.

is a semi-charity institution, and gets its support from voluntary contributions and from moderate fees ($5.00 per week) from patients.[2]

From 1884 to February, 1889, the voluntary contributions amounted to $29,565.50, and the fees from patients to $18,515.28; total, $48,080.78. The expenditures for the same time, for land, buildings, permanent investments, board of patients and current expenses, amounted to $45,707.66. "Up to the end of 1888, 146 consumptive patients have been treated" at the hospital; and, of these "4, or not quite 3 per cent.," died; "25, or about 17 per cent.," steadily failed; "38, or about 26 per cent.," remained stationary or were slightly benefitted; "63, or 43 per cent.," had the disease "arrested;" and "16, or 11 per cent.," were cured.[3]

In 1887, the Philadelphia Protestant Episcopal Mission established a hospital for the treatment of consumption, at Chestnut Hill. The plan of the institution contemplates a main building and several cottages, but as yet only the main building and one cottage have been built. It is beautifully situated and well constructed, and, when completed, will be a most excellent hospital. It is well patronized and can at present accommodate about fifty patients annually. It is a charity institution.[4]

In 1888, Dr. Carl von Ruck established a private sanatarium, at Asheville, N.C., which he named the Winyah Sanatarium. It is located just outside of Asheville, and is surrounded by a fine cultivated park and is in close proximity to pine forests. It is conducted in accordance with modern ideas of hygiene and physical comfort, and is equipped with all modern facilities for the treatment of diseases of the throat and lungs. The rates for room and board are from ten to twelve dollars per week; and, in addition, there is a professional fee charged of twenty-five dollars per month. "From October, 1888, to the end

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[2] Institutions for the Treatment of Pulmonary Consumption in the United States. Dr. Paul H. Kretzschmar.

[3] Supra cito.

[4] Report of Philadelphia Protestant Episcopal Mission.

of May, 1889, there were fifty-one patients" treated in the institution.[1]

At the present time, there are a number of sanataria for the treatment of consumption in course of erection in Colorado and New Mexico. The Bellevue Sanatarium, of Colorado, will be thrown open some time this month. It will consist of a main building and a number of cottages. The main building is about being completed at a cost of thirteen thousand dollars, and contains dining-room, parlor, bath-rooms, etc., and bed-rooms for fifteen patients. The cottages will have a capacity of four or five patients a-piece.[2]

The institution is beautifully located out of town, and will be well equipped for the work for which it is designed. It is intended mainly for professional people of moderate circumstances, and the charges for room and board will be regulated by the ability of the patient to pay. There will, probably, be a few free beds.[3]

The Gleckner Sanatarium, of Colorado, is likewise about being completed at a cost of thirty-five thousand dollars. It will be able to accommodate about thirty patients. It will be a semi-charity institution, the charges being very low, and it will likely have a considerable number of free beds.[4]

There are, no doubt, other special hospitals for the treatment of tuberculosis in existence, concerning which I have not able to get any information.

If the theory that tuberculosis is a contagious disease is correct, countries in which special hospitals for the treatment of tuberculosis have existed should show a decrease in the mortality from the disease; because each case that is removed to a hospital takes away from the community a centre of infection. Now, has any country given consumption hospitals a long enough and extensive enough trial to justify the testing of this hypothesis? England, undoubtedly, has, and it is probably the only country that has.

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[1] Dr. Kretzschmar's article l. c. and circular of information about the Winyah House.

[2] Information kindly furnished me by Dr. S. E. Solly, Colorado Springs.

[3] Supra cito.

[4] Supra cito.

In England, special hospitals for the treatment of tuberculosis have flourished for upwards of forty years, and, during all that time, their isolating capacity has ranged from about two thousand to about eight thousand cases a year, or, in other words, from about three per cent. to about eighteen per cent. of all cases. The patients have, moreover, been taken from among the poor, who are always surrounded by the most favorable circumstances, and are the fittest subjects for spreading contagious diseases.

In Germany, there likewise exist a large number of special hospitals for the treatment of tuberculosis, but nearly all of them are of recent origin. Besides, they are all pay institutions, and take their patients from the wealthier classes. It will, therefore, be much more difficult to study and calculate the prophylactic influence of isolation in Germany than in England ; and the former country can scarcely be looked upon as a fair field wherein to test the hypothesis which I have laid down.

Has tuberculosis decreased in England since special hospitals for its treatment have been introduced? A statistical study of the disease in England, during the last forty years, will best answer that question.

Official registration of deaths was begun in England in 1837.[1] At that time, there were already two special hospitals for the treatment of tuberculosis in England, and between that time and 1848 three more were instituted. The capacity for isolation of the special hospitals during the ten years intervening, ranged between two and three thousand cases ; and the reduction in the mortality of deaths registered under the heading of consumption was over twenty per cent. In studying the influence of isolation upon the disease, I ought, therefore, strictly speaking, to begin my statistical computation from 1838, and, did I do so, my results, as far as consumption is concerned at least, would be much more striking; but, on account of the newness of the registration law and the unsettled, indefinite nomenclature in vogue at the time, I prefer to begin with 1848, when sufficient time had elapsed to allow registration to become understood and get well under way.

[1] Registrar General's report.

