

It has appeared to us that ascites has been more common in women with tubal tuberculosis, while in both males and females fibro-plastic forms have been relatively more common where the appendix or an unlocated intestinal lesion has been made the source of peritoneal invasion. This later condition is probably due to a mixed infection, but the secondary organism is evidently shortlived and we find only its results at operation. We have not often operated on the fibroplastic adhesive form and we have been slow to operate in any case during the acute stage.

In tuberculous peritonitis in women, we evacuate the fluid and place the patient in the Trendelenburg position, packing off the general abdominal cavity in the usual manner. The pelvic organs, appendix and cecum are examined. If the fallopian tubes, appendix and cecum are diseased, they are removed. The stumps and walls of tubercular abscess cavities are dried and a little sterile iodoform rubbed in and the abdomen closed without drainage. Drainage sometimes leads to secondary mixed infection with resulting fistulæ, which have a great tendency to become fecal.

In men, the incision is placed to the right of the median line over the appendix. The fluid is evacuated, the appendix and cecum examined, after which a radical operation, if indicated, is performed.

From the narrative of facts and observations so briefly set forth, I think we are justified in the belief that the failure of simple laparotomy and evacuation of fluid exudate in tuberculous peritonitis to maintain a high place in surgery is due to reinfection from lesions in the mucous membrane of the fallopian tube, appendix or some part of the intestinal tract. We have been treating a symptomatic peritonitis instead of removing the source of disease. That many times the infecting lesion cannot be discovered is true, and it is equally true that not all cases can be explained in this way. Experience teaches that under expectant treatment many of the primary lesions are cured by natural processes. Simple laparotomy and drainage aids recovery in a remarkable manner. Radical operation on the primary lesions in tuberculous peritonitis will greatly increase the percentages of cures and prevent reinfection of the peritoneum.

In conclusion, it seems reasonable to suppose that tuberculous peritonitis has its origin in a local focus in practically every case, as is the fact in septic peritonitis. Peritoneal reinfection may be prevented if the local focus can be removed. Whether the patient will regain and maintain general well-being must depend to a large extent on whether the local focus thus removed is primary or secondary and, if secondary, as to the possibilities of cure of the chief seat of disease.

Secret Nostrums in the United States.—The United States is a land in which patent medicines, and proprietary medicines flourish exceedingly. The drug consumption per capita of the inhabitants of America undoubtedly exceeds that of any other country. Some of the "remedies" sold are good, some are indifferent, and some are distinctly bad. But the worst feature of the situation is that the ordinary individual is unable to discriminate between the different kinds and is wont to take whichever one is recommended to him by the druggist or appears from the description on the bottle as the most likely to benefit the complaint from which he is suffering or imagines that he is suffering. The present situation has been largely brought about by the physician himself.—*The Lancet*.

Original Articles

STUDY OF THE ECONOMIC COURSE OF CONSUMPTION IN WAGE-EARNERS.*

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It has been aptly said, and with some degree of truth, that a well-bred person never insists on facts. The person who forces his facts into the minds of others by the brute force of figures is usually called a statistician and is frequently considered a bore. Like other pests, however, he has his usefulness and, while it may not be the good fortune of the statistician to adorn a tale, it frequently falls to his lot to point a moral, and in medicine the brute force of figures will always be the court of final resort.

It is my misfortune to-day to have to offend from both points of view, to insist on facts and to drive them home by figures, but I will feel that I have not offered myself in vain as a sacrifice on the altar of science if I can aid in any way in the elucidation of the course of a great economic, social and medical problem.

Though I have placed the medical portion of this trilogy last and the economic first, I would not by any means maintain that the medical aspect of this problem comes last or the economic first in point of importance, as many statisticians hold, for the statistician is, as a rule, prone to assign a place of minor importance to the medical side of tuberculosis. My own inclination still is to place the medical side of the problem in the first place.

Of course, by medicine we do not understand the mere "practice of physic," which, while having something, no doubt, to promise from the curative standpoint, has nothing at all to promise in the way of prevention; I would understand rather the larger control of sanitary affairs by medical men from the medical standpoint. The physician, however, has yet to understand and to appreciate the importance of the economic and social sides of tuberculosis. This paper deals with the economic course of the already existing disease (a matter of lesser importance from the physician's viewpoint than the economic problems concerned in its development). It is certainly a practical necessity, however, for the members of our profession to be acquainted with all sides of the problem with which they will first (of all persons, I believe) be called on to deal.

The statistical considerations will give, in my opinion, the most complete and just estimate of the problem as well as the most perfect view of all its sides and phases. From the dry prehistoric bones the naturalist has reconstructed the pterodactyl, the megatharium, and other monsters of the pliocene period. We may reconstruct in the same way the modern apparition of tuberculosis from statistics dug from the dry conglomerate mass of figures with almost equal patience and labor. Statistics will incline, I believe, to give the greatest importance at the present time to the economic and social sides of tuberculosis. The remarkable sympathy of the economic and tuberculosis curves can leave no doubt whatever as to their intimate relations and much of the present improved state of tuberculosis must be laid to one or the other of these factors.

* Read in the Section on Hygiene and Sanitary Science of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

We do not appear as yet to be able to lay the greater part of the present better conditions to the credit of medical progress, although I believe the latter to be undoubtedly the proper direction from which to attack this problem, as it comprises the direction from which to attack all other problems, namely, the standpoint of causation.

It will be well to remember, however, that we are called on to deal with actual and not ideal conditions, and there is always a large contingency connected with any such ideal generalization as Pasteur's statement of the possibility of the elimination of any parasitic disease. (*C'est dans le pouvoir humain de faire disparaître du monde tous les maladies parasitaire.*)

The course of tuberculosis in any individual case includes a number of profound, divergent and far-reaching effects, produced by a common cause. Even considering alone the mere economic effects of tuberculosis and ignoring the social and moral problems connected therewith, we have to deal with very complex conditions.

The accurate study of one class of these factors, namely, the personal item of economic loss, is a foundation on which it appears all correct economic deductions must be built.

My personal experiences have convinced me of the possibility of obtaining a high degree of accuracy in this study—sufficient at least for accurate and correct statistical deductions.

It is a study of this character made in Maryland in the work of the State Tuberculosis Commission which I believe to furnish a sufficiently accurate and substantial foundation for statistical deductions—to justify its presentation before this Section of the Association.

The economic course of tuberculosis is wholly distinct from the clinical course, but closely related to and dependent on the latter. It does not affect the economic course of tuberculosis how many persons are suffering from the disease or to what extent so long as their economic powers remain unimpaired; and the economic

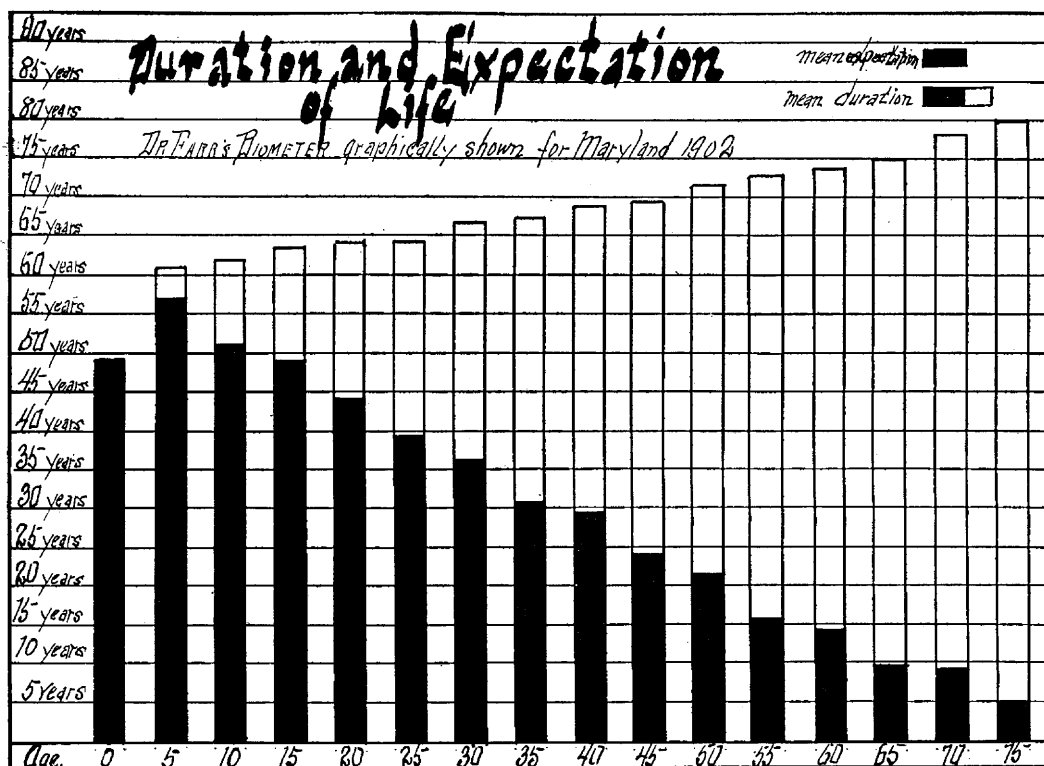


CHART I.

While these effects may be grouped under generalizations, they are far from being general conditions and their individual potentialities are inextricably blended to produce a heterogeneous whole.

As a merely general classification we may consider the economic course of tuberculosis from some three or four standpoints.

1. Economic effects on the state.
2. Economic effects on the local community (town, county or village).
3. Economic effects on family.
4. Economic effects on the individual.

It is questionable if the generalizations, calculations and guesses by which many social economists have endeavored to determine the amount and directions of these influences have aided at all in the clearness of our conceptions. It may be safely said at least that the conclusions have, as a rule, been most inaccurate.

history of the individual does not become apparent in the columns devoted to loss until such a depreciation occurs. The duration of time during which the individual may have tuberculosis with unimpaired earning capacity depends not only on his constitution and the virulence of the disease, but on the nature of his occupation and the pressure of necessity. It goes without saying that the earning capacity of an individual whose occupation requires long and severe muscular labor, such as a coal miner, will be sooner impaired by the onset of tuberculosis than in the case of a corporation attorney, bookkeeper or other person engaged wholly in mental work.

The course of any case of tuberculosis will accordingly naturally fall into three periods.

1. *Working period* or period of unimpaired earning capacity, including the period of health from the commencement of a gainful occupation and the early period

of disease from the onset up to the time of diminished earning capacity.

2. *The period of partial disability*, or period of irregular work at reduced wages. This period may last in individual instances until the advanced stages of the disease.

too frequently the result of tuberculosis when it appears in the wage-earning member of the family.

The causes producing the final result are very much more far-reaching than the mere deprivation of the income of the wage-earning member. Histories of such families show that the result of such long-continued

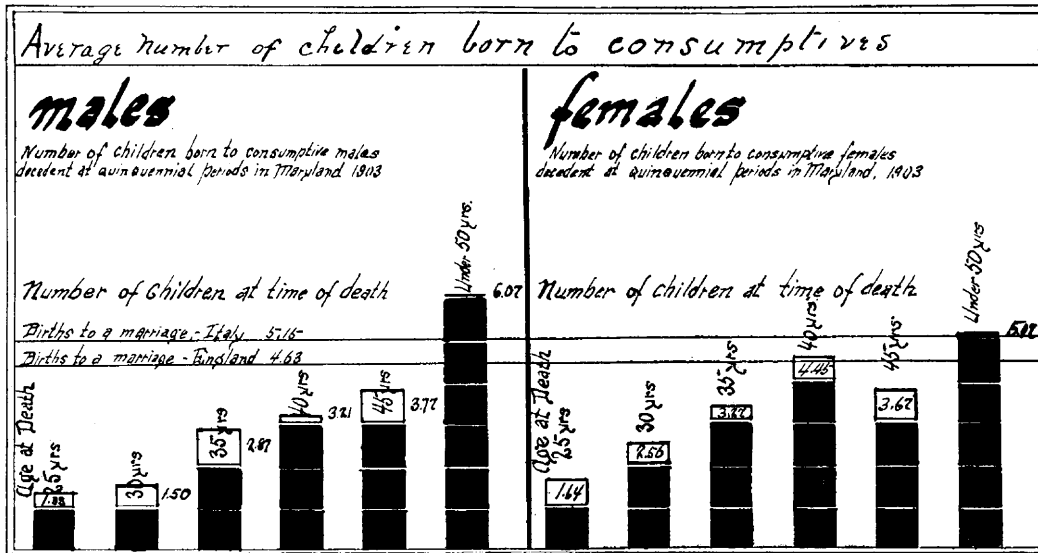


CHART 2.

