SPECIAL ARTICLES.

GERMAN METHODS IN THE PREVENTION AND ARREST OF TUBERCULOSIS IN CHILDREN.

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THE combat against tuberculosis has largely helped to develop that side of medical science and service which concerns itself rather with guarding the health of the community than with curing the sick individual. In this work the medical man and the social hygienist meet on that borderland which lies between practical medicine and national health. The national health can only be improved by improving the habits of the masses, and thus preventive medicine eagerly welcomes all social and civil efforts which are directed towards the general elevation of the nation's culture.

The Hygienic View-Point.

In Germany the keepers of the nation are learning the economic value of the *individual*, and recognize the expediency of safeguarding his health. This is where the medical man and the social politician join hands in a hygienic crusade which ignores all class and party distinctions. The result of this unity of purpose is shown in the steadily decreasing morbidity and mortality returns of the German Empire. Particularly gratifying in this connection is also the hearty co-operation existing between German civil organizations for the public welfare and private charitable efforts. This wise co-operation prevents overlapping, and secures the utmost economy that circumstances allow.

Much has been effected in the combat against tuberculosis; but every forward step serves to show us with increasing clearness how much still remains to be done if ever we are to approach those ideals of prevention which inspired us when we first took up the fight.

Germany's most energetic efforts are directed towards protecting those sections of humanity which are most exposed to the onslaught

of the disease—*i.e.*, industrial workers, children, and young people. We wish to present in our present paper a very brief survey of what are considered the most important measures for safeguarding the *children* of the German nation from tuberculosis. We cannot go into those theoretical aspects regarding the channels of infection which have led to a pronounced conflict of opinions with respect to the necessity for, and the reasonableness of, the various lines of defence. They include the classic “dust-inhalation” theory of Cornet, Flügge’s theory of infection through suspended “droplets” of sputum, and Von Behring’s contention that tuberculosis has an exclusively alimentary origin, and is always contracted in early childhood.¹

But in giving even the briefest survey of German methods of prevention, stress must be laid on the earnest importance attached to healthy motherhood, and on the fact that Germany starts its campaign against tuberculosis by protecting the pregnant woman, and thus protecting her unborn child.

The Hygiene of Motherhood.

The State protection of motherhood is mainly secured by clauses in the Workmen’s Imperial Insurance Laws.² These confer on local authorities power to provide working women, who have insured at least six months prior to confinement, with compensation for loss of work for six weeks before the birth of the child, attendance of a midwife, and medical advice when necessary.

Professor Mayet³ is the chief mover in a scheme for a general compulsory motherhood insurance. This would secure further material benefits to women of the working class without the slightest taint of pauperization.

The protection of lying-in women is also secured by legislative powers. According to § 37, Section V. of the Industrial Regulation, a woman may under no circumstances work in any factory or workshop for four weeks after delivery, and during the succeeding two weeks may only work if a registered medical practitioner certifies that this is permissible. This regulation applies to all lying-in women, whether married or single. This provision against a too early return to work would defeat its own ends unless a corresponding provision were made for the nutrition of the mother during the period of enforced idleness. This is secured by § 20, Section III., of the Sick Insurance Law of 1903, which grants sick-pay to every lying-in woman for a period of six weeks after her confinement, provided she has been

¹ These and other pathological considerations receive full notice in “Tuberculosis in Infancy and Childhood.” Edited by T. N. Kelynack, M.D. London: Baillière, Tindall and Cox. 1908.

² Insurance Laws of June 15, 1883; April 10, 1892; and May 25, 1903.

³ See Professor Mayet’s paper on “Motherhood Insurance,” in the Transactions of the International Conference on Workmen’s Insurance. Rome. 1908.

insured for six months before the birth of the child, either in a State *Krankenkasse* or in the parish sick insurance. In some cases the husband's insurance secures maternity grants. According to the draft of the new State Insurance Regulation, the period for a grant of maternity sick-pay will be lengthened into eight weeks—*i.e.*, two weeks before and six weeks after the birth of the child.¹

Infant Life Protection.

Broadly speaking, the interests of infant mortality prevention and of tuberculosis prevention are inseparable, for what the preservation of infant life aims at is not only keeping babies alive, but also at giving them a good physical start in life.² All measures, therefore, which are the outcome of this aim are equally measures against susceptibility to tuberculosis. Very important among such are those which encourage *breast-feeding* in every possible way. The recent increase in the number of breast-fed children has been attributed to the system of giving *nursing premiums*, or nursing pay, under supervision, to mothers who need nourishing food. The *nursing rooms* attached to factories where women are employed are also influencing breast-feeding. Failing breast-feeding, the next best thing is the provision of a clean, wholesome milk-supply at moderate cost. In this line Germany has done excellent work. Milk is, generally speaking, one-third cheaper in Germany than it is in England. The regulations against adulteration are very stringent.