Table No. I.*

	England and Wales.	1848	1849	1850	1851	1852	1853	1854	1855	1856	1857	1858	1859	1860	1861
	Population.	17,340,492	17,520,020	17,773,324	17,982,849	18,255,629	18,403,313	18,618,760	18,786,914	19,045,187	19,304,897	19,523,103	19,746,000	19,902,918	20,119,496
1	Total number of deaths	398,385	440,839	368,995	395,396	407,135	421.097	437,905	425,703	390,506	419,815	449,656	440,781	422,721	435,114
2	Phthisis—consumption	51,663	50,299	46,618	49,166	50,594	54,918	51,284	52,290	48,950	50,106	50,442	50,149	51,024	51,931
3	Bronchitis	14,472	14,826	14,611	16,294	17,073	22,391	20,062	27,182	21,528	25,588	29,093	25,998	32,347	30,986
4	Pneumonia	21,862	21,194	20,303	22,001	21,421	24,098	23,523	26,052	22,653	23,457	26,486	24,514	25,264	22,914
5	Asthma	3,920	4,104	4,574	4,896	4,309	5,143	4,371	5,454	4,103	4,339	4,513	4,224	4,325	3,892
6	Pleurisy	1,029	956	877	984	945	855	955	1,153	886	870	846	916	882	781
7	Lungs, etc., diseases of	2,645	2,604	2,409	2,645	2,569	2,752	2,528	2,746	2,444	2,707	3,139	2,882	4,424	4,484
8	Laryngitis	867	858	1,053	939	1,083	1,097	1,145	1,155	1,294	1,359	1,439	1,319	1,166	1,253
9	Whooping-cough	6,862	9,622	7,770	5,518	8,022	11,200	9,770	10,185	9,225	10,138	11,648	8,976	8,555	12,309
10	Influenza	7,963	1,618	1,380	2,152	1,359	1,789	1,061	3,568	1,029	1,393	1,794	1,112	1,130	746
11	Hydrocephalus	7,631	7,728	7,276	7,807	8,289	8,005	7,610	7,483	7,299	7,495	7,163	7,229	7,120	7,674
12	Cephalitis	3,243	3,200	3,202	3,628	3,686	3,631	3,752	3,466	3,414	3,392	3,463	3,451	3,518	3,426
13	Brain, diseases of	3,138	2,859	2,930	3,101	3,507	3,444	3,614	3,580	3,304	3,963	4,454	4.086	4,865	5,105
14	Convulsions	22,796	23,703	23,000	24,592	24,558	24,798	24,579	24,917	23,946	24,532	25,488	25,954	25,205	25,423
15	Teething	4,120	4,628	4,086	4,408	4,413	4,676	4,369	4,057	3,660	3,992	4,021	3,730	3,896	4,251
16	Tabes mesenterica	4,368	4,440	4,012	4,510	4,600	4,965	5,638	4,762	4,752	5,380	5,017	4,982	4,680	5,692
17	Ulcer. intest. canal, etc.	830	817	791	856	976	1,022	911	876	946	893	860	776	847	856
18	Diseases intest. canal	2,258	2,305	2,247	2,235	2,159	2,000	2,018	2,362	2,357	2,438	2,750	2,698	2,866	2,786
19	Dyspepsia Gastritis Enteritis	5,243	4,817	4,252	4,575	4,586	4,535	4,369	4,035	4,050	4,098	816 3,412	827 3,416	704 3,154	809 3,333
20	Peritonitis	1,418	1,304	1,248	1,250	1,304	1,269	1,432	1,388	1,310	1,411	1,466	1,555	1,551	1,563
21	Typhus fever Enteric or typhoid f. Simple cont. fever	22,037	18,339	15,374	17,930	18,641	18,554	18,893	16,470	16,182	19,016	17,883	15,877	13,012	15,440
22	Diarrhœa Dysentery	11,067 2,629	17,831 3,050	11,468 2,036	14,728 2,185	17,617 2,756	14,192 1,891	20,052 1,943	12,770 1,437	13,815 1,335	21,189 1,698	13,853 1,478	18,331 1,379	9,702 1,156	18,746 1,416
23	Remittent fever	614	603	549	607	666	709	646	575	162	270	569	400	314	254
4	Ague	228	171	154	167	151	183	192	149	124	195	207	233	203	149

25	Scrofula of uncert. seat Hemorrhage of unc. seat Abscess of uncert. seat	2,363	2,739	2,483	2,592	2,580	2,727	2,613	2,985	2,831	2,781	3,004	2,995	2,860	3,457
26	Premature birth Debility Atrophy Inanition	16,345 10,946 505	17,528 11,902 582	18,045 10,470 531	18,943 12,211 611	19,075 13,056 647	18,968 13,083 710	18,680 14,412 829	17,818 14,724 941	17,997 13,712 773	19,144 15,608 881	7,307 26,860 1,059	7.432 27,990 1,069	7,642 26,930 1,070	7,610 29,291 1,033
27	Causes of death not specified or ill-defined	14,641	10,248	9,776	9,070	9,187	9,327	8,267	8,205	7,204	6,693	5,638	5,484	5,767	5,057
28	Tuberculous dis., such as phthisis, tabes mesenterica, hydrocephalus, and scrofula	66,025	65,206	60,395	64,075	66,163	70,615	67,145	67,520	63,832	65,762	65,626	65,355	65,684	68,754
29	Probably tub'rcul'us diseases, such as asthma, ulceration of intestinal canal, cephalitis, laryngitis, lungs, diseases of, etc., brain, diseases of, etc., diseases of intestines without name, hemorr'age of unc. seat	16,901	16,747	17,206	18,298	18,289	19,089	18,339	19,639	17,862	19,091	20,618	19,936	22,011	21,802
30	Possibly tuberculous diseases, such as bronchitis, pneumonia, pleurisy, influenza, whooping-cough, convulsi'ns, teething, gastritis, enteritis, peritonitis, dyspepsia, debility, atrophy, inanition, ague, remittent fever, typhus fever, enteric fever, simple fev'r, di'rrhœa, dysentery, abscess, uncertain seat, causes of death not specified or ill-defined	164,777	162,922	145,930	158,076	165,477	175,228	174,034	175,626	159,591	180,173	179,924	174,993	168,484	182,111

* Compiled from Registrar-General's Report.

Table No. I—Continued.