3. *The period of complete disability* with or without dependency. Whether or not dependency occurs depends on many features, such as the duration of the disease and the earning capacity of the remainder of the family unit.

From the state's point of view the usefulness of any of its citizens ceases with the cessation of his economic activities. Not only is the state a loser in this way, but an immediate item of expense may arise in the ultimate dependency of a large proportion of wage earners. It is in this latter class that the heaviest loss to the state will occur, as these individuals not only cease to be producers, but the community must provide for their care and support. In the State of Maryland at the present time there are 10,000 consumptives, 8,000 of whom have ceased to be economic factors in their communities. The state may have to provide for the support ultimately of these 8,000 people who are not economic factors and the majority of whom have no likelihood of ever becoming such, a number larger and more expensive in proportion than the German army and who, far from procuring and guaranteeing the safety and integrity of the state, are a source of danger or an actual menace to those about them.

Among diseases tuberculosis ranks first, with the single exception of insanity, in the extent and amount of dependency it produces. Of 177 wage-earning males tabulated in this paper among whom careful inquiry was made concerning the original and ultimate economic condition, 72, or 40 per cent., became dependent on charitable aid during the course of their disease; 26, or 14 per cent., died in charitable institutions, and we have good reason to suppose that the majority of others received at some time charitable aid.

The influence of tuberculosis on the ultimate history of the family in which it appears causes infinitely more damage than that suffered by the state, as its effects rest on only a small number of persons. The ultimate destruction or disintegration of the family unit is only

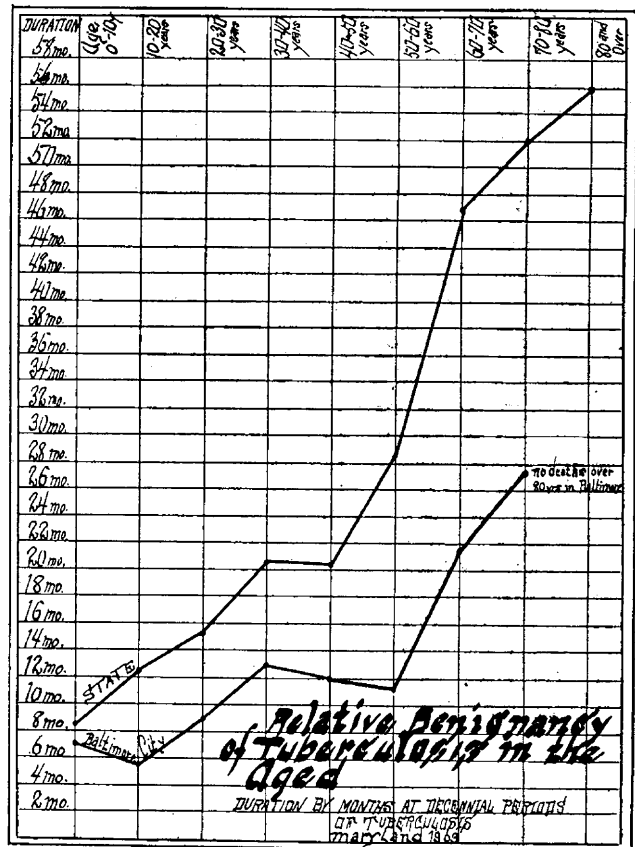


CHART 3.

illness is not only a complete exhaustion to the family treasury, but an ultimate destruction of a considerable portion of the family from the disease. There seems to be no other disease of such malign influence in its tendency to bring the family unit down to the lower levels of social and material welfare.

We have no method of computing in figures the effect on the family produced by the death of its non-productive members, more especially the mother, but the effect on the family will ultimately be as great or greater than in the death of the wage-earning parent, though the results may appear in other ways.

It is evident that many factors will enter into the duration of the three periods of the consumptive's economic life already specified and the economic loss connected therewith. Many of these can neither be ascertained nor described, but the influence of sex occupies a particular field in which the conditions are interesting and to a limited extent easily determined; but before the consideration of these varying features it becomes necessary to determine the normal working period of

aware that the contrary view is usually held. The chart indicates that both consumptive males and females surviving to the age of 45 years and over, show a number of births in excess of the average fecundity of Italians and English, the former of whom are especially prolific.

The loss incurred by any particular case of tuberculosis must fall in one of two divisions. 1. Actual loss occurring during the course of the disease in the individual and extending up to the time of his death. 2. Potential loss beginning at the death of the individual and extending for an indefinite period; best estimated from the mean duration of life or expectation of life (provided the tuberculous infection does not intervene), at the age at which death occurs.

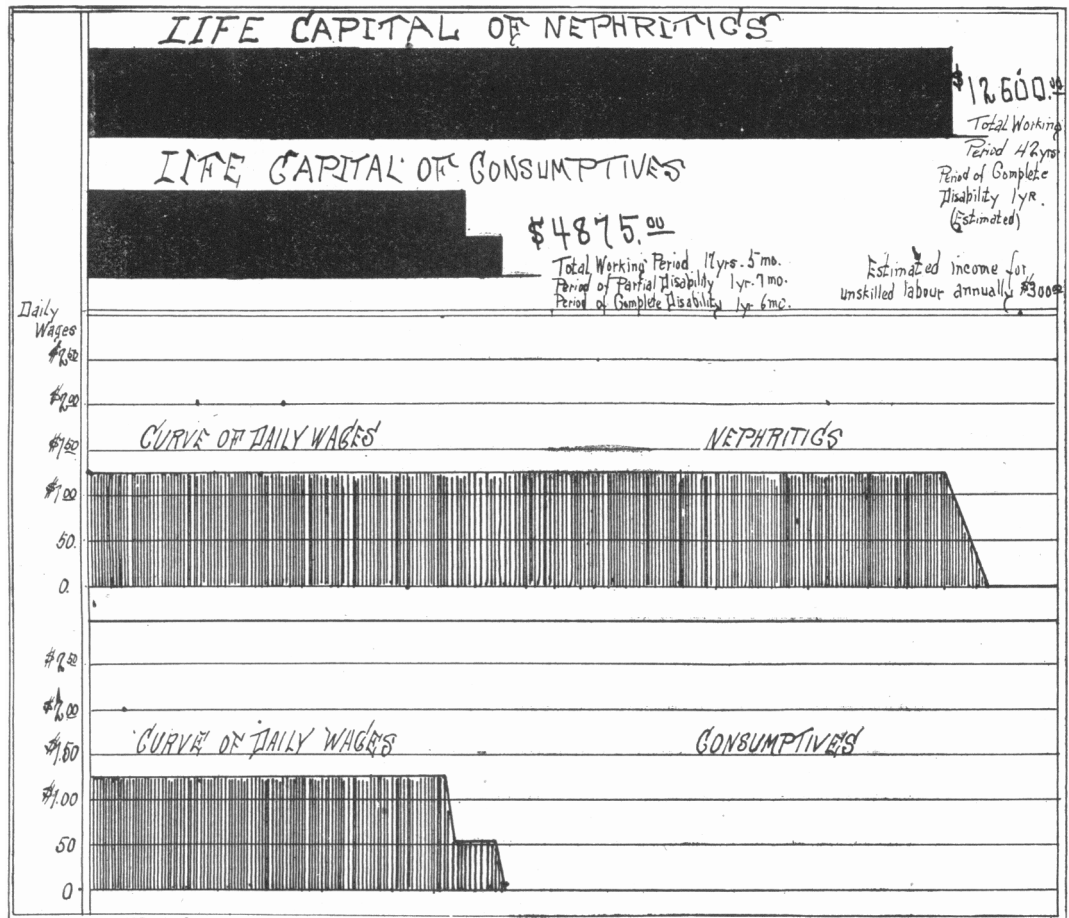


CHART 4.

the wage earner, its normal duration, and the life capital dependent thereon.

The consideration of highest importance is the male wage earner, as the presence of the female engaged in a gainful occupation can not be considered a normal condition from a social point of view, and there are other considerations indicating that this condition is only a temporary and irregular expedient. The most important social duty of the female is the increase and the conservation of the human living capital of the state. This duty is fortunately not impaired by the conditions arising from tubercular diseases.

The study of the accompanying chart makes it plainly evident that in Maryland at least the deficiency in the birth rate of consumptive females is the result of death and not of impaired procreative power, though I am

The question of the mean duration of life will serve to illustrate the fallacy of calculations applied to the tuberculous based on the whole healthy population or any part thereof. It is not my purpose to enter into any of the other elements of fallacies which may arise in dealing with the very complex economic problems connected with this subject.

It may be shown by examining the chart that the mean duration of life of the consumptive at the age of the onset of his disease is not only not proportionate to the expectation of life of healthy persons as the specified age period, but is, in fact, in an inverse proportion thereto. From the tendency of tuberculosis to take a relatively benign course in those advanced in years the general economic law follows: *The actual economic loss of any given case of consumption is in direct pro-*

portion to the age of the consumptive, and the potential loss is in inverse proportion to the age, which is corollary to the more general statement that the longer the life of the consumptive the greater the actual loss and the less the potential loss produced by his disease, after the period of total disability is established, and conversely.

The consideration of first importance in determining the economic potentiality of an individual is the estimation of the life capital accumulated by him as the result of his labors during his life. For this comparison there has been selected on the chart the life capital of the unskilled laborer, as a class furnishing the largest number of deaths from consumption. The normal working period has been estimated, both for male and female wage-earners, from the eighteenth to the sixtieth year.

forty-two years and accumulated the life capital of \$12,600, while the consumptive will have worked fifteen years and six months and have accumulated the life capital by that time and during the succeeding year and seven months of his disease, during which he is able to do light work, of \$4,925. Below, the curves of wages are indicated, usually terminating abruptly with the onset of the degenerative diseases, but showing a marked preliminary decline to a lower standard in the case of the consumptive; the usual course of the degenerative disease being progressive, and without marked remission, while the ultimate complete disablement of the consumptive is usually preceded by an irregular period of partial earning capacity. This period is greater in females and in those living in the country.

Another factor influencing this period and conse-

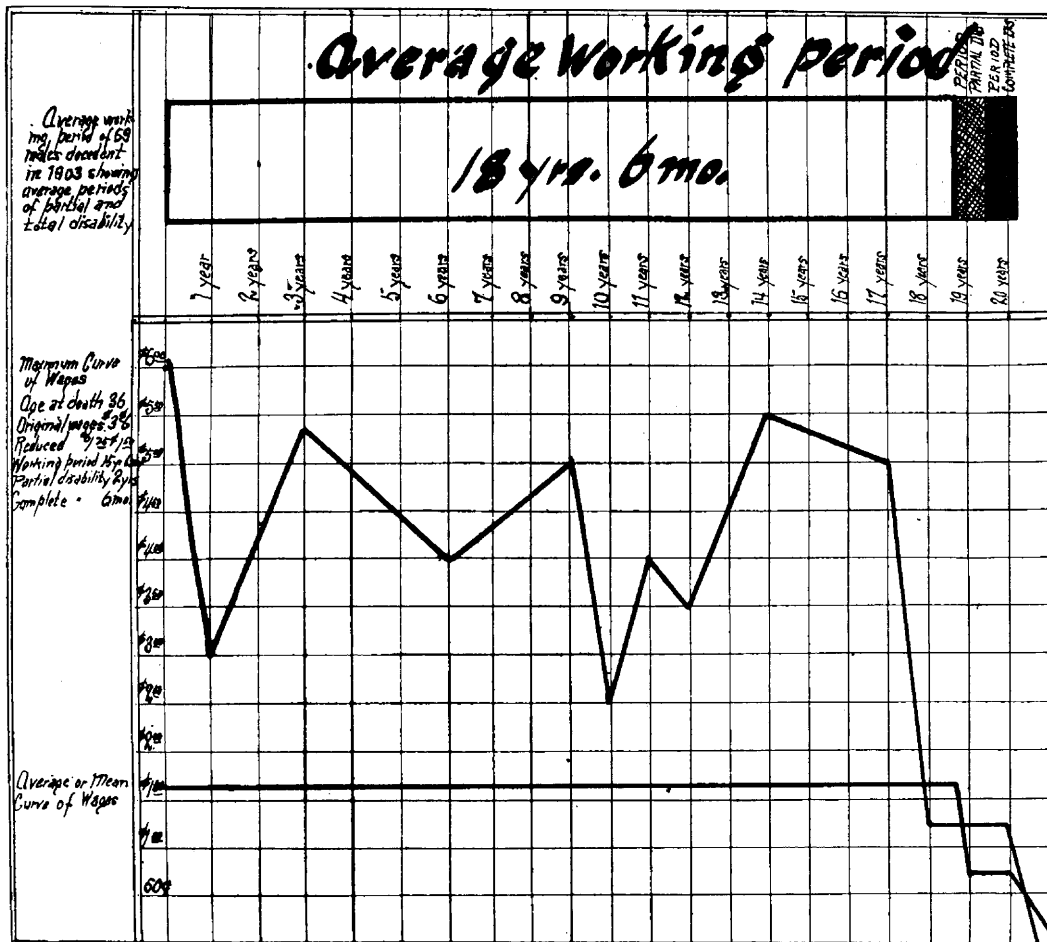


CHART 5.

after which the degenerations incident to age are considered to terminate the economic usefulness of the individual. In the chart the average life capital accumulated by the consumptive day laborer in Maryland is compared with that accumulated by those dying of chronic diseases of the kidneys, which are among the earliest and most frequent of the degenerative diseases appearing with advancing years. The long black column indicates the life capital accumulated by the average individual dead of chronic diseases of the kidneys, while the smaller column indicates the average life capital accumulated by the consumptive dying in the same year. Each seven-twentieths of an inch in the length of the column indicates one year's work with an accumulation of \$300 capital. The nephritic will have worked

quently the duration of the disease is the annual expenditure which the tuberculous individual is able to make for the betterment of his condition.