State Guardianship of Children.

All children who lack the proper parental care are considered the "wards" of the State, and since 1906 there is a special department—the *Berufs-Vormundschaft* (or State Guardianship)—whose business it is to guard their interests.³ The duty of selecting homes for such children is entrusted to specially appointed officials or to responsible voluntary workers, and under no circumstances are the children allowed to enter homes where a member of the family is consumptive. As the State Guardianship now extends its supervision to children who are allowed to remain in their own homes, but who are

¹ This draft also includes sections of the population hitherto exempt from compulsory insurance—notably, domestic servants. If enforced, approximately 11,000,000 persons will be added to the number of persons under compulsory insurance in Germany.

² The value of these protective measures has recently been clearly and fully dealt with by Dr. Samter, of Charlottenburg ("Die Fürsorge für Säuglinge und Mütter in Charlottenburg," *Soziale Medizin und Hygiene*, Bd. iv., No. 2). Charlottenburg is altogether distinguished by its remarkable enterprise in every department of social hygiene and public welfare, and several of its institutions are worthy of the most careful study.

³ One very important consequence has resulted from State guardianship: while the mortality among *legitimate* children has been practically at a standstill since its institution, the mortality among *illegitimate* children has markedly decreased.

necessitous or predisposed to tuberculosis, it has become an important factor in preventive work.

The Care and Control of the School Child.

At the age of six, children enter into the province of School Medical Inspection. That this inspection is of vital importance in connection with tuberculosis is shown by the statistics published by Kirchner,¹ Privy Councillor to the Prussian Kultus and Medizinal Ministerium. He has demonstrated that the children during the school age do not participate in the general decline of mortality from tuberculosis that has taken place in Prussia between 1876 and 1903, but that, on the contrary, the age groups from four to fifteen show a considerable increase. From his statistics, Kirchner draws the conclusion that, in spite of the prevalence of measles, whooping-cough, and other children's diseases, tuberculosis is the disease which is most to be feared during school age, and that the energies of school doctors should be specially directed towards its prevention. It is here, then, where so much is earnestly hoped from the system of school medical inspection.

The German system is, generally speaking, thorough and efficient. It must be remembered, however, that Germany has an enormous area to cover, and that in many remote country districts the difficulties to be encountered are such as have no parallel in England.²

Inspection weeds out the manifestly tuberculous, the scrofulous, and the debilitated child, and is thus a factor of unlimited value, as it renders a timely prophylaxis possible. Now that school doctors have an authority over the hygiene of the school building itself, it is to be hoped that more attention will be paid to two points of vital interest in guarding the health of the scholars: first, *to the daily wet-dusting of all surfaces within reach*,³ and, secondly, *to the prevention of promiscuous spitting*.⁴

¹ Kirchner: "Die Tuberkulose und die Schule." Berlin: Richard Schoetz. 1906.

² Professor Leubuscher, the President of the Society of School Doctors (the Secretary of this society is Professor Leubuscher himself, and the offices are in Meiningen), states that there are between 1,500 and 1,600 school doctors distributed among 400 towns (*Medizinische Reform*, No. 49, 1908). Country schools are still, however, inadequately inspected, though their hygienic condition is far below that of the town schools. The upper schools are also, unfortunately, exempt from inspection in most cases.

³ Fürst, M.: "Ueber die Reinigung der Volksschulklassen, *Zeitschrift für Schulgeshundheitspflege*. Vol. xvi. 1903. In Bremen, the experiment has recently been made of cleaning schoolrooms with a vacuum cleaner. See *Deutsche Vierteljahrsschrift für öffentliche Gesundheitspflege*, Bd. xxxix., Brunswick; and *Soziale Medizin und Hygiene*, Bd. iii., p. 523. Hamburg: Leopold Voss.

⁴ The evil of promiscuous spitting is best obviated by the provision of hygienic spittoons, placed at convenient levels. The best form are those supplied with running water. See "Spuckgefäße in der Schule," by M. Fürst, *Das Schulzimmer*, vol. vi. Berlin: Müller. 1908. In February, 1907, a Bavarian district council issued a very sensible official order, strongly condemning the use of handkerchiefs as receptacles for expectoration.

It is self-evident that any child or teacher with "open" tuberculosis is a source of danger to other occupants of the schoolroom. In 1907 both the Saxon and the Prussian Ministry issued regulations providing for the bacteriological examination of the expectoration of any teacher or scholar presenting features suggestive of phthisis (emaciation, pallor, lassitude, cough, etc.), and for the exclusion from the schoolroom of those found on examination to be harbouring the tubercle bacillus.