England and Wales.	1862	1863	1864	1865	1866	1867	1868	1869	1870	1871	1872	1873	1874	1875	1876
Population.	20,336,467	20,554,637	20,772,308	20,990,946	21,210,020	21,429,508	21,649,377	21,869,607	22,457,366	22,782,812	23,067,835	23,356,414	23,648,609	23,944,439	24,244,010
Total number of deaths	436,566	473,837	495,531	490,909	500,689	471,073	480,622	494,828	515,329	514,879	492,265	492,520	526,632	546,453	510,315
Phthisis—consumption	50,962	51,072	53,046	53,734	55,714	55,042	51,423	52,270	54,231	53,376	52,589	51,355	49,379	52,943	51,775
Bronchitis	32,526	32,025	38,969	36,428	41,334	40,373	[33,258	43,883	46,699	47,685	42,752	51,425	53,022	63,089	54,055
Pneumonia	23,713	24,181	24,470	22,489	25,155	21,118	19,908	25,246	23,729	22,768	20,282	22,904	25,927	27,161	24,492
Asthma	4,087	3,699	4,228	3,975	3,682	3,748	3,093	3,704	3,894	3,517	2,981	3,351	3,053	3,620	2,786
Pleurisy	833	907	941	866	858	865	905	991	1,034	933	977	1,004	1,287	1,476	1,286
Lungs, etc., diseases of	4,928	4,907	5,158	4,812	4,934	4,793	4,519	4,916	5,090	5,292	4,869	5,119	5,397	6,106	5,495
Laryngitis	1,478	1,561	1,610	1,382	1,286	1,285	1,420	1,657	1,740	1,630	1,532	1,823	1,926	2,175	1,920
Whooping-cough	12,272	11,275	8,570	8,647	15,764	11,873	9,223	10,966	11,901	10,360	13,806	9,612	10,362	14,280	10,556
Influenza	915	919	804	596	651	607	306	703	615	348	278	266	245	449	203
Hydrocephalus	7,031	7,516	7,700	7,672	7,433	7,041	7,184	7,478	7,423	7,295	7,196	7,230	7,286	7,694	7,546
Cephalitis	3,580	3,869	4,014	4,199	4,146	4,220	4,451	4,649	4,944	4,814	5,054	5,336	5,763	6,821	6,770
Brain, diseases of	4,927	4,876	5,159	5,321	5,605	5,671	5,374	5,517	5,556	5,602	5,446	5,728	6,129	7,122	6,482
Convulsions	25,286	26,008	26,382	26,722	27,431	26,258	25,897	26,015	26,548	25,309	25,376	26,232	27,139	26,061	25,408
Teething	3,812	4,116	4,285	4,271	4,293	4,300	4,145	4,083	4,183	4,108	4,093	4,273	4,317	5,212	4,886
Tabes mesenterica	5,203	5,877	5,941	6,698	6,377	6,882	6,925	6,625	6,913	6,700	6,856	6,872	6,911	8,617	7,769
Ulcer. intest. canal, etc.	870	858	907	851	858	928	981	916	1,036	1,015	1,007	1,081	1,037	1,244	1,238
Diseases intest. canal	2,730	2,800	2,747	2,881	2,930	2,948	3,032	2,744	2,833	2,672	2,551	2,673	2,728	2,608	2,599
Dyspepsia Gastritis Enteritis	765 2,911	838 3,234	883 3,164	802 3,289	765 2,928	742 2,858	758 3,038	748 2,944	803 3,037	775 2,914	790 2,758	832 2,851	923 3,091	1,029 3,176	1,020 3,120
Peritonitis	1,488	1,637	1,736	1,633	1,504	1,571	1,738	1,668	1,825	1,788	1,847	1,998	2,407	2,165	2,071
Typhus fever Enteric or typhoid f. Simple cont. fever	18,721	18,017	20,106	23,034	21,104	16,862	19,701	4,281 8,659 5,449	3,297 8,731 5,882	2,754 8,461 4,575	1,864 8,741 3,415	1,638 8,793 3,122	1,762 8,861 3,112	1,499 8,913 2,651	1,192 7,550 1,974
Diarrhœa	11,112	14,943	16,432	23,581	17,170	19,851	29,821	19,903	25,311	24,140	22,219	21,795	21,204	23,982	22,417
Dysentery	1,044	1,051	1,000	1,072	1,096	962	1,108	872	815	797	815	719	684	747	
Remittent fever	284	202	80	123	86	69	85	145	132	82	65	79	70	48	87
Ague	150	112	117	135	121	94	114	120	131	84	100	114	115	95	121

Scrofula of uncert. seat	3,416	3,277	3,111	2,963	2,901	2,938	2,769	2,846	2,718	2,640	2,587	2,750	2,752	3,092	3,089
Hemorrhage of unc. seat Abscess of uncert. seat Premature birth Debility	7,706 27,077	8,121 28,193	8,339 29,634	8,791 32,161	8,943 31,097	8,990 32,317	8,757 32,654	8,666 29,954	9,195 30,530	9,650 30,458	10,334 29,983	10,186 30,333	10,527 30,995	11,685 28,393	11,446 27,286
Atrophy Inanition	1,079	1,212	1,359	1,484	1,484	1,546	1,602	1,460	1,487	1,332	1,277	1,233	1,513	1,650	1,351
Causes of death not specified or ill-defined	4,788	4,955	4,478	5,227	4,993	4,628	3,904	3,671	4,228	4,011	3,603	3,439	3,845	3,234	2,844
Tuberculosis dis., such as phthisis, tabes mesenterica, hydrocephalus, and scrofula	66,612	67,742	69,798	71,067	72,425	71,903	68,301	69,219	71,285	70,011	69,228	68,207	66,328	72,346	70,179
Probably tub'rcul'us diseases, such as asthma, ulceration of intestinal canal, cephalitis, laryngitis, lungs, diseases of, etc., brain, diseases of, etc., diseases of intestines without name, hemorr'age of unc. seat	22,600	22,570	23,823	23,421	23,441	23,593	22,870	23,903	25,093	24,542	23,440	25,111	26,033	29,696	27,290
Possibly tuberculous diseases, such as bronchitis, pneumonia, pleurisy, influenza, whooping-cough, convulsi'ns, teething, gastritis, enteritis, peritonitis, dyspepsia, debility, atrophy, inanition, ague, remittent fever, typhus fever, enteric fever, simple fev'r, diarrhœa, dysentery, abscess, uncertain seat, causes of death not specified or ill-defined	176,482	181,971	191,870	201,240	206,828	195,928	197,886	200,361	210,015	203,429	195,376	202,720	211,411	226,937	203,300

Table No. I—Concluded.