Reinke's study shows a distinct advantage for the well to do, and the experience of the physician in private practice tends to show a more prolonged duration in this class than among manual laborers with uncertain incomes.

The factor of age should be eliminated from all calculations of this character, as in all occupations there is an increased income with the advance of age, and deductions made without reference to this factor may erroneously ascribe a gain to increased income really due to advancing years.

The statistics undoubtedly indicate a considerable

disadvantage of those capable of only a small expenditure, such as less than \$250 annually. The ability to expend over \$3,000 annually seems to possess a very questionable advantage. The items comprising the important factor of personal expenditure or loss incident to the disease include mainly the following:

- The period of partial disability.
 - The period of complete disability.
 - Money loss in each period.
 - Expenditures falling on the patient.
 - Expenditures falling on the family.
 - Cost of maintenance.
 - Expenditures incident to death.
- It is evident that no estimate can be complete in any

ficient number of recoveries to lend themselves readily to tabulation.

Theoretically, the periods of economic disability may appear at any part of the band which represents the whole working period. Though occurring usually at the further end they may occur in the center or appear twice or more in rotation.

The duration of the disease before economic injury becomes manifest is naturally a variable factor. The variation in the periods of disability is governed more by the economic than the clinical course of the disease, the pressure of necessity being potent in many instances to hold in their daily routine many cases well advanced in the disease.

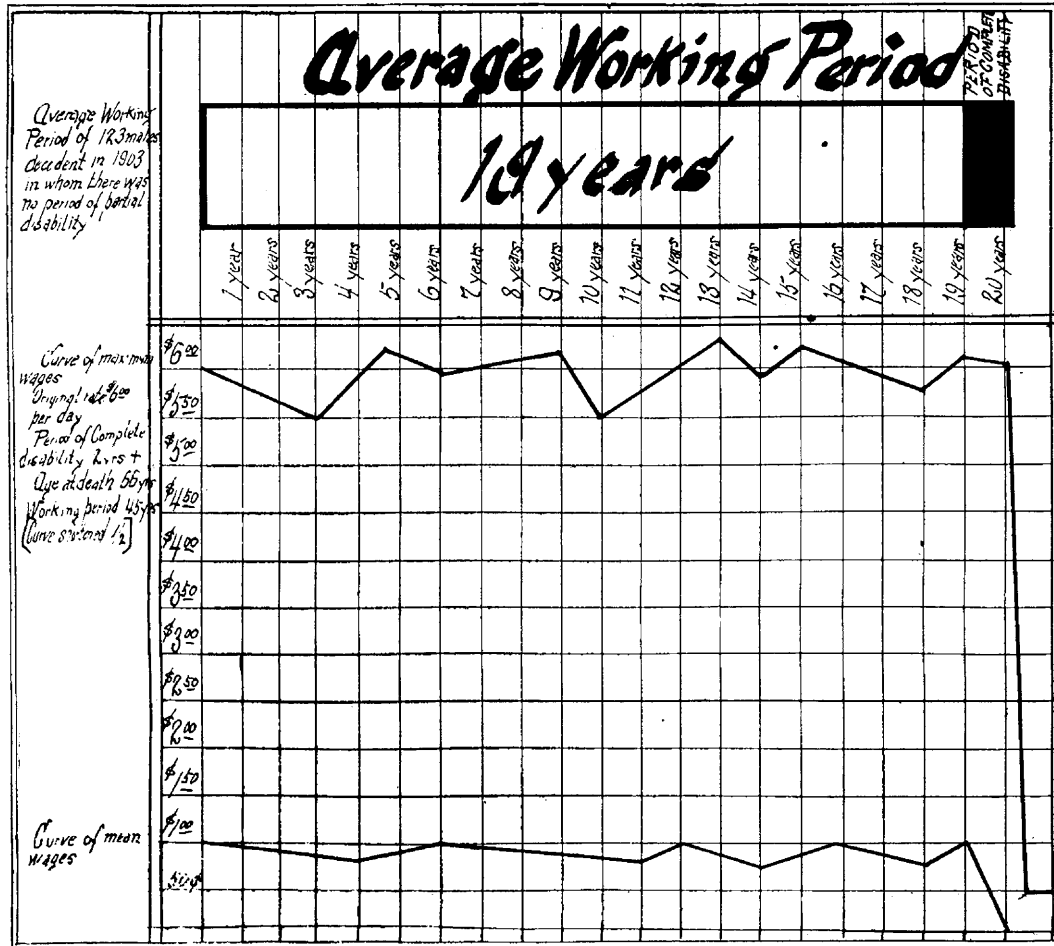


CHART 6.

given case until the disease has run its course and terminated either by death or in recovery. For statistical purposes and for the proper consideration of the course of the disease, the wage-earners tabulated and charted in these series have been divided according to sex. A further distinction has been made between cases in which there was partial disability and cases in which disability when it occurred was total from the onset. Further distinction may be made of fatal cases in which disability was never complete, the disease terminating abruptly by some of the accidents not infrequent in its course, such as edema glottidis or hemoptysis. No cases resulting in recovery were tabulated among this series of charts, as the class of persons among whom careful economic study was made did not furnish a suf-

Of the 71 wage-earning males charted in the series (5, 6, 7 and 8), one was tuberculous for nine years and eight months before economic impairment became manifest (maximum among these cases), one was tubercular nine years before his earning capacity became impaired, one over six years, five over four years. In 23 cases the patients reported themselves free from the disease up to the time their working powers became impaired, the onset of economic disability being apparently synchronous with the onset of the disease. The longest duration reported in the period of impaired earning capacity was eight years. In 2 cases the duration was over five years, in 2 over four years, in 3 over three years, in 10 over two years, in 14 over one year. In 36 cases there was no

TABLE 1.—WAGE EARNING MALES.