In the way of practical measures, Germany has done much to arrest tuberculous proclivities among school-children. The first of these is *school feeding* (*Schulspeisung*). This includes the distribution of milk only (or milk and white bread) and the provision of substantial daily dinners (soup, meat, and vegetables). The municipality bears either the entire cost (as in Charlottenburg, Breslau, Magdeburg, and Mannheim), or co-operates with private charities.¹ The Freemason lodges in Germany have been very liberal in this respect.

Gratuitous Medical Service.

Where the parents are necessitous, sickly children receive free medical treatment from the sick insurance doctors or from the Poor Law medical officers. Quite recently the German Poor Law has been amended, and a recipient of Poor Law medical treatment does not thereby lose his citizen rights. The Poor Law medical department has largely interested itself in diminishing tuberculosis among children, and is doing very valuable work on these lines.²

School Dental Clinics.

The increasing number of school dental clinics is another factor of great importance. Tuberculosis has very frequently been found associated with extensive dental caries, and Professor Ernst Jessen, of Strassburg, who was the founder of these clinics, has shown in his reports how urgent was the need for them. In the year 1906 over 18,000 children were treated in the Strassburg School Dental Clinic, yet the year's expenses amounted to little over £400.³

¹ Simon, Helene: "Schule und Brot." Hamburg: Leopold Voss. 1907. This book states that in seventy-nine towns of over 20,000 inhabitants the school-children are fed, the cost being mainly borne by the municipality. See also Seydel (Town Councillor in Charlottenburg): "Die Mittagspeisung der Schulkinder Charlottenburgs," *Archiv für Volkswohlfahrt*, vol. ii., No. 3.

² Samter und Kohlhardt: "Die Aufgaben der Armenpflege in der Bekämpfung der Tuberkulose." Leipzig: Dunker und Humblot. 1904.

Consult also Fürst, M.: "Die Stellung und Aufgaben des Arztes in der öffentlichen Armenpflege." Jena: Gustav Fischer. 1903.

³ Jessen, Prof. Ernst (Strassburg): "Die Zahnpflege in der Schule," in "Das Schulhygienische Taschenbuch," pp. 171-176. Hamburg: L. Voss. 1907.

Children's Sanatoria.

For actually tuberculous children Germany has eighteen sanatoria, containing in all 837 beds. But there are close on 100 institutions which receive children who are scrofulous or debilitated, or otherwise likely subjects for tuberculosis.¹

It is in this respect that the Imperial Insurance System is of such enormous value; the ample resources at the command of the Insurance Bureaux enable them to advance sums for building sanatoria where these are most required. As life at a sanatorium is mainly an outdoor life, most of them close during the winter. An experiment has recently, however, been made of keeping a North Sea sanatorium open all winter, and with the most encouraging results.²

Forest Schools.

We have left forest schools almost for the last, but they deserve the first place in importance as a means of increasing the powers of resistance in debilitated children. The forest school is an invention of which Germany has every reason to be proud. It rapidly justified its existence by results of a highly satisfactory order, and was found to be a measure with everything to recommend it. In the forest school we get a unique combination of healthy, happy child life with systematic care, good feeding, and the best kind of education. Not only is every possible measure adopted to make the children healthy, but they are taught *the value* of health, how to keep healthy, and the vital importance of clean living, fresh air, and sensible feeding. That the interests of ordinary school education do not suffer is evident from the fact that, though the lessons are fewer and shorter, the forest school-children keep up very well with

¹ Nietner, Prof.: "Der Stand der Tuberkulose Bekämpfung," "Bericht des Deutschen Zentral-Komitees zur Bekämpfung der Tuberkulose," 1908.

Lohse gives the following figures in "Kinderheil und Erholungsstätten." Leipzig: Dunker und Humblot. 1907.

Class.	Character of Institution.	Number of Establishments.	Number of Available Beds.
A.	Sanatoria with brine baths	41	4,472
B.	Sanatoria for sea-bathing	22	2,164
C.	Climatic stations and mineral baths ..	28	1,304
D.	Open-air sanatoria for pulmonary tuberculosis ..	6	284
		97	8,224

In ten open-air sanatoria for adults children are also received. In 1906 the above establishments received 30,599 children, distributed as follows:

Class A		18,847
" B		6,171
" C		4,801
" D		780
		30,599

² Treplin: "Erfahrungen aus dem Hamburgischen Seehospital 'Nordheim-Stiftung' im Jahre 1907," *Soziale Medizin und Hygiene*, Bd. iii., pp. 233-239.