England and Wales.	1877	1878	1879	1880	1881	1882	1883	1884	1885	1886	1887	1888	1848 | 1888	
Population.	24,547,309	24,854,397	25,165,336	25,708,666	26,055,406	26,413,864	26,770,744	27,132,449	27,499,041	27,870,586	28,247,151	28,628,804	Mortality per 1000 living.	
Total number of deaths	500,496	539,872	526,255	528,624	491,935	516,654	522,997	530,828	522,750	537,276	530,758	510,971	22.97 17.85	1
Phthisis—consumption	51,353	52,856	51,274	48,201	47,541	48,715	50,053	49,325	48,175	47,872	44,935	44,248	2.97 1.54	2
Bronchitis	54,006	60,742	71,419	57,939	55,870	57,853	58,744	53,410	60,963	61,438	58,983	57,571	.834 2.007	3
Pneumonia	23,696	24,763	27,174	25,166	23,702	26,058	28,195	26,246	29,376	28,098	30,983	30,844	1.260 1.078	4
Asthma	2,469	2,548	2,871	2,145	2,696	2,450	2,689	2,368	2,581	2,434	2,475	2,388	.220 .083	5
Pleurisy	1,117	1,118	1,369	1,310	1,334	1,312	1,584	1,454	1,677	1,467	1,611	1,559	.059 .054	6
Lungs, etc., diseases of	5,387	5,650	6,000	6,871	4,316	4,535	4,886	4,502	5,359	5,156	5,127	4,639	.152 .162	7
Laryngitis	1,868	1,893	2,070	1,831	1,160	1,444	1,499	1,650	1,597	1,440	1,605	1,590	.049 .055	8
Whooping-cough	11,358	17,784	12,752	13,662	10,830	15,259	10,471	11,476	13,106	12,936	11,251	12,287	.395 .429	9
Influenza	205	195	266	171	99	95	107	62	138	83	85	92	.459 .003	10
Hydrocephalus	7,881	8,460	8,158	8,514	7,176	6,959	6,986	7,124	6,874	7,073	6,581	6,743	.440 .239	11
Cephalitis	6,910	7,449	7,387	8,270	7,306	8,122	7,490	8,625	8,126	9,309	8,924	8,688	.187 .303	12
Brain, diseases of	6,700	7,031	7,222	6,871	3,907	4,309	4,690	4,848	4,429	4,318	4,470	4,519	.180 .157	13
Convulsions	24,147	24,700	23,853	23,503	22,000	23,021	22,677	23,056	21,702	22,873	21,659	20,764	1.320 .725	14
Teething	4,470	4,659	4,256	4,124	4,550	4,673	4,762	4,942	4,653	4,899	4,219	4,235	.237 .147	15
Tabes mesenterica	7,812	8,703	7,617	9,536	7,402	8,246	7,683	7,579	6,825	8,265	7,034	6,774	.251 .236	16
Ulcer. intest. canal, etc.	1,245	1,235	1,165	1,225	409	410	697	689	744	570	423	366	.047 .011	17
Diseases intest. canal	2,965	2,880	2,742	1,922	1,091	1,156	1,004	747	553	570	501	863	.130 .030	18
Dyspepsia			364	426	403	484	477	507	447	520	528	457		
Gastritis }	941	995	984	1,037	2,555	2,548	2,458	2,768	2,800	3,437	3,424	3,329	.302 .258	19
Enteritis }	2,899	3,282	2,770	3,463	2,720	2,974	2,888	3,240	2,979	3,949	3,651	3,621		
Peritonitis	1,971	1,924	1,963	2,154	2,028	2,015	2,265	2,393	2,362	2,333	2,370	2,422	.081 .084	20
Typhus fever }	1,104	906	538	530	552	940	877	328	318	245	211	168		
Enteric or typhoid f. }	6,879	7,652	6,860	6,710	5,529	6,036	6,078	6,380	4,765	5,069	5,155	4,848	1.270 .190	21
Simple cont. fever }	1,923	1,776	1,472	1,490	1,159	1,016	963	768	662	605	507	436		
Diarrhœa	15,282	25,103	11,463	30,185	17,185	14,536	15,933	26,412	13,398	24,748	20,242	12,839	.789 .440	22
Dysentery														
Remittent fever	92	82	76	249	246	194	177	148	89	88	100	141	.035 .004	23
Ague	119	135	91	113	99	94	99	141	138	127	93	78	.013 .002	24

Scrofula of uncert. seat	3,493	3,530	3,348	3,735	3,785	4,140	4,268	4,592	4,284	4,865	4,971	4,917	.136	.171	25
Hemorrhage of unc. seat					159	182	181	143	186	144	175	105		*	
Abscess of uncert. seat					636	656	641	707	658	645	671	573		*	
Premature birth	11,618	12,002	11,929	12,266	12,043	12,436	12,872	13,076	12,904	13,642	14,085	14,063			
Debility															
Atrophy	25,533	26,658	24,752	26,704	22,699	23,318	24,399	24,937	22,131	24,146	21,879	21,049	1.602	1.226	26
Inanition	1,705	1,884	1,735	1,881											
Causes of death not specified or ill-defined	1,856	1,683	1,329	1,115	3,562	3,260	3,778	3,529	3,288	3,147	3,166	2,814	.838	.122	27
Tuberculous dis., such as phthisis, tabes mesenterica, hydrocephalus, and scrofula	70,539	73,549	70,397	69,986	65,904	68,160	68,990	68,620	66,158	68,075	63,521	62,682	3.807	2.189	28
Probably tub'rcul'us diseases, such as asthma, ulceration of intestinal canal, cephalitis, laryngitis, lungs, diseases of, etc., brain, diseases of, etc., diseases of intestines without name, hemorr'age of unc. seat	27,544	28,686	29,457	29,135	20,885	22,426	22,955	23,429	23,369	23,797	23,525	23,154	.974	.808	29
Possibly tuberculous diseases, such as bronchitis, pneumonia, pleurisy, influenza, whooping-cough, convulsi'ns, teething, gastritis, enteritis, peritonitis, dyspepsia, debility, atrophy, inanition, ague, remittent fever, typhus fever, enteric fever, simple fev'r, diarrhœa, dysentery, abscess, uncertain seat, causes of death not specified or ill-defined	190,918	218,037	207,465	214,003	189,172	198,099	199,816	205,080	198,554	214.639	204,948	194,190	9.502	6.783	30

* Counted in with causes of death not specified.