Period total disability.	Irregular work at reduced wages.	Duration of disease to time of death.	Annual income.	Total money loss incurred.	Potential loss.	Age.	Period of total disability.	Irregular work at reduced wages.	Duration of disease to time of death.	Annual income.	Total money loss incurred.	Potential loss.	Age.
18 months.	Not given.	Over 1 year.	\$ 390	\$1113.00	\$14038.00	33	6 months.	2 months.	3 years.	\$1000	748.00	27048.00	40
14 months.	2 years.	About 5 years.	1200.00	4800.00			11 months.	Not stated.	8 months.	450	468.50	18693.50	20
6 months.	Not given.		204.00		5644.00		5 months.	Not stated.	8 months.	725	450.00	27575.00	26
12 months.	3 years.						2 weeks.	7 months.	7 years.	500	279.00	14779.00	37
3 months.	2 years.	25 years.	1000	752.00	15692.00	31	3 months.	4½ years.	5 years.	450	1262.50	10712.50	43
9 months.	3 months.	About 18 months.		750.00	22875.00		3 years.	4 months.	13 years.	500	896.00	14046.00	42
9 months.	Not stated.			520.00	7720.00		6 months.	Not stated.	4 years.	260	405.50	10516.00	24
2 years.	2 years.		468	1828.00	7220.00	61	5½ months.	4 months.	9½ months.	450	694.75	18919.75	21
6 months.	1 year.	8 years.		519.55			6 months.	Not stated.	1 year.	486	474.40	7084.00	59
2 years.				2100.00	23100.00		2 months.	Not stated.	6 months.	450	214.00	16864.00	25
6 years.	Not stated.	8 years.	390	2695.00	7945.00	60	6 months.	Not stated.	6 months.	300	176.00	12326.00	19
10 months.	None.	2 years.		783.00			7 months.	Not stated.	2 years.	780	1719.15	14979.15	56
1 year.	None.						9 months.	9 months.	1 year, 3 months.	780	873.00	32463.00	22
3 months.	None.	1 year, 7 months.	520	318.50	5346.50	63	3 months.	4½ months.	5 years.	468	1262.50		43
6 months.	1 year.	3 years.		400.00	3200.00		6 months.	Not stated.	6 months.	312	176.70	12812.70	19
6 months.	None.	About 1 year.	312	285.00	3285.00	63	7 months.	Not stated.	2 years.	780	1709.50	14189.50	56
6 months.	None.	1 year.	168	608.00	18983.00	25	2 months.	Not stated.	6 months.	316	214.80	11906.80	25
10 weeks.	About 1 week.	About 7½ mos.	208	124.00	8124.00	25	6 months.	Not stated.	1 year.	421	474.40	6200.00	59
6 months.	None.		156	280.00	6280.00	22	9 months.	Not stated.	Not stated.	780	873.00	32463.00	22
3 months.	None.	2 years.		125.00	7625.00		6 months.	Not stated.	3 years.	1040	748.00	28,000.00	40
4 yr., 11 mos.	Not stated.	5 years.	468	3397.00	15007.00	39	10 mos. 2 wks.	Not stated.	8 months.	468	468.50	19422.50	20
1 year.	None.	1 year.	545	725.00	19100.00	25	5 months.	Not stated.	8 months.	754	450.00	28498.80	26
2 months.	5 months.						2 weeks.	7 months.	7 years.	520	279.00	16035.00	37
1 year.	None.	About 1 year.		393.00	5343.00		1 year 5 mos.	4 months.	13 years.	520	896.00	14572.00	42
3 months.	None.						6 months.	Not stated.	4 years.	260	405.50	10935.00	24
1 year.	8 years.	About 8 years.		1500.00	19500.00		5½ months.	4 months.	9½ months.	468	624.75	19578.75	21
1 month.	7 months.	9 years.	2496	1748.50	76148.50	34	2 months.	Not stated.	7 years.	468	123.85	13227.85	33
2 months.	5 months.	About 10 months.	150	23.00	8158.00	30	2 months.	6 weeks.	1. 8 months.	13 0	490.90	39490.90	34
6 months.	None.	6 months.	390	175.00	10815.00	40	9 months.	Not stated.	1. 1 year.	936	720.00	10036.00	54
1 year.	2 months.			810.00	32040.00		2 months.	Not stated.	1. 4 months.	312	101.10	14541.10	17
13 months.	Not stated.	5 years.		832.60			2 months.	Not stated.	1. 2 months.	260	96.50	9716.50	28
3 months.	1 year.	1 year.	312	411.00	10361.00	32	3½ months.	Not stated.	1. Not stated.	468	162.60	12116.00	44
2 years.	None.	2 years.	312	1430.00	13430.00	18	3 months.	Not stated.	1. 1½ years.	360	114.00	16914.00	43
7 months.	None.	About 6 months.	514	339.35	10239.35	44	2 months.	None.	1. 2 months.	360	48.00	9228.00	42
6 months.	10 months.	1 year, 3 months.	468	509.00	14450.00	30	2 yrs., 9 mos.	3 months.	1. 8 years.	600	1626.00	15426.00	44
3 years.	None.	2 years.	1250	4925.00	46925.00	24	2 months.	2 months.	1. 10 years.	1560	2034.00	26394.00	54
3 years.	None.	3 years 2 months.	624	2144.00	8144.00	62	6 months.	None.	1. 6 months.	468	3.50	14043.50	36
6 weeks.	6 months.	1 year.	702	500.00	20725.00	35	1 year 2 mos.	Not stated.	1. 1 year.	468	218.50	10982.50	45
7 months.	4 months.						6 weeks.	Not stated.	1. 7 years.	624	1225.00	9711.40	57
9 months.	2 years.	3 years.	468	842.00	11642.00	40	Not stated.	2½ years.	1. 18 months.	832	585.00	19721.00	43
2½ months.	1½ months.	4 months.	218	159.00	8559.00	21	2 yrs., 3 mos.	Not stated.	1. 10 years.	156		4062.80	43
¾ month.	None.	2 months.	208	280.00	6280.00	19	4 months.	Not stated.	1. 3 years.	936	553.00		29
7 months.	2 months.	7 months.	468	848.00	12098.00	34	None.	None.	1. 2½ years.	936	521.00	27601.00	35
4 weeks.	None.	1 year.	260	288.00	7163.00	40	19 days.	Not stated.	1. 1 to 3 years.	868	5.50	26045.50	35
5 months.	2 months.	7 months.	624	694.00	20494.00	29	4 years.	Not stated.	1. 4 years.				34
1 year.	2 months.						1 week.	About 1 year.	1. 30 years.	468	2911.00	12177.40	51
4 months.	4 months.	1 year 1 month.	390	206.00	7706.00	50	4 months.	Not stated.	1. 2 to 3 months.	468		14040.00	43
None.	None.	3 years.			24750.00		3 weeks.	Not stated.	1. 5 years.	676	307.00	20587.00	36
None.	None.	4 months.		250.00			4 months.	Not stated.	1. 2 months.	416	89.70	15481.70	27
20 months.	Not stated.	20 months.	468	1353.70	13053.70	40	4 months.	Not stated.	1. 4 months.	468	182.00	5330.00	63
10 months.	None.	3 years.	1300	870.00	16770.00	59	8 months.	Not stated.	1. 8 months.	524	528.20	25780.20	21
1 year.	None.	5 months.	400	758.00	11278.00	41	5 months.	3½ months.	1. 4 years.	780	2028.50	19968.20	44
9 months.	None.	12 months.	450	670.00	13725.00	33	1 year.	Not stated.	1. 2½ years.	832	1019.00	25970.00	37
4 months.	2 months.	6 months.	370		8510.00	33	4 months.	Not stated.	1. 4 months.	314	122.10	8880.30	41
6 months.	3 months.	1 year.	750		18250.00	44	1 month.	2 months.	1. 9 months.	624	126.00	18846.00	34
3 months.	None.	6 months.	450	142.00	11977.00	40	1 year.	Not stated.	1. 13 months.	780	792.00	13272.00	56
3 months.	3 months.	8 months.				55	3 weeks.	Not stated.	1. 1 year.	156	29.25	6347.25	20
6 weeks.	None.	18 months.				54	3 weeks.	Not stated.	1. 3 months.	520	67.00	1937.00	27
8 months.	None.	3 years.	1000*		30000.00	74	1 week.	1 month.	1. 12 months.	390	22.60	11722.50	34
3 months.	2 months.	2 years.	300		10800.00	23	3 months.	4 days.	1. 7 months.	286	103.50	11688.50	22
3 years.	2 years.	About 5 years.	225	1415.00	10527.50	20	Not stated.	4 months.	1. 4 months.	390	243.00	7965.00	51
3 months.	None.	1 year.	225	139.00	7699.00	30	Not stated.	Not stated.	1. 2 years.				12
7 months.	5 months.	8 years.	750	751.00	15601.00	51	1 month.	6 weeks.	1. 1 year.	546	100.00	20411.20	34
9 months.	1 month.	10 years.	300	735.00	3215.00	26	2 months.	Not stated.	1. 2 years.	858	52.00	28537.60	32
6 months.	Not stated.	About 1 year.	375		13875.00	71	9 months.	1 year.	1. 1 year.	468	566.50	21392.50	17
3½ months.	None.	2 to 4 months.	275		7700.00	87	13 weeks.	Not stated.	1. 6 months.	624	6.60	23220.80	25
4 months.	2 years.					50	14 months.	2 years.	1. 4 years.	468	1013.00	11681.00	38
10 months.	6 months.	1 year.				56	3 weeks.	Not stated.	1. 2 years.	780	78.10	31668.10	22
10 months.	7 months.	10 years.				35	6 months.	Not stated.	1. 6½ months.	244	159.00	7479.00	33
2½ months.	None.		600*		24300.00	18	10 months.	Not stated.	1. 10 months.	468	402.00	17718.00	25
3 months.	3 months.		500				6 weeks.	5 months.	1. 1½ years.	1170	435.00	31206.00	39
3 months.	None.	1 year.				37	4 months.	3 months.	1. 8 months.	468	263.00	19217.00	30
4 months.	4 months.		225	222.00	6139.50	38	1 week.	6 weeks.	1. 6 months.	468	77.50	15537.60	20
4 months.	15 months.	2 years.	450	500.00*	18725.00	20	3 months.	Not stated.	1. 26 years.	676	856.00	23299.20	31
3 weeks.	7 weeks.	7 weeks.					3 weeks.	1 week.	1. 1 month.	780	62.40	25958.00	29
3 months.	None.	4 years.	300	142.00	7042.00	44	8 months.	Not stated.	1. 8 months.	669	832.00	18190.00	42
1 year.	1 year.	2 years.	500*	1425.00	19425.00	23	7 weeks.	Not stated.	1. 5 months.	416	77.00	16925.00	19
1 year.	Not stated.	About 2 years.		465.00		27	5 months.	Not stated.	1. 6 months.	364	163.00	14905.00	20
2 months.	4 months.		600	228.00	21228.00	23	7 months.	Not stated.	1. 20 years.	764	439.00	31371.00	20
1 week.	None.	1 week.	375*	680.00	14555.00	25	1 year.	Not stated.	1. 1 year, 5 mos.	624	661.00	25933.20	38
2½ years.	None.	3 years.	450		9900.00	43	1 week.	3 months.	1. 3 months.	520	52.20	13728.20	20
2 months.	None.	9 months.	1200		27600.00	45	Not stated.	Not stated.	1. 2 years.		10.00		64
1 year.	Not stated.	18 months.	360	535.00	13855.00	24	3 months.	Not stated.	1. 8 months.	338	94.50		
8 months.	None.	2 years.	750	810.00	25710.00	32	5 months.	Not stated.	1. 2 years.	390	201.00	14631.00	24
2 months.	1 year.		300	361.00	8251.00	42	7 months.	Not stated.	1. 7 months.	520	566.00	14242.00	25
2½ months.	None.	4 months.	600	146.00	15926.00	42	5 months.	2 weeks.	1. 5 months.	234	177.00	10707.00	17
3 years.	None.	18 months.		885.00		66	2 weeks.	Not stated.	1. 1 year.	520	26.00	7098.00	62
17 months.	None.	3 years.	1800	8828.00	28328.00	66	Not stated.	Not stated.	1. 5 months.		8.00		22
3 years.	None.	17 months.	400	828.00	14108.00	31							

TABLE 1.—WAGE EARNING MALES—Continued.

Period of total disability.	Irregular work at reduced wages.	Duration of disease to time of death.	Annual income.	Total money loss incurred.	Potential loss.	Age.	
5 months.	Not stated.	1 year.	416	\$ 668.00	.....	20	
6 months.	3½ years.	8 years.	936	3530.75	.....	66	
10 months.	None.	10 months.		47.85	.....	
6 months.	Not stated.	6 months.		300.00	.....	
4 months.	None.	1 year.		200.00	.....	
2 months.	None.	3 years.	220	494.00	.....	39	
3 months.	Not stated.	9 months.		236.20	.....	
1 year.	4 months.	4 years.	720	1895.00	.....	26	
1 year.	Not stated.	14 months.		234	978.00	.....	29
7 months.	1 year.	1 year, 7 months.	780	616.00	.....	66	
1 year.	Not stated.	About 5 years.	300	500.00	.....	36	
5½ months.	4 months.	9 months.	858	754.00	.....	30	
10 months.	Not stated.	5 years.		6·9 15	16538.00	.....
6 months.	4 years.	10 years.	312	4788.00	.....	44	
6 months.	2 years.	2 to 3 years.	1300	1640.00	40540.00	.....	36
3 months.	2 months.	1 year.	720	206.00	21806.00	.....	33
6 months.	None.						
1 month.	Not stated.						
3 years.	2 years.	3 years.	312	1200.00	3900.00	.....	67
1 year.	Not stated.	About 7 years.	312	853.00	4603.00	.....	58
6 mos., 1 wk.	10 months.		312	549.20	11049.20	.....	28
1 year.	Not stated.	13 months.	624	793.00	16200.00	.....	38
2 years.	Not stated.	2 years.	624	1540.00	7540.00	.....	62
6 months.	Not stated.	6 months.	312	227.00	10729.00	.....	27
1 year.	6 months.	18 months.		614.25	1440.00	.....
2 months.	None.						
1 year.	None.		624	528.20	20028.00	.....	21
1 month.	6 months.	1 year.		253.00	12852.00	.....
6 months.	18 months.	3 years.	1300	2505.00	29505.00	.....	42
2 months.	2 years.	4 years.	468	2325.00	24825.00	.....	34
5 weeks.	None.	5 weeks.	390	202.50	.....	37	
3 months.	2 months.	6 months.	156	163.00	4063.00	.....	40
1 year.	Not stated.	17 months.	156	524.00	10424.00	.....	37
3 weeks.	Not stated.	About 3 years.	260	29.00	3779.00	.....	53
4 months.	None.	18 months.	343	871.00	27871.00	.....	35
1 year.	None.	2 years.	468	555.00	14055.00	.....	34
1 year.	Not stated.	1 year.	720	2100.00	22500.00	.....	29
10 months.	None.	10 months.	432	1130.00	19994.00	.....	25
1 year.	None.	1 year.	480	8331.00	.....	53	
2 years.	5 years.	7 years.		1730.50	11530.00	.....

Total number of males, 258.

TABLE 2.—WAGE EARNING FEMALES.

