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RELATION OF SICKNESS TO INCOME AND INCOME CHANGE IN 10 SURVEYED COMMUNITIES *

Health and Depression Studies No. 1: Method of Study and General Results for Each Locality

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The ordinary barometers of health—death rates and reports of communicable diseases—do not indicate that harmful effects of the depression upon the health of the population as a whole have taken place. The comfortable conclusion is drawn by many that the physical well-being of the American people not only has not suffered but, in view of the continued low death rate,¹ may have been benefited

* From the Office of Statistical Investigations, U. S. Public Health Service, and the Division of Research, Milbank Memorial Fund.

This study was made also in cooperation with the international inquiry being carried out in various countries under the general auspices of the health organization of the League of Nations, the members of the American committee being Edgar Sydenstricker, Milbank Memorial Fund; Louis I. Dublin, Metropolitan Life Insurance Co.; Walter F. Willcox, Cornell University; and Selwyn D. Collins, U. S. Public Health Service.

This is the first of a series of papers on sickness and medical care among groups of white wage-earning families severely affected by unemployment during the economic depression. Preliminary papers, giving results for parts of the surveyed group, have been published as follows: Perrott, G. St. J., Collins, Selwyn D., and Sydenstricker, Edgar. Sickness and the economic depression, *Public Health Reports*, Oct. 13, 1933 (Reprint No. 1598). Perrott, G. St. J., and Collins, Selwyn D.: Sickness and the depression, *Milbank Memorial Fund Quarterly Bulletin*, October 1933, vol. 11, no. 4, pp. 261-298; January 1934, vol. 12, no. 1, pp. 28-34; July 1934, vol. 12, no. 3, pp. 218-224; *American Journal of Public Health*, February 1934, vol. 24, no. 2, pp. 101-107. Collins, Selwyn D., and Perrott, G. St. J.: The economic depression and sickness, *Journal of the American Statistical Association*, March 1934, Supplement 29, pp. 47-51. Perrott, G. St. J., Sydenstricker, Edgar, and Collins, Selwyn D.: Medical care during the depression, *Milbank Memorial Fund Quarterly Bulletin*, April 1934, vol. 12, no. 2, pp. 99-114. Sydenstricker, Edgar, and Perrott, G. St. J.: How unemployment affects illness and hospital care, *The Modern Hospital*, March 1934, vol. 42, no. 3, pp. 41-44.

¹ The death rate from all causes reached the lowest figure on record in the first half of 1933, but during the winter of 1933-34 mortality was on a slightly higher level than in corresponding months of immediately preceding years, except for periods in those years when influenza was epidemic. While the rise was slight, it is consistently evident in a large proportion of the 28 States for which preliminary figures are available. (See *Public Health Reports*, Nov. 9, 1934, Mortality from certain causes during the first half of 1934.)

by the economic catastrophe. Such a conclusion, based upon mortality statistics alone, is open to question. Even in the worst depression the families of the unemployed are a minority, and the trend of mortality in the total population does not necessarily reflect the trend in these severely affected households.

The assumption that *mortality* in the general population is an accurate index of *sickness* in the families of the unemployed is still less tenable. Recent morbidity studies² have shown that the important causes of death are *not* the most frequent causes of illness. The number of illnesses severe enough to be remembered and reported, even in relatively infrequent canvasses of households, is 75 to 100 times the number of deaths. For digestive, respiratory, eye, ear, and skin affections and the common communicable diseases of childhood, the disparity between sicknesses and deaths is even greater. In depending upon deaths to indicate trends in health we are relying on a small and probably biased sample of the cases of illness. The desirability of checking up on *all* illnesses before drawing conclusions from data based only on the *fatal* cases seems apparent.