the town children, and are generally able to join their proper age groups on returning to the town schools. The children do not, as a rule, sleep in the forest school, but are fully fed there. The following allowance is made for each child: Milk, 2 pints; meat, 100 grammes; vegetables, 200 grammes; and an ample quantity of white bread and rye bread, butter, dripping, and jam. The children have five meals—at 7.45 a.m., at 10 a.m., at 12.30 p.m., at 4 p.m., and at 6.30 p.m. In Charlottenburg the parents pay 6d. a day where this is possible, but in destitute cases no charge is made. Much importance is attached to hydropathic treatment in the forest schools, and in Charlottenburg provision is made for brine baths in addition to the ordinary warm baths and shower baths.¹

Forest Camps.

There are as yet only three large well-known forest schools in Germany; but there are a large number of minor institutions on similar lines called *Walderholungsstätte*, or forest recreation camps. There are eighty-two of these forest camps for adults, in some of which children are admitted, and nineteen exclusively for children. In some of them teaching in some form is also given. In 1906, 1,728 children visited these camps. They come early in the morning, receive three good meals and a plentiful supply of milk, and return to their homes in the evening.

The main accommodation is afforded by a large shed, open on one side, in which the children shelter in bad weather. Such a forest camp, with its shed, offices, bathrooms, and lavatories, can be installed for £200 to £250. These institutions, owing to their "picnic" character, are very popular, both with adults and children, and are eminently educational. Popular lectures on hygienic subjects are given in some of them, the audience being seated in an amphitheatre under the trees. Germany is fortunate in abounding in woods and forests which are ideal quarters for this purpose.

Health Stations.

We can only briefly mention *holiday camps* and *colonies*, and *holiday homes* where children are boarded out. There are seventy-nine societies for providing children with holidays, and in 1906, 17,085 children were sent away, generally in batches of twenty-five to thirty-five.

¹ Sandt, H.: "Waldschulen," in "Das Schulhygienische Taschenbuch," pp. 260-265. Hamburg: Leopold Voss. 1907.

Neufert: "Waldschulen," in "Verhandlungenheft zur Zeitschrift 'Gesunde Jugend,'" Bd. vi. Leipzig: B. G. Teubner. 1906.

Neufert und Bendix: "Die Charlottenburger Waldschule im Isten Jahre ihres Bestehens." Berlin: Urban und Schwarzenberg. 1906.

For cost of forest schools see H. Lindemann and A. Suedekum: "Kommunales Jahrbuch," pp. 239-240. Jena: Gustav Fischer. 1908.

After-Care Stations.

Nachpflege, or "after-care" stations, do an incalculable amount of good, and are of great importance in securing permanent benefit from remedial measures. Hamburg has an excellent system of this sort, which is under the rule of the "Municipal Charity Organization." Children who have been sent away during the summer are afterwards kept under systematic observation, and conditions which militate against the lasting benefit to be derived from the summer outing are remedied as much as possible. This "Organization for the Continued After-Care of Children" recommends their protégés for school feeding, for milk lunches, for prolonged medical supervision under the Poor Law, and for a repetition of the summer outing.¹ This system is of such great value that it merits thoughtful attention and copy.

Schools for the Tuberculous.

We cannot close this sketch of remedial and preventive measures against tuberculosis among children in Germany without alluding to the excellent work done by the *Fürsorgestellen* (*dispensaires*), or "care stations" for consumptives, which are of the nature of "schools for the tuberculous," run on lines similar to "Schools for Mothers" and "Infant Consultations."

Lastly, the widely spreading provision of bathing facilities and of playing-grounds for children are factors for physical advancement which, in conjunction with the serious and energetic attention with which Germany is tackling the housing problem, give one hopes of an improved national physique in the coming generation among the mass of the German people.²

¹ In the autumn of 1906, the Hamburg After-Care Station examined 726 children, and recommended 89 for school feeding, 584 for milk lunches, 355 for continued medical supervision, and 525 for a repetition of the summer outing in 1907.

² Tables of forest schools, sanatoria, etc., are given in "Jahresbericht des Deutschen Zentral-Komitees zur Bekämpfung der Tuberkulose." Berlin. See also Professor Nietner's article on "Tuberculosis among Children in Germany," in "Tuberculosis in Infancy and Childhood." London: Baillière, Tindall and Cox. 1908.

For particulars regarding arrangements for bathing, see article on "Arbeiter bäder," by Regierung-Rat W. Treptow (Charlottenburg). The use of shower-baths by the working classes is strongly advocated, and also the training of school-children to appreciate bodily cleanliness (*Archiv für Volkswohlfahrt*, vol. ii, No. 3).