Period of total disability.	Irregular work at reduced wages.	Duration of disease to time of death.	Annual income.	Total money loss incurred.	Potential loss.	Age.
3 weeks.	Not stated.	1 year.	\$ 250	\$ 178.70	\$ 8478.70	30
4 months.	None.	4 months.	416	592.00	17440.00	31
3 years.	3 months.	3 years.	300	2335.00	10225.00	39
9 months.	None.					
2 months.	None.		250	100.00	7340.00	33
4 months.	None.	7 months.	600	434.00	16214.00	42
7 months.	None.		450	1439.05	12739.05	38
3 months.	6 months.	2 years.	350	.....	12600.00	24
7 months.	None.		75	.....	3900.00	13
7 months.	None.	7 months.	150	354.00	.....
3 months.	None.	1 year.	225	102.00	8659.00	25
5 months.	None.	10 months.	156	.....	6318.00	18
1 week.	None.	Several years.				
2 months.	None.	3 months.				
2 years.	None.	3 years.	208	735.00	8016.00	27
3 months.	3 months.	Not stated.				
3 months.	Not stated.	4 months.	65	71.00	2931.00	13
6 months.	Not stated.	1 year.	260	.....	9560.00	23
5 months.	Not stated.	Not stated.	300	785.00	10745.00	31
2 years.	Not stated.	18 months.	225	382.00	4807.00	52
1 year.	6 months.	1 year.	105	311.00	2390.00	48
6 months.	None.	8 months.				
13 months.	Not stated.	1½ years.	225	540.00	7402.50	36
None.	None.	4 months.	300	.....	.....
12 months.	None.	18 months.	120	120.00	4980.00	19
5 months.	None.	13 months.	225	230.00	7700.00	30
7 months.	None.	14 months.	150	.....	6075.00	21
3 months.	None.	About 1 year.				
6 months.	2 months.	2 years.	225	410.00	.....
2 months.	None.		240	95.00	8978.00	32
6 months.	None.	2 years.	275	283.25	11420.75	22
6 months.	None.	8 to 10 years.	200	519.15	8119.15	44
6 months.	1 year.	6 months.	260	334.00	10864.00	19
6 months.	None.	7 months.	225	272.00	7742.00	32
4 months.	3 months.		264	141.00	9581.00	23
4 months.	None.	2 years.	900	1360.00	28360.00	37
1 year.	None.	1 year.				
3 months.	Not stated.	1 year.	300	455.00	11555.00	26
6 months.	None.	Not stated.	255	.....	11475.00	16
8 months.	Not stated.	Not stated.	300	.....	.....
5 months.	1 month.	6 months.				
2 years.	1 year.	3 years.	1200	.....	36000.00	36
3 weeks.	6 months.	1 year.	130	147.20	14463.20	32
7 months.	Not stated.	1 year.	208	141.00	6443.40	36
9 months.	6 weeks.	1 year.	104	228.60	2703.80	48
3½ months.	3 weeks.	1 year.	361	314.00	12398.80	32
7 months.	Not stated.	1 year.	364	119.00	6161.40	54
4½ years.	1 year.	1 year.	208	389.90	3132.30	46
1 week.	Not stated.	1 year.	78	25.50	3574.50	19
3 months.	Not stated.	1 year.	78	70.00	5985.00	25
2 months.	Not stated.	1 year.	247	119.00	9307.40	26
2 months.	Not stated.	1 year.	377	100.50	.....
9 months.	Not stated.	1 year.	78	180.90	4252.50	14
3 months.	9 months.	1 year.	360	235.00	19027.00	16
6 months.	Not stated.	1 year.	286	224.00	10833.00	28
6 months.	Not stated.	1 year.	156	891.00	3979.80	52
5 years.	Not stated.	1 year.	182	90.00	6860.40	29
3 mos., 1 wk.	Not stated.	1 year.	182	34.00	8315.00	19
2 months.	Not stated.	1 year.	130	60.00	3869.00	34
7 months.	Not stated.	1 year.	104	83.75	3952.55	24
10 months.	Not stated.	1 year.	204	497.00	4476.20	53
2 months.	Not stated.	1 year.	416	592.00	17440.00	21
4 months.	Not stated.	1 year.	108	178.75	3784.35	30
3 weeks.	Not stated.	1 year.	48	95.00	2255.00	13
6 months.	Not stated.	1 year.	208	83.00	.....
2 months.	Not stated.	1 year.	208	736.00	8132.00	27
2 years.	Not stated.	1 year.	208	.....	.....	25
3 weeks.	None.	1 year.				
1 month.	Not stated.	1 year.				
2 weeks.	5 weeks.	1 year.	236	27.00	8759.00	23
10 months.	Not stated.	1 year.	288	454.42	4371.24	24
4 months.	1 year.	1 yr. 11 mos.				

Total number of females, 70.

period of partial disability, disability when it occurred being total from the onset.

The longest period of complete disability reported was ten years; in one case each the period was six, five and four years; in six cases over three years; in six cases over two years; in eighteen cases over one year. The maximum yearly income interrupted by total disability was \$1,300. The greatest actual loss incurred incident to the disease was in a man of 66, who was totally disabled for three years, and suffered during that time a total actual loss of \$8,828 and a potential loss of \$28,628. The remaining economic loss appears in the succeeding tables. (Tables 1 and 2.)

A separate table was given for females, which may be of interest for comparison. Among wage-earning females the maximum annual income was \$1,200, the longest period of partial disability was one year, the longest period of complete disability one year. The greatest actual loss incurred was \$2,335, and the greatest potential loss was \$36,000 in a female aged 36 years, whose annual income was \$1,200, and who was totally disabled for two years. The next greatest potential loss among female wage-earners was \$28,360 in a female dead at the age of 37 years, whose annual income was \$800, and who was totally disabled for one year. (Table 2.)

All of the figures given on these tables and charts must be understood to represent a minimum with variable limits. It is naturally impossible to determine all the elements entering into a calculation of this character, though I believe that the total approaches accuracy in the majority of instances. It must be further understood that even when the estimate is complete a certain margin of profit must be allowed between the income received by the individual and its value to the community or state.

The average working period, the periods of disability, the curve of average wages are shown for consumptive wage-earners in the following series of six charts:

The first of these series (Chart 5) represents the average working period of 69 males decedent in 1903, showing the two terminal periods of partial and complete disability. Below are shown the average curve of wages of these periods and the maximum wages received by any one of the 69 persons. The band at the top represents the average working period of these 69 males. The first zone represents the period of partial disability and the second zone the period of complete disability. The vertical lines represent yearly periods.

By a study of the chart will be seen the average working period for these 69 males was eighteen years and six months. The period of partial disability then appeared, averaging eleven months, one week, followed by a period of complete disability of eleven months and three weeks, lasting up to the time of death.

The lower curve represents the average daily wage corresponding to these periods, which in this special series was \$1.65 during the period of their earning capacity, and the average of \$0.75 during the period of partial disability, and remaining at 0 from then on to the time of death. The upper curve indicates the maximum daily wages of this series. This man was aged 36 years at death, had a working period of fifteen years six months up to the time his earning capacity was first impaired by his disease; his daily wages were \$3 to \$6 during this period, declining during the period of partial disability to from \$1.25 to \$1.50 per day. This period of partial disability lasted two years, and was succeeded by a period of complete disability from two to six months, lasting up to the time of death.

Chart 6 gives the average working period of 123 males decedent in 1903, in whom there was no period of partial disability (disability when it appeared being complete from the onset). The average working period appearing on this chart is nineteen years, which is succeeded by an average period of complete disability of one year two months.

twenty years, followed by a period of partial disability of ten months and one week, and a period of complete disability which had lasted on an average of one year, eight months and two weeks up to the end of 1903.

The average original wages of persons of this series was \$2.50, the average reduced wages during the period of partial disability \$0.75.

The next three charts of this series deal with the average working period and average wages of consumptive wage-earning females.

Chart 8 indicates the working period of eight wage-earning females decedent in 1903, showing two terminal periods—one of partial and one of complete disability. The curve of average wages for the same period is shown below. The average wages range under \$1 per day during the period of partial disability. The average working period of this series is twelve years four weeks, the period of partial disability eleven months one week, and the period of complete disability four months one week.

The comparison of these three charts with the three

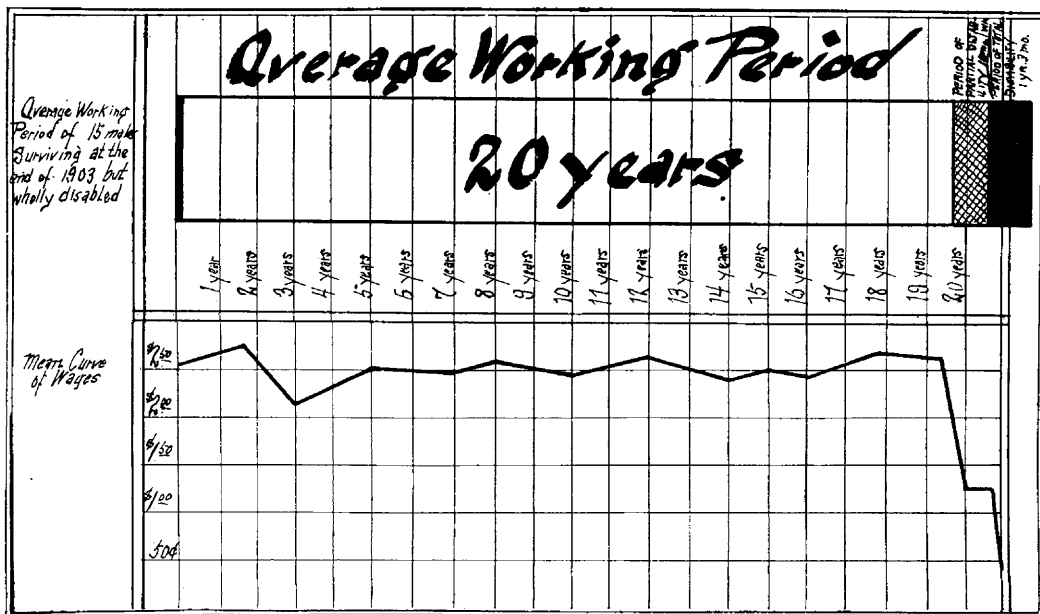


CHART 7.

As naturally appears in the chart, this series represents a class much lower in an economic scale, as the majority of persons making up this series worked continuously, pursuing their regular or irregular avocations until completely disabled and showing no period of partial disability.

The average daily wages during the nineteen-year working period ranges somewhat below \$1. The majority of persons in this series began work at a much earlier age than in the preceding series, and hence their average working period was comparatively less than really appears on the chart. The maximum daily wage among these individuals was \$6 per day, the working period of forty-five years, the period of complete disability three years and the age at death 66 years. The length of this curve has been shortened by a little over one-half in order to allow it to appear on the chart.

Chart 7 shows the average working period of fifteen males surviving at the end of 1903 but wholly disabled. The curve of wages for the same period is shown. The working period of the individuals of this series averages

preceding charts shows a number of interesting peculiarities in the working periods, periods of disability and curves of wages of females as compared to males. The small number of females showing any period of partial disability is peculiar to the sex, as an occupation once interrupted in the female by a course of chronic disease is seldom resumed. Change of occupation is also infrequent. The short average working period is also striking. Chart 5 may be taken as a fair average in which the working period is only nine years eight months, and is contrasted with eighteen years six months for the same class of consumptive wage-earning males. The shortness of the period of complete disability among the wage-earning females is probably accounted for by the fact that the majority of female wage-earners are very much younger than the male, and hence their disease takes a more rapid course.

Chart 9 indicates the average working period of 53 females decedent in 1903, in whom disability was never partial (being complete from the onset). The terminal period of complete disability is shown at the curve of

average wages. The average working period of these 53 females is nine years eight months; the period of complete disability is eleven months and three weeks. The average daily wages range below \$0.50.¹

The maximum wage-earner among these females was 37 years old at the time of death, having had a working period of eighteen years, during which time her

The curve of average wages had exceeded \$1 during this period.

A study of the course of each individual case of tuberculosis from the economic standpoint shows many,

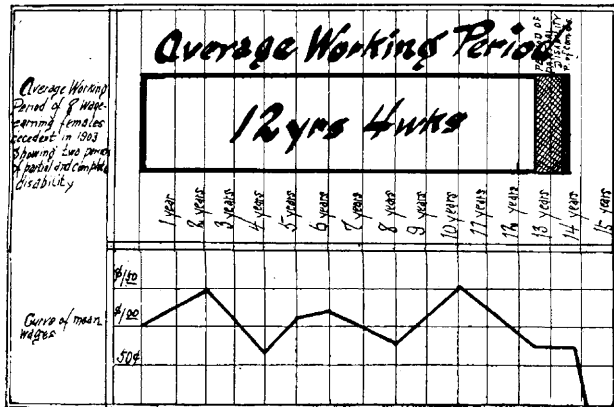


CHART 8.

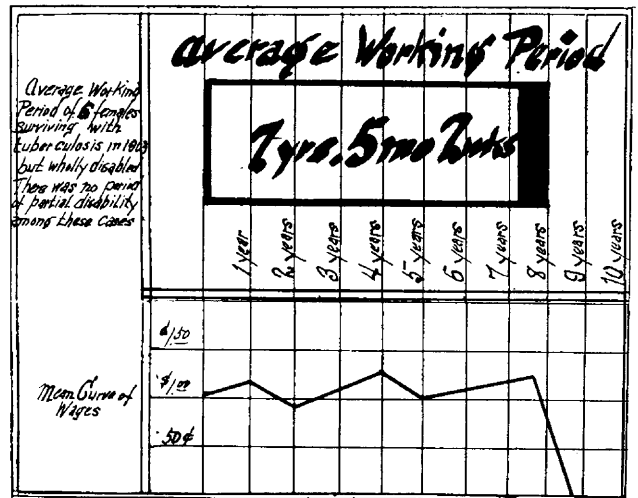


CHART 10.

daily income was \$3, declining to 0 during the one-year period of complete disability.