In order to present the subject more clearly and to enable every one to test for himself the correctness of my conclusions, I have prepared some tables which I will designate Table I, Table II, and Table III.

Table I gives the population, the general mortality, and the mortality from tuberculous diseases and all diseases that have any symptoms in common with tuberculosis, or that could in any way be mistaken for it, or returned under any of its forms, of England and Wales, for the years 1848 to 1888, inclusive; and likewise gives the aggregate mortality from acceptedly tuberculous diseases, probably tuberculous diseases, and possibly tuberculous diseases for the same years.

Table II gives the rate of mortality, per thousand persons living, from consumption in various large cities, and in England and Germany, from 1864 to 1888, for such years as I was able to obtain it. This table, unfortunately, has to remain incomplete, on account of the difficulty of getting at statistics.

Table III gives a list of the special hospitals for the treatment of tuberculosis in the British kingdom, together with their in-patient capacity at different epochs.

For the sake of convenience I have divided tuberculous diseases, and all diseases which have any symptoms in common with tuberculosis, into acceptedly tuberculous diseases, probably tuberculous diseases, and possibly tuberculous diseases.

As acceptedly tuberculous diseases, I class phthisis, tabes mesenterica, hydrocephalus and scrofula; as probably tuberculous, by which I mean such diseases as are probably tuberculous, but are returned under a non tuberculous nomenclature, I set down asthma, ulceration of the intestinal canal, cephalitis, laryngitis, diseases of the lungs without name, diseases of the brain without name, diseases of the intestines without name, and hemorrhage of uncertain seat; and, as possibly tuberculous, by which I mean such diseases as have any symptoms in common with tuberculosis, or could be mistaken for it, I put down bronchitis, pneumonia, pleurisy, influenza, whooping cough, convulsions, teething, gastritis, enteritis, peritonitis,

dyspepsia, debility, atrophy, inanition, ague, remittent fever, typhus fever, enteric fever, simple fever, diarrhœa, dysentery, abscess of uncertain seat, causes of death not specified or ill-defined, and premature birth, the latter being included because, during part of the time, it is returned in common with debility. The group of possibly tuberculous diseases has purposely been made wide-reaching, so that it might contain every possible case of tuberculosis that occurred in England and Wales during the forty years under consideration.

In 1848, the mortality in England and Wales, from all diseases, was 22.97 per thousand living, or one person dying to every 43.52 persons alive; from consumption, 2.97 per thousand living, or one person dying to every 335.646 persons alive; from acceptedly tuberculous diseases, 3.807 per thousand living, or one person dying to every 262.635 persons alive; from probably tuberculous diseases, .974 per thousand living, or one person dying to every 1,026.003 persons alive; and from possibly tuberculous diseases, 9.502 per thousand living, or one person dying to every 105·236 persons alive; whilst, in 1888, the mortality in England and Wales was: from all diseases, 17.85 per thousand living, or one person dying to every 56.028 persons alive; from consumption, 1.545 per thousand living, or one person dying to every 647.007 persons alive; from acceptedly tuberculous diseases, 2.189 per thousand living, or one person dying to every 456.731 persons alve; from probably tuberculous diseases, .808 per thousand living, or one person dying to every 1,236.447 persons alive; from possibly tuberculous diseases, 6.783 per thousand living, or one person dying to every 147.426 persons alive.

Thus, it will be seen that the reduction in the mortality in England and Wales, during the forty years from 1848 to 1888, is, from all diseases, 5.12 per thousand, or about twenty-five per cent. of the total mortality; from consumption, 1.425 per thousand, or nearly fifty per cent. of the mortality from consumption; and from acceptedly tuberculous diseases, probably tuberculous diseases and possibly tuberculous diseases combined, 4.513 per thousand, or nearly thirty per cent. of the combined mortality from those causes.

If now the sum of the reduction in the mortality from acceptedly tuberculous diseases, probably tuberculous diseases and possibly tuberculous diseases be subtracted from the reduction in the entire mortality in England and Wales, during the forty years intervening between 1848 and 1888, we have a reduction, of 1.607 per thousand living, in the mortality from those diseases which have no symptoms in common with tuberculosis, which is a reduction of only about ten per cent. in the mortality from those diseases.

A very misleading factor in the mortality returns of England is the rapid increase in the death rate from bronchitis during the first forty years of registration. The most natural inference, and the one that has been drawn by most writers, is, that there has been a transposition of nomenclature from consumption to bronchitis—that is, that diseases which were formerly returned under the heading of consumption were, later on, returned under that of bronchitis. This conclusion, in addition to being the easiest arrived at, was given considerable support by the fact, that whilst the returns were showing a decrease in the mortality from consumption, they were showing an increase in the mortality from diseases of the respiratory system. The inference is, however, entirely wrong, and will not be born out by a careful scrutiny of the facts.