Chart 9 is the average working period of six females surviving with tuberculosis in 1903, but completely disabled. There was no period of partial disability among these cases. The curve of average wages is shown for the working period. The average working period

interesting relations. On the four succeeding charts the economic course is considered for each individual after each has reached the stage of impaired earning capacity. The 79 cases considered on these charts have been divided into four classes, according to the institutions or societies under whose care they were reported. Each case is traced from the time of its eco-

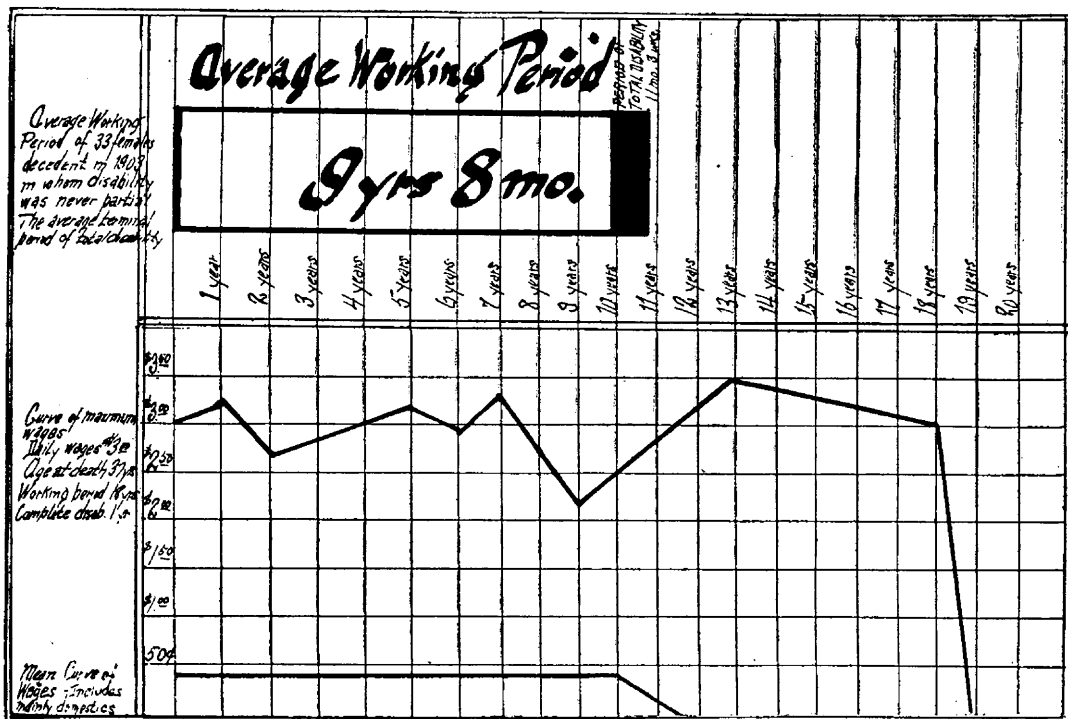


CHART 9.

among these females until completely disabled was seven years, five months, two weeks.

The average period of complete disability up to the end of 1903 had lasted seven months and three weeks.

1. This class includes a number of domestic servants in whom only the actual money wages is computed and no allowance made for board or lodging.

nomie impairment through the zone of partial disability, through the zone of complete disability to its final termination either in death or in recovery.

Chart 11 represents fifteen cases reported by the Johns Hopkins Hospital terminating fatally, and shows the individual economic course for each individual. The appearance of each case on the chart notes

its entrance in the period of partial or complete disability. The center band indicates the zone of partial disability, the shaded band below complete disability and the black band at the bottom of the chart indicates the zone of death.

The duration of each case in each of the zones mentioned is indicated by vertical lines, which correspond to the months. The duration of each case up to the time of its entrance into one or the other of these zones is very variable. The longest duration before the period of economic loss noted on the chart is 116 months, Case No. 3. In one case it was over six years and in one case over three years; two cases over two years and in one case over one year. Six cases, or a little over 40 per cent., the duration was over a year before there was any impairment of their earning capacity. In four cases the economic disability appears

Bay View Asylum receives the chronically sick and disabled of the city of Baltimore. No especial provisions are made for the treatment of the consumptives, and they can seldom be induced to enter the Municipal Hospital until the advanced stages of the disease has interrupted totally their economic powers. Nine of these cases had no period of partial disability, but passed at once into complete economic disability.

The longest duration before the period of economic loss among the individuals of this series was eight years. The next longest period was six years. In 9 cases the appearance of economic loss was apparently synchronous with that of the disease.

The class comprising this series represents on the whole a low economic level. A large proportion of these cases occurred among negroes, stevedores, berry-pickers and others having no regular occupations. Case

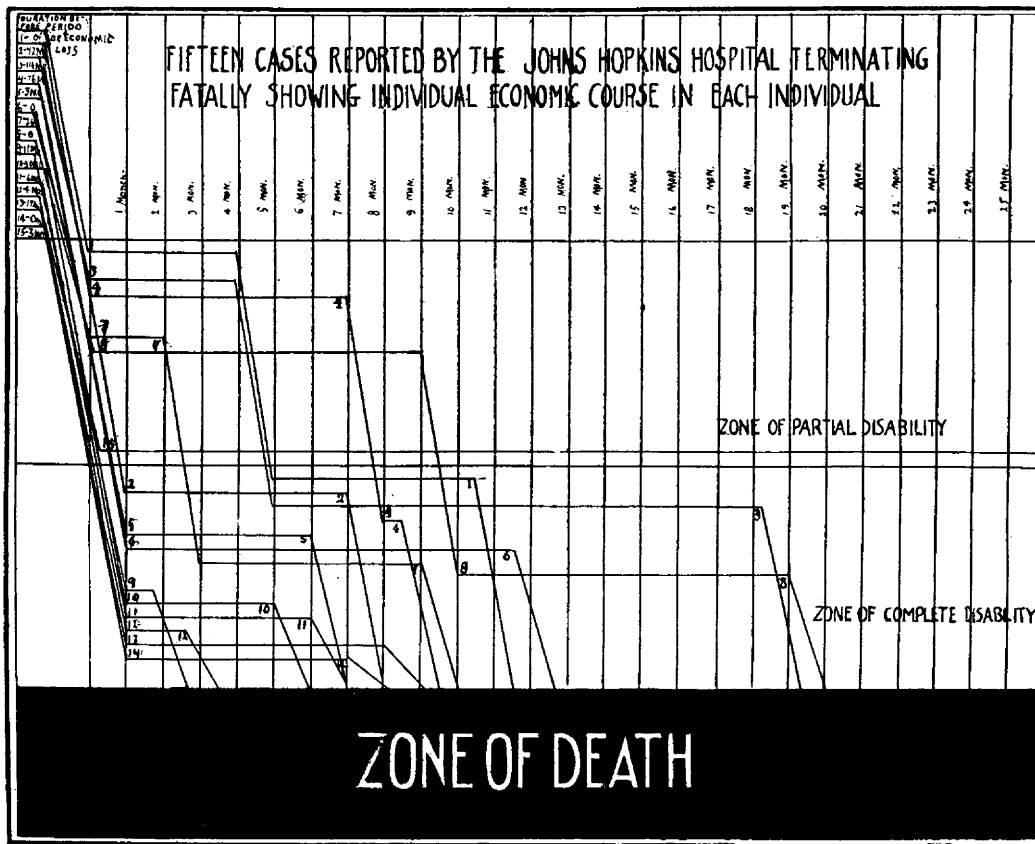


CHART 11.

synchronously with the onset of the disease. The longest period noted of any case in the zone of partial disability is over two years.

By examination of the chart it will be seen that 9 of these cases passed at once into the zone of complete disability, and did not remain at all in the zone of partial disability. In Case No. 7 the period of partial disability was only two months. He then remained in the zone of complete disability for six additional months, after which his course terminated in death. The shortest period of complete disability was two weeks in Case No. 4, which, after being partially disabled for seven months, became completely disabled only two weeks before his death.

Chart 12 of this series shows the economic course of 15 cases of tuberculosis reported by Bay View Asylum among wage-earners, 11 of which terminated fatally.

No. 1 of this series shows the least period of partial disability, and apparently takes a very rapid downward course at the onset of his disease, remaining only one week in the zone of impaired earning capacity, and only two months and one-half in the zone of complete economic disability up to the time of his death. Two cases of this series were completely disabled over two years; in 3 cases the economic course is not complete, as the cases were still living, although in the advanced stages of the disease in 1903.

Chart 13 of this series represents the economic course individually shown of 15 cases reported by the Instructive Visiting Nurse Association, 9 of which terminated fatally. The series of cases shown on this chart includes mainly the very poor wage-earners, who have been reported by the various charitable societies of Baltimore usually after a very severe struggle to

maintain themselves in the upper zones of economic usefulness. The effect of this is plainly shown on the chart. In 11 of the 12 cases reported, the economic disability was complete from the onset and in only one case was there a period of partial disability. This patient, No. 1, who had maintained himself for six months in the zone of partial economic usefulness, sank into a lower level, and was completely disabled for over a month at the end of 1903.

This chart represents also the only case in the series in which there was return to a higher economic level after the original decline. This patient, after passing at once to the zone of total disability, in which he remained for three months, was able to resume light work for the period of three weeks, and was still working at the end of 1903.

Chart 14 of this series represents the economic course

two months and one-half, and in five cases it was over two years.

The economic course was not determined in six individuals, who were still surviving at the end of 1903, though in the advanced stages of the disease.

Chart 15 of this series shows the average economic course of consumption in the four classes of cases reported on the preceding four charts. The shortest average in the period of partial disability is shown by the Charity Organization Society and the Association for Improving the Condition of the Poor, average one year four months. The average period of partial economic disability reported in cases from Bay View Asylum is nine months and nine days; for Johns Hopkins Hospital, eight months and six days; the Instructive Visiting Nurse Association, one week and one day. The longest average of complete disability was reported from

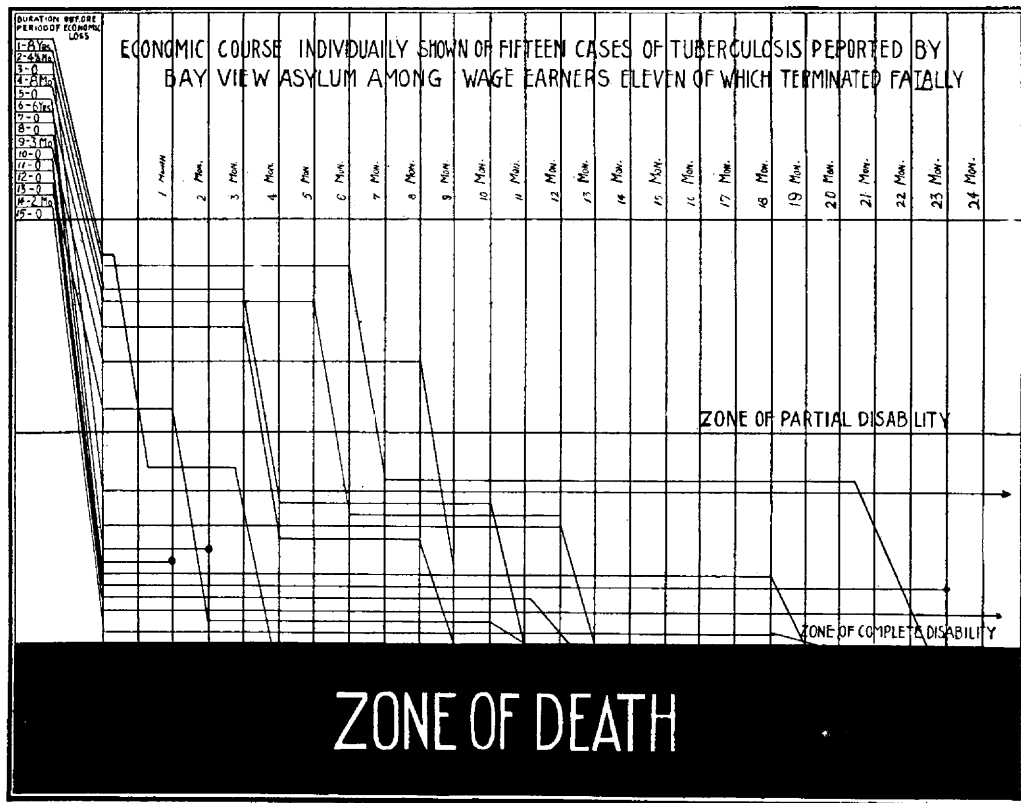


CHART 12.

individually shown for 27 cases reported by the Charity Organization Society and the Association for Improving the Condition of the Poor among wage-earners, 15 of which proved fatal. This series represents largely the same class of cases from which the preceding series was drawn, although showing on the whole a class much higher in the physical and economic scale.

In 17 of these cases, or over one-half, however, there was no period of partial disability. The longest duration for the disease before the appearance of economic loss in this series was nine years, in five cases over four years, one case over two years, in three cases over one year. In 9 cases the period of economic loss was synchronous with the onset of the disease. The average period of partial disability among these cases was one month and one-half; in two cases it was over two years. The shortest period of complete economic disability was

Bay View Asylum in the average of two years, six months one day; Charity Organization Society and Association for Improving the Poor, one year; Instructive Visiting Nurse Association, eight months, one week, five days; Johns Hopkins Hospital, five months three days.

There are few special conclusions to be drawn from this economic study, not self-evident, other than the fact that it is possible to determine accurately one item of the many losses due to pulmonary consumption, viz., the personal loss falling on the individual incident to his disease, and to determine from this the potential loss caused by the economic elimination of the individual from the field of production.

I have briefly reviewed a few of the fallacies and inaccuracies resulting from general studies made without reference to the factors peculiar to tubercular diseases, and I hope to have sufficiently indicated the simplicity

and facility with which economic studies can be made on the consumptive individual and the superior accuracy of the conclusions based thereon.

DISCUSSION

ON PAPERS OF DRs. PRICE AND KNOPF.*

SURGEON-GENERAL STERNBERG, Washington, D. C., said that in Washington the great difficulty is that all legislation must come through Congress, and it is extremely difficult to get action. Grand public structures are built there and elsewhere, but a very earnest effort to get \$150,000 for a tuberculosis hospital failed. There is nothing of that kind in the district, although patients are scattered over the city who should be treated in sanatoria, but are unable to secure proper treatment on account of failure to get an appropriation from Congress for such an institution. Dr. Sternberg asked members of the Section to use their influence with members of Congress in impressing on them the necessity of doing something for Washington, which, unfortunately, has a higher

living on the main streets are often unconscious of the fact that there is such a population on these interior alleys. That is where the "lung blocks" are. During the past winter physicians were able to get through the house a very satisfactory bill. The bill went to the Senate and was referred to a committee, the chairman of which was, unfortunately, down on the health officer. He opposed the bill and the whole thing has been knocked endways because he has brought in another bill as a substitute which is unsatisfactory to the physicians of Washington.

DR. CRESSY L. WILBUR, Lansing, Mich., stated that usually vital statistics fall short of reaching their full degree of usefulness. Physicians are content if they can compare the death rates, and the study of disability and loss of time is something that few vital statisticians have gone into. Dr. Price's figures will convince members of councils and legislatures that it is important to guard the public health. Dr. Wilbur called attention to the way in which the committee has undertaken to counteract the pernicious and false adver-

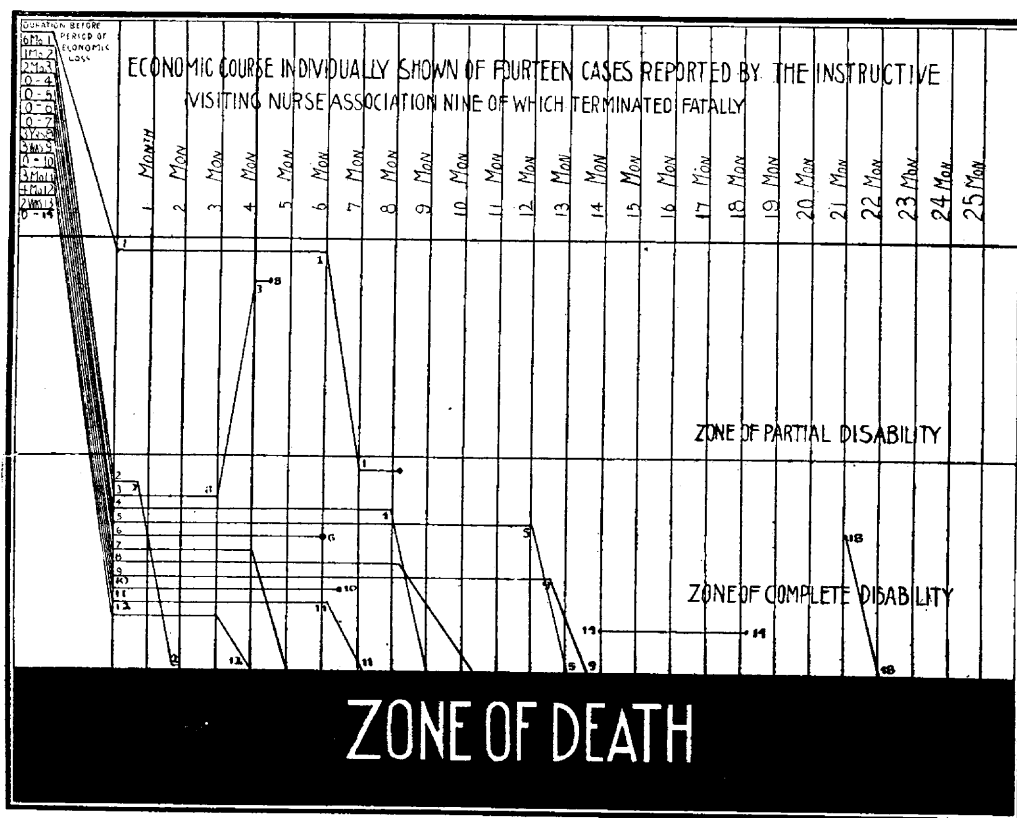


CHART 13.

death rate from tuberculosis than any other city in the country, with the exception of Los Angeles and Denver, where people go to die. This is due to the large colored population, and to the bad housing conditions among the lower classes. There is an enormous infant mortality in Washington, and though it is a rather disgraceful thing, Dr. Sternberg thinks the truth should be known. The infant mortality is higher than that of New York City, and the general death rate is much higher than that of New York City or of Chicago, although not so high as that of some of the southern cities. This high death rate is a result of the very large colored population, and of the insanitary conditions under which many of them live. For years physicians have been trying to get a law providing for the condemnation of insanitary houses. There are large numbers of frame shacks down on the ground, without any ventilation under the floors, and without any water in the house, and without sewer connections. These buildings are hidden away in the centers of the squares, and people

tising in regard to specific medical treatment for consumption. He is afraid, however, that this circular will not appear with the frequency and force necessary to warn the public. These advertisements appear every day, and consumptives are led to use these methods of treatment when, if they resorted to local medical advice, they might be in time to prevent the occurrence of more serious symptoms. In Michigan there were one or more of these institutions, and Dr. Wilbur mentioned one rather pitiful case of a mother whose child was in a very advanced stage of the disease, who applied to the managers of one of these institutions, and afterwards tried to get a death certificate from them. They were not in a position, under the medical registration law, to issue a certificate, as they could have been punished in court for giving medical advice and treatment without being registered physicians.

DR. J. M. BARRIER, Delhi, La., stated that this subject is of great interest to people in the south. Tuberculosis is much more prevalent in the negro race than in the white race. During the last few years, since the negroes are leaving the

*The paper by Dr. Knopf appeared in THE JOURNAL Feb. 11, 1905.

agricultural districts and are flocking to the cities, tuberculosis is rapidly increasing, not only in the large towns of Louisiana, but in the smaller towns, and very little has been done toward improving these conditions. A committee is appointed at nearly every meeting of the state society to make an investigation and to report, and that is about all that is accomplished. There is no question but that the sanatoria treatment is the treatment for consumption. The profession has accomplished much, and the subject has been studied from almost every standpoint. The public has been kept informed of the improvements in the manner of treating this disease, not only as a disease affects the state from an economical standpoint, but from a social standpoint, and from nearly every standpoint. The only way in which physicians can get what they need is just simply by making a demand for those things; in other words, going into politics. Dr. Barrier said that, of course, nothing can be accomplished, politically speaking, in Louisiana until the profession is better organized, and until a sufficient number unite and can go

guard to sanitary laws. He was glad to say, however, that the twilight is breaking over the mountain tops, and when the next legislature convenes the sun will have fully risen. An honored member of the medical profession is governor of the state, and one of his first acts was to appoint an efficient state board of health. In the absence of adequate laws efforts have been made to accomplish something by organized effort. Southern California is one of the places where tuberculosis patients go to die; that is to say, many go and do die, and Dr. Browning referred to the cruelty that is perpetrated by physicians in sending patients out there without money, without friends and alone. Young people come there and go into tents, sheds and shacks, or any place that will afford them shelter. Two sisters went there with less than \$5 between them, because they had heard that orange packers got from \$1 to \$1.50 per day. Under the auspices of the Southern California Medical Society an organization was perfected in December, 1903, known as The Anti-tuberculosis League. They have accomplished their work in this way: One of the

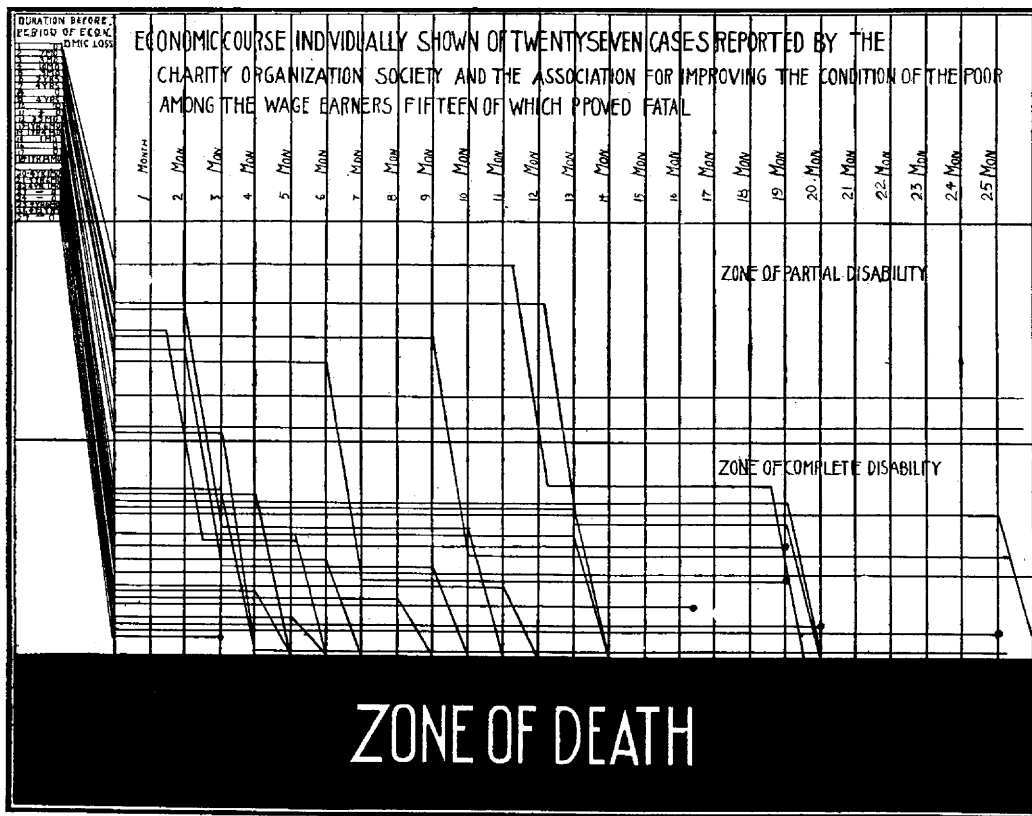


CHART 14.

to the politician and say to him that they want certain things done. For instance, in Dr. Barrier's county, when a man is running for the legislature they say to him that the parish has passed a certain resolution and ask him how he is going to vote when this question comes before the house. The politician is very much like putty, and when it comes to getting votes he will change his platform if it is necessary. If physicians will simply get together and demand what they want they will succeed in accomplishing good results.