I have, myself, no doubt that there was some transposition of nomenclature from consumption to bronchitis, during the first ten or fifteen years of registration, for in no other way can the abrupt decrease in the mortality from consumption, and the abrupt increase in the mortality from bronchitis, during the first few years of registration, be explained, and it is, moreover, well known, that, during the early part of the present century, deaths due to diseases of the respiratory system were mostly ascribed to either consumption or pneumonia This, however, holds good for the first few years of registration only, for, later on, the decrease in the mortality from consumption becomes quite gradual and steady, and the increase in the mortality from bronchitis can be no longer explained upon the theory of transposition, but can be satisfactorily explained in another way. Indeed, it

is quite probable that during recent years, with the new methods of diagnosis, there has been a re-transposition of nomenclature from bronchitis to consumption.

A careful study of table I will give the real source of increase to the mortality returns from bronchitis. It will be seen that, as the number of deaths returned under the heading of bronchitis increases, the number returned under those of influenza, convulsions, debility, and atrophy, and the number of undiagnosed diseases, decreases. Influenza almost entirely disappears from the English nomenclature in later years, but its presence can easily be traced in the up and down curve of the mortality from bronchitis. The largest increase to the mortality from bronchitis, however, comes from convulsions and debility. Newsholme and Farr have called attention to the fact that the increase in the mortality from bronchitis takes place almost entirely under the age of five, and above that of sixty-five years. Now, consumption is an infrequent disease in childhood and old age, whilst bronchitis is a very frequent one; and convulsions are a frequent symptom in bronchitis in children when the disease terminates fatally; and debility is almost a constant concomitant of bronchitis in old age. When, therefore, the medical profession became more precise in diagnosis, and began to give the name of the disease instead of the name of a single symptom as the cause of death, a transposition of nomenclature took place from convulsions and debility to bronchitis. Atrophy and undiagnosed diseases undoubtedly represent the returns of quacks and laymen, and, under pressure from the Registrar-General's office for more accurate diagnoses, would naturally go to swell the returns from bronchitis, consumption, and such symptomatic nomenclatures as convulsions and debility.

A careful study of the mortality returns of England for the last forty years (not in part, but as a whole) warrants the conclusions: *First*, that there has been a reduction in the mortality from tuberculosis during that time of at least 50 per cent.; and, *Second*, that whatever reduction there has been in the general mortality has been largely due to the

reduction in the mortality from tuberculosis. It is true that other acceptedly tuberculous diseases do not show as large a reduction as consumption, and that the combined reduction of the acceptedly tuberculous diseases is not much above 40 per cent.; but this is undoubtedly due to transposition of nomenclature. The mortality from tabes mesenterica, for example, is constantly being added to by accessions from "ulceration of the intestinal canal," and "diseases of the intestinal canal without name," the mortality from both of which nomenclatures is constantly decreasing.

That the mortality from tuberculosis has been decreased in England by one-half during the last forty years, cannot be doubted by the candid inquirer. Now, is that reduction due to the existence of special hospitals for the treatment of the disease? Whilst this question cannot be positively answered in the affirmative, there are many facts to warrant such an answer.

In the first place, there is no other cause to ascribe the reduction to. Of course, it will be said that the sanitary conditions of England have improved, and that the decrease is due to that cause. But why have not deaths due to other diseases decreased in like ratio? And why have not other countries, that have equally improved in sanitary conditions, had the same reduction in the mortality from tuberculosis? In America, for example, there has been an increase in deaths from tuberculosis during the same epoch. In the United States, the mortality from consumption in 1850 was 1.44 per 1000 living, or one person dying to every 692 persons alive; and in 1880 it was 1.84 per 1000 living, or one person dying to every 542.34 persons alive—an increase of nearly 20 per cent. The census of 1890 will probably show a still greater increase, for fragmentary reports of various states and cities seem to indicate that consumption is on the increase in the Western and Southern States, and in country districts, and is but slightly on the decrease in the Eastern States and large cities. Paris, one of the most progressive cities in the world in sanitary matters, has a higher mortality from tuberculosis than it had twenty years ago.

Secondly.—No marked reduction in the mortality

from tuberculosis has occurred in any country where special hospitals for the treatment of the disease have not existed. Table II, although very incomplete, shows quite satisfactorily that the mortality from tuberculosis in continental European countries has but slightly diminished, and in some places has increased.[1] There has been a decrease in some of the German cities, notably in Cologne and Breslau. Some of this reduction has no doubt been due to a transposition of nomenclature; but in Breslau, at least, all of it cannot be accounted for in that way. The mortality from consumption in Breslau was 4.52 per 1000 in 1864, 2.33 per 1000 in 1881, and 3.59 per 1000 in 1882. Prior to 1882, many cases of consumption were returned under the heading of lung disease, which, in 1882, reverted to the nomenclature of consumption, and put it up from 2.33 per 1000 to 3.58 per 1000. But, even with this accession, there is a reduction of at least 20 per cent. between 1864 and 1882. As Breslau is quite near Dr. Brehmer's Consumption Hospital, at Goerbersdorf, its unique position among German cities, in the matter of reduced mortality from tuberculosis is, to say the least, a striking coincidence.

Thirdly.—The reduction in the mortality from tuberculosis in England is in direct ratio to the increase in the special hospitals for its treatment. Table III shows that the nearer we approach to the present time, the greater becomes the number and capacity of the hospitals, and the more rapid becomes the reduction in the mortality from tuberculosis.

The relation between cause and effect is not always easily made out; but where there is an effect for which there is but one plausible cause, and that cause is consistent with reason, it is fair to assume that it is the cause. The existence of special hospitals for the treatment of tuberculosis is the only discoverable cause for the reduction in the mortality from that disease in England; it is a reasonable cause, and, admitting the contagiousness of the disease, it is the very cause we would expect to produce such an effect; may we not, then, assume that it is the

[1] In Italy and the Netherlands there has been some reduction.

Table No. II. *

	Year	1864	1865	1866	1867	1868	1869	1870	1871	1872	1873	1874	1875	1876	1877	1878	1879	1880	1881	1882	1883	1884	1885	1886	1887	1888
Austria	Vienna		8.292	8.243	7.613	7.829	7.446	8.251	8.206	7.520	6.916	6 228							6 959							
	Buda-Pesth									6.368	6.678	7.700	7.814	9.158					7 764							
	Lemberg																		7.352							
	Bucharest					3.800	3.697					2.920							3.880							
	Prague		8.594	7.282	8.122	9.157	8.514	8.560	9.855	8.597	7 937	8.252											8.999			
	Trieste		4 483	4.309	4.172	4 329	4.568	4.484	4.853	4.310	4.438	4.700							5 201							4.543
Italy	Rome									4.906	4.261	3 928														2 495
	Turin		2.740	2.563	2 621	2.692	2.563	2.416	2.298	2.697	2.439	1.973														
	Naples										2.715	2.853	2.467													
	Venice			3 174	1.669	2.379	2.501	2.115	1.618	2 893	2.262	2.459	2.529													
	Palermo										2.806	2 896														
Germany	Berlin						3 537	3 908	42.13	3.757	3 356	3.300	3.520	3.290	3 540	3.370	3.250	3 470	3 300	3.218	3 445	3.455			2.977	2.954
	Munich					3.743	4.466	5.014	5.981	5.102	4.930	3.690							3 875							
	Cologne								7.035	5 535	5.191	5.027	5.190						3 840							
	Breslau	4.52	4 75	4.394	4.819	4.787	4.765	4 020	3.742	3.206	3.213	2.702	2.862	3.00	3 06	2.57	2.45	2.39	2.33	3.59						
	Hamburg								5.544	4.848	4.944	4.729														
	Leipsic									3.470	3.380	3.797	3.373													
	F'n'kf't, a-m			3.416	3.740	3.559	3.790	4 221	5.028	3.590	4.067	3.795	3 638			4.000	4.120		3.610							
	Hague				2.627	2.043	1.966	2.578	2.428	2.144	2.476	2.439														
	Rotterdam				2.408	2.549	2 583	2.859	2.862	2.702	2.454	2.578														
	Antwerp					3.592	3 099	3 511	3.680	3.162	2.922	3.127														2.358
	Liege		4.541	4.662	4.097	3.712	3.726	3.784	4.308	4.087	3.647	3.737														2.166
	Cop'nhag'n																									
	Christiana			3.577	3 478	3.537	2.911	3 104	3.798	3.561	3.107	3 358	3.619													
	Stocknolm	4 489	4.025	3.824	3.732	3 182	4.002	3.749	3.580	3.443	3.314								3 937							
	Moscow					5.643	5.216	5.088	5 912	6.133																
	Paris						4.623	4.623	6.480	4 015	4.266	4 319	4.649						4 219				4 537			4.482
	London	3.09	2.91	3 11	2.89	2.87	2.78	2.78	2.65	2.58	2 59	2.51	2.66	2.63	2.51	2.63	2.24	2.47	2 24	2 21	2.25	2.18	2 05	2.026	1 858	1.750
	Phila.	3.435	3.370	3.131	3 038	3.061	2 981	3.424	3.195	3.213	3 054	3 118	2 948	3.241	2.760	2.843	2.741	3.178	3.188	3.168	3 084	3 018	2 971	2 927	2.817	2 650
	England	2.54	2.54	2.60	2 53	2 34	2.35	2.41	2 34	2.27	2.19	2.08	2.20	2.12	2.07	2 11	2 02	1.87	1 82	1 84	1.870	1.812	1.752	1.718	1.591	1.541
	Germany																		3.089	3 088	3.180	3 106	3.080			

*Compiled from Korosi, Schlokow, Communi di Roma Bollettino Demograficameterico, Bollettino, Statistica, mensile della Citta di Trieste, Registrar-Generals Report, Philadelphia Health Reports, Bulletin statistique demographique et medicale, Zeitschrift des Preus. Statist., Health Report of City of Prague.

cause, and that the reduction in the mortality from tuberculosis in England *has been due* to the existence of special hospitals for its treatment?[1]

England established its special hospitals for the treatment of tuberculosis from purely humanitarian motives, at a time when knowledge about the disease warranted no other. Since then, the progressive march of scientific medicine has unearthed facts, which reinforce the appeals of charity by the world-moving power of personal interest. The question of establishing special hospitals for the treatment of tuberculosis is no longer a question of helping your neighbor alone; it is a question of helping yourself—of protecting yourself and your family (those near and dear to you) against a most loathsome disease, which is almost certainly fatal, and your chances of contracting which are one in seven.

The same state of affairs which appealed to the charity of England forty years ago has existed, and does exist here now, and appeals equally strongly; but the appeal has, so far, failed to spur us on to practical alleviation of the consumptive poor. We have hospital provision for every form of human misery and suffering, except that which appears under the garb of the hectic flush and the racking cough. Why have we none for this? Is it because the American who falls a victim to this dread disease does not want hospital aid? His frequent applications for admission to our general hospitals, where he is either denied entrance, or, if admitted, is simply given quarters to die in, most emphatically negative this. No; he wants hospital treatment; his poverty, his helplessness, his utter despair of recovery, if left to his own resources, and his serious interference with the efforts of his poor relatives

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[1] During the discussion of this paper before the College of Physicians, the point was raised whether so large a reduction as 50 per cent. could be brought about by so small a percentage of isolation. Fifty per cent. represents the percentage of reduction for forty years. The percentage of reduction for a single year averages something over 1 per cent., whilst the percentage of isolation ranges from 3 to 18 per cent. a year.