DR. C. C. BROWNING, Highland, Cal., stated that Dr. Knopf, in order to accomplish his results with the kind of politicians he describes, recalls the maxim of David Harum, which was: "Do to the other fellow as he would do to you, but do it first." He should get hold of the politician last, or some other fellow will get him and mold him in his own way. Dr. Browning called attention to the matter of individual effort. He said that he realizes when looking over the splendid laws of some of the eastern states that the sun rises first on the people of the east. It reaches California later, that is, in re-

members of the committee, who was in touch with one of the county board of supervisors, obtained from the superintendent of public instruction the number of families in the county represented in the schools. With that information he went to the board of supervisors and explained to them the nature of the literature that it was proposed to publish, and at the close of this conversation with the supervisors he suggested that the superintendent of public instruction might distribute these circulars as he visited the schools, which he does each year. The president of the board inquired how many would be needed for the county and was told. A motion was immediately made that the board pay the expense of printing these circulars. Now, within six months, four counties have paid for 120,000 of these circulars, and they are being distributed through the schools. The interest of the county superintendent of schools is very valuable, because at the teachers' convention he may call some competent physician to deliver an address on how these circulars should be used. That is one

way of getting this matter before the people in a manner in which it will be read, because the parents are apt to read what the children bring home from school. If the people become sufficiently interested in this subject then it will not be the physician alone who will demand legislation, but the people at large. In reply to a question Dr. Browning stated that tuberculosis is not very prevalent among natives of Los Angeles, but, of course, a certain number contract it, and nearly all of these patients die quickly.

DR. H. M. BRACKEN, Minneapolis, said that recently he visited a state sanatorium in course of construction. It was most disappointing—a big brick building, four stories high, located in the woods. It reminded him more of an asylum or prison than of a place in which to care for incipient tuberculous individuals. He visited also a municipal sanatorium that was all it should not have been. Each of these institutions cost about \$225,000, and each will accommodate about 80 patients, which means a cost per patient for housing of nearly \$3,000. There are but few cities where the sani-

these bodies give only money, more good can be done with it than if they were to give institutions and appoint the people to govern them. The state authorities should be urged to provide for tuberculous individuals in state institutions. Very few, if any, states have made proper provision for the care of their tuberculosis wards. A few years ago Dr. Bracken visited a state institution where tuberculosis was very general, indeed, the infection passing from one inmate to another. This was in an overcrowded reformatory. A farm plan might easily have been adopted for that institution and, in that way, much might have been done to prevent general infection of the inmates.

DR. W. G. YOUNG, Washington, D. C., asked what has been the effect of the establishment of different sanatoria and homes for consumptives in different localities, on the inhabitants or the natives of those localities. It seems to him that if an individual is afflicted with such a dangerous source of infection that he could be legally removed from a tenement district, that the segregation of such individuals in homes pro-

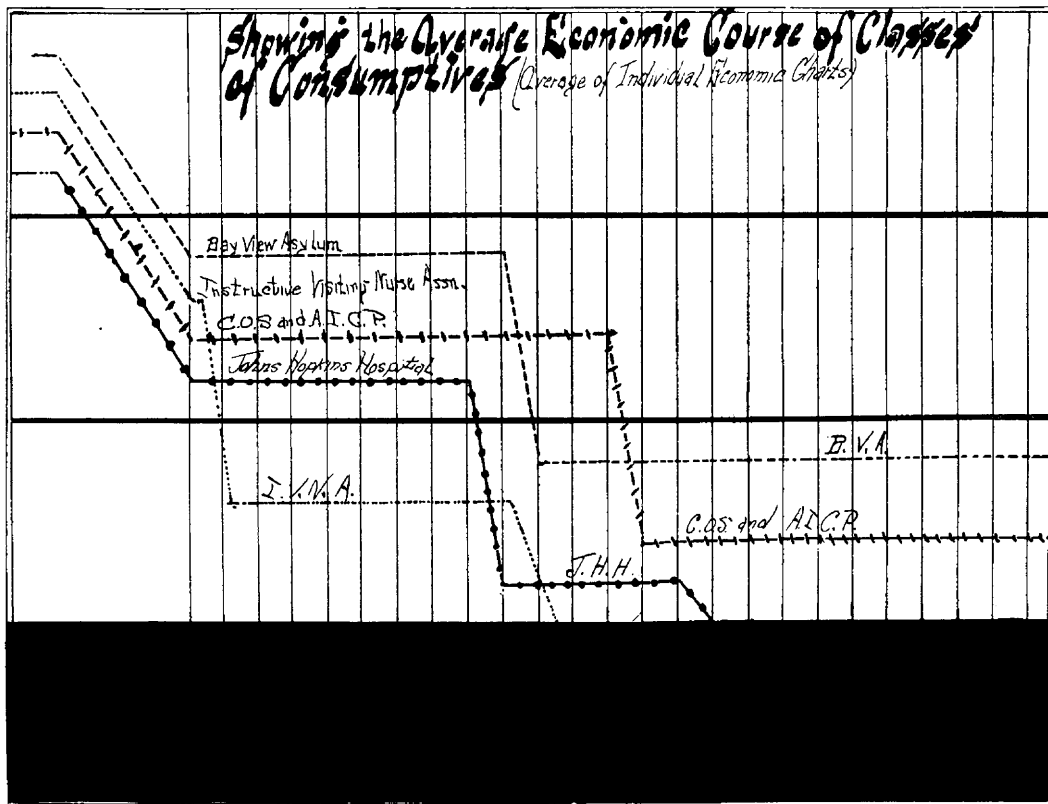


CHART 15.

tarian can secure any great amount of assistance from the municipal authorities to aid in this work. Medical men working with laymen through independent organizations will accomplish more good than is possible through any municipal government alone. An organization under the control of an unselfish board of directors often can expend money to much better advantage than can municipal or state officials. In Pennsylvania much has been done in caring for the tuberculous, although no sanatorium as yet has been established by the state. This work has been carried on by the charitable organization known as "The Free Hospital for Poor Consumptives." The state has given some money to this organization, which has been expended to much better advantage, and has accomplished more than could have been accomplished through a state institution. There is a tendency to spend too much money per capita in the housing of state tuberculous patients. When there are good organizations in cities and states, made up of laymen and physicians, they can then go to the governing powers and ask for aid. If, under such circumstances,

provided for them is likely to be a source of trouble, and unless some rules are adhered to it must be dangerous to the district. Dr. Young agreed with Dr. Sternberg in saying that the members of the Section can help very much as a Section and as individuals. Citizens of Washington have no senator and no vote. In other words, they are simply blank units, and will have to ask the help of the outside boards.

DR. G. A. HARE, Washington, D. C., said that it seems to him a most important thing that a crusade of education be waged against tuberculosis. The only hope for success is by continual agitation. The facts must be brought before the people who are interested. Fifteen years ago fear of tuberculosis drove him west, and he has seen people by the thousands go into California only to die—most of them died from lack of knowledge. The economic problem has been forced on his mind many times, and he feels certain to-day that if a campaign of education is waged, as has been done in Michigan, New York and other places, great good will be accomplished. Dr. Hare does not believe that Dr. Barrier's plan is

a practical way to control this problem, because politics are influenced very largely by the present system of spoils, and there is not very much spoils for the politician in this proposition. It seems to Dr. Hare that if physicians would educate the people by giving them the facts and the results of the experiments that have been made, they could secure their co-operation in this work. Let it be known that every resident of every state is threatened by the present insanitary conditions because the poor and the unfortunate people in their district who suffer from tuberculosis are not properly provided for; and this very fact of itself will be sufficient, if it is made a matter of common knowledge, to secure a great deal of relief from philanthropic people and to mold a public sentiment that will demand legislative relief. The indirect economic side of this question is enormous—the deprivation to the family because of the lessened amount of wages earned, the impoverished feeding, the insufficient clothing, all of which lessen the vital resistance to this disease, and increase the dissemination of tuberculosis poison. These are some of the indirect effects which are in themselves extensive factors.

DR. S. A. KNOPF said that when a national association for the purpose of fighting tuberculosis in our country was formed, a distinguished professor of Johns Hopkins said that in the solution of the tuberculosis problem we must look for enthusiasm to the young men in the profession. Dr. Knopf indorsed everything said by Surgeon-General Sternberg concerning tuberculosis in the capital. The readers of the daily papers of New York were very much impressed by an account recently published by Jacob Riis, one of the most distinguished practical philanthropists in New York, of visits he had made to those dark alleys located behind the fashionable residences in Washington, and the picture he drew of what he had seen was appalling. In the miserably built shanties there were six and eight people living in one room, diseased and healthy, male and female, indiscriminately huddled together. With the surgeon general, Dr. Knopf said that he earnestly appealed to every American citizen to be helpful in seeking to remedy these conditions, as a result of which tuberculosis is so frequent among the colored population in Washington. Dr. Knopf said that his paper was so long that he did not relate his experience of what is done by some of the unscrupulous quacks. All had heard of the many so-called Koch concerns. A poor woman came to Dr. Knopf for examination and treatment in the hope that he could do something for her. He asked her about her family physician; she said she had none. He then asked her who had been treating her, and she replied that the Koch people had been treating her for the last three months and had taken all her money. Dr. Knopf examined her and found that she was in the last stage of consumption. She told him that they had offered to continue treating her for nothing if she would sign a certificate to the effect that she had been suffering from tuberculosis in an advanced stage and that the Koch concern had cured her. The poor woman told them that poor as she was she could not commit such a fraud on the public. That gives an idea as to how these advertising "sure-cure" concerns get their certificates. Dr. Knopf agreed with Dr. Barrier that physicians should go into politics. He thinks that their duty is to go into politics, and where politics is impure to purify it, and in that way to make their influence felt for the good of the community. He does not think that it is at all degrading for the physician to enter politics for the good of his fellow-men. In reply to questions he stated that he began his medical career in Los Angeles, Cal., and there first became impressed with the necessity of doing something else than relying on the climate. In the county hospital of Los Angeles the wards were constantly full of consumptives; they had all gone to California in the belief that the glorious climate of that great state would cure them. They went there with nothing, or with only from \$10 to \$25 in their pockets; of course, most of them too far gone, not able to work nor able to take proper care of themselves in

time. Never was he more impressed with the criminality of sending patients so far away from home instead of allowing them to die in the midst of their own family than when serving as interne in the Los Angeles County Hospital. Only selected cases should be sent to Colorado or to California. Dr. Knopf believes in the climatic advantages of certain regions, but also believes that the majority of patients, who are of the laboring classes, must be treated in the same climate, or nearly the same climate, in which they have contracted tuberculosis, and in which they desire to remain after their restoration to health. It happens not infrequently, when a patient is sent to California and he gets well, that he comes back in a year or two, and the result is a relapse. Such patients, if sent to California or to Colorado, should be told to stay there. There are relatively few patients who can return with safety to the eastern climate. He certainly believes in educating school teachers. The New York Committee on Tuberculosis of the Charity Organization Society gave a number of lectures before the Teachers' College of the Columbia University. A tuberculosis hospital or sanatorium, in order to do the most good, should be established near a large city. It should preferably be situated on porous soil where there is as little traffic as possible, and should have protection from cold winds. Experience has taught us that the large pavilion system is the most convenient and best way to build a sanatorium. If institutions where many consumptives are kept are equipped and managed according to the modern conception of the prevention of tuberculosis, there is no danger. In five German sanatoria, which have been established for fifty years, the mortality from tuberculosis in the surrounding villages is about one-third less than it was before the establishment of these institutions. The inhabitants around the sanatoria almost unconsciously adopt the hygienic methods of the patients in the sanatoria. If the patient is under the care of a physician he will be careful, but the danger comes from the patient being up and about without any supervision. It has been said that appeal should be made to philanthropists. Dr. Knopf has appealed to philanthropists and shall continue to do it. If they would stop building churches, monuments and libraries for a little while and devote the money to the improvement of the condition of the poor by better housing, building of public parks and sanatoria they would bestow a great blessing on their fellow-men and will be very helpful in solving the tuberculosis problem.

RELATION OF SCHOOL METHODS TO SCHOOL DISEASES.*

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The inquiry which was inaugurated in the Section on Nervous and Mental Diseases at the New Orleans Session (1903) as to the relation of school methods to the production of neuroses and psychoneuroses and other "school diseases" revealed the fact that the data for such inferences were not yet available.

Such data can only accumulate from a carefully planned system of medical inspection of school children: 1. At the time they enter on the school curriculum. 2. At frequent intervals during the years they are in attendance on school.

Moreover, before the school methods can be charged with any injurious effects that may be observed, there are many other possible causes of such ill effects that

*The committee appointed by the Section on Nervous and Mental Diseases of the American Medical Association, at the New Orleans session, 1903, made this report to the Section at the Atlantic City session, June 7-10, 1904.