to support themselves and him, make him want it. He has wanted it for years; but his misery and his heart-rending despair have plead with us in vain. As a people, we seem to have formed the impression that consumption is an incurable disease, and that because the consumptive must die, we might as well abandon him to his fate. Our sympathies go out strongly to every form of suffering that is brief; but our hearts are hard as stone toward that which is long drawn out. But, whatever influences have shaped the destiny of our charities in the past, our position in this matter has certainly been illogical and inhuman. Of all human beings who are afflicted by disease, the consumptive should stand head in the line of our beneficiaries. Because he has been attacked by a disease which has for ages baffled the skill of even the best trained minds in medical science, is certainly no reason why he should be left untouched by the hand of charity, and uncheered by the balm of hope. Even if it were true that nothing can be done for him, it would certainly comfort him very much to have some one try. But it is not true. Much can be done for tuberculous patients, even in the way of cure, if the proper treatment can be instituted. The experience of all consumption hospitals proves this. But the treatment must necessarily be hospital treatment, for under no other circumstances can the physician have such control of his patient as is necessary for the cure of consumption. What hospital treatment can do for consumptive patients, even when the disease is far advanced, will appear from the report of Dr. Meissen, one of the physicians to Dr. Dettweiler's sanitarium in Falkenstein.[1] "The 731 cases," he says, "were taken without selection from the records of the institution. They comprise 105 cases of initial pulmonary phthisis, 442 cases of active pulmonary phthisis, 125 cases of progressive pulmonary phthisis, 6 cases of florid phthisis, 52 cases of stationary pulmonary phthisis; and of these, 483 patients were benefitted by treatment, and 248 died, or did not improve. As we can

[1] Dr. Dettweiler's Method of Treating Pulmonary Consumption. By Dr. Paul Kretzschmar. Page 7.

hope for successful treatment in initial, active and stationary cases only, the others—florid and progres-

Table No. III.

SPECIAL HOSPITALS FOR THE TREATMENT OF TUBERCULOSIS, IN ENGLAND.[1]

Name of Hospital.	F'n'd'd	Approximate Number of In-patients					
	Year.	1840	1850	1860	1870	1880	1890
Royal Sea-bathing Infirmary for Scrofula.	1791						
Royal Hospital for Diseases of Chest.	1814						
Brompton Hospital for Cons. and Diseases of Chest.	1841						
Infirmary for Consumption and Diseases of the Chest.	1847						
City of London Hospital for Diseases of the Chest.	1848						
Western Hospital for Incipient Consumption.	1850						
Nation. Sanatarium for Consumption and Dis Chest.	1855						
North London Hospital for Consumption.	1860						
Liverpool Hospital for Consumption and Dis. Chest.	1864	500	2000	3000	4500	5500	7000
Alexander Hospital for Children with Hip-disease.	1867						
Fir's Home for Advanced Consumptives.	1868						
Royal Nat. Hosp. for Consumption and Dis. Chest.	1869						
Hospital for Children with Hip-disease	1872						
Manches. Hospital for Consumption and Dis. Chest.	1875						
Cons. Department Belfast Royal Hospital.	1875						
Northern Counties Hospital for Diseases Chest.	1878						
Belfast Hosp. for Consumption and Dis. Chest.	1880						
St. Leonard's Hospital for Dis. Chest and Throat.	1884						

sive phthisis—ought to be excluded from the list, and it would then appear that of 600 patients with pulmonary phthisis, 483 were improved, and 117 were not benefitted by treatment; and, while of all the pa-

[1] Compiled from "Medical Directory of United Kingdom"

tients 66 per cent. improved and 33 per cent. did not, of those available for treatment 81.5 per cent. improved, and 18.5 per cent. did not. . . . By improved I mean not only a temporary disappearance of one or more unpleasant symptoms of the disease, or a slight improvement in the physical signs, but a decided and lasting gain in every particular, more especially an increase in the weight and in the strength of the patient, a stronger heart's action, and an increased capacity of the lungs, such as a careful and painstaking physician can observe during the duration of treatment."

If neither the pitiful, helpless condition of the consumptive poor, nor their prospective restoration to health will induce us to establish special hospitals for their treatment, we can find more forcible incentives in our concern for self-preservation. That tuberculosis is a contagious disease and consequently a preventable one, has been demonstrated both experimentally and clinically; and that the institution of special hospitals for its treatment is a humane, effective, prophylactic measure against it, is as evident, from the history of the disease in England during the last forty years, as any fact can be made by mathematical demonstration. We know now that the contagion of tuberculosis resides in the sputa or pus given off from the seat of tubercular inflammation, and we know that it resides nowhere else. The question of preventing the disease, therefore, resolves itself into preventing this sputa or pus from contaminating the healthy. This cannot be done at once, nor by force, as was attempted in Italy and Spain a hundred years ago, but gradually, and through the medium of education. The only step, indeed, which is practicable, at the present time, is the institution of special hospitals for the treatment of the disease. Such hospitals would not only prevent the sick from infecting the well in the community, but would become, through their patients, bureaus of information in the methods of disinfection to the public at large. They would, moreover, put a stop to the fashionable practice of sending consumptives broadcast over the world, ostensibly in pursuit of the alluring marsh-light, climatic cure of phthisis, but, in reality, as

propagators of the disease in unaffected districts. The benefits which climate can give need not be denied the unfortunate victim of tuberculosis, but can be given him in such a way as will prevent him from injuring others; namely, in special hospitals for his treatment. Already the Meccæ of the phthisical have taken the cue, and are erecting special hospitals for the benefit of their patrons; but such institutions are only for the wealthy, and will exercise but little influence as prophylactic agents. What we want is large, commodious, well-equipped special charity, or semi-charity hospitals for the treatment of tuberculous diseases in convenient proximity to our large cities, and of sufficient in-patient capacity to accommodate all who may apply for admission. In this way, and in this way only, can we take the first step toward the prevention of tuberculosis. The duty of taking this step rests not alone on the individual, but also upon the government. As the custodian of the public weal, the State owes its citizens as much protection against preventable disease as against a foreign foe. Pennsylvania has always been a liberal contributor to the support of hospitals which have for their object the alleviation of the poor. That it has never done anything for the consumptive poor is probably due to the fact that it has never been asked to do so. May not the medical profession have been lagging in its duty to the public in this matter by not calling attention to the question? Whatever excuse we may have had for silence in the past, modern investigations on the subject of tuberculosis undoubtedly place upon us responsibilities which we must not shirk if we wish to prove faithful to our high calling.