Among the now well-recognized indexes of ill health are records of sickness. When properly obtained and analyzed, they reveal some of the reactions of human beings to immediate environmental factors in a far more sensitive degree than the gross death rate or even mortality by cause can possibly do. Since no national system for the complete registration of sickness exists, special records must be collected, a difficulty not without its advantages, since it permits information to be obtained for such groups and in such detail as may be desired. One phase of the study of health and the depression by the Public Health Service and the Milbank Memorial Fund utilized this method extensively. A sickness and mortality survey was made in 1933 of nearly 12,000 wage-earning families which had suffered from the depression in varying degrees of severity. Among the more specific purposes of the study were the following:

1. To ascertain whether or not there is any association between income changes during the depression and ill health as measured by morbidity and mortality.
2. If such an association exists, to discover what kinds of sickness are chiefly responsible for the association.
3. To determine the amount and kinds of medical care received by various economic groups of the people.
4. To study diets and housing conditions of selected families among the employed and the unemployed.
5. Using school records of height and weight, to study the growth of children in families of the "new poor" in the surveyed households as compared with children in families that remained in comfortable circumstances throughout the depression.

² Hagerstown Morbidity Studies, the Public Health Reports for Feb. 13, 1925, and June 14, 1927 (Reprints 989 and 1167), respectively; Morbidity in 18 States, Public Health Reports for Mar. 24, 1933 (reprint 1563), and Publication No. 27 of the Committee on the Costs of Medical Care, University of Chicago Press, 1933.

METHOD AND SCOPE OF SURVEY

The survey was made by house-to-house canvasses in 10 localities. These included eight large cities—Baltimore, Birmingham, Brooklyn, Cleveland, Detroit, New York (Borough of Manhattan), Pittsburgh, and Syracuse, a group of coal mining communities in the vicinity of Morgantown, W. Va., and a group of cotton-mill villages in the vicinity of Greenville, S. C. About 1,200 families were visited in each locality.

No attempt was made to select sections that would be representative of the city as a whole; only the poorer districts were canvassed. Slum areas were not included, because they would contain too many families who had never, even at the height of prosperity, been self-supporting. Well-to-do sections were omitted as being still above a standard of living that could affect health adversely, even though great decreases in income had taken place. Colored sections were excluded to avoid the question of racial differences in employment, income, and sickness. In blocks or streets that were surveyed, every white family was included, whether employed or unemployed and whether recently poor or never self-supporting. Those families whose breadwinners still had their jobs were to serve an important role in the study, viz, as a control group whose illness rate would be a yardstick which would be essential in interpreting the illness rates found for those who had suffered economic reverses.

Previous experience in sickness surveys indicates that a single interview of a housewife will not yield a reasonably complete record of illness for a longer period than about 3 months. Even for that period, one cannot expect to get all of the many minor respiratory and digestive conditions that caused no disability but would be reported as illness if visits were made at weekly or semimonthly intervals. With this limitation on the illness record that could be secured, the problem was to plan a survey, with only one visit to the households, that would nevertheless afford more than a comparison of illness rates among poor and comfortable or among employed and unemployed at or immediately preceding the time of the canvass. A feasible method seemed to be to obtain for each member of the family (1) a record of illness and medical care for the 3 months preceding the date of the canvass, and (2) a record of occupation, wages earned, and regularity of employment for each year from 1929 to 1932 of sufficient detail to compute the family income. These data enable us to relate current illness to *changes* in income during the depression as well as to present economic and employment status. The accuracy of the 4-year income record may be doubted; but this was a period of such tremendous changes in economic well-being that small errors did not interfere with a reasonably good classification of the families according to income change since 1929.

Although the enumerators were hired locally, the canvass in each city was in immediate charge of a person trained in the collection and tabulation of such data, who was assigned from the permanent personnel of the Public Health Service or the Milbank Memorial Fund. Because of the prevailing economic conditions it was possible to get exceptionally good enumerators. These enumerators canvassed families only after they had received careful instruction and had made trial visits with the local supervisor. All persons worked under uniform written instructions. Thoroughness, rather than speed, was encouraged in the enumerators. One of us (G. S. P.) acted as general supervisor and visited all but two of the communities either to start the work (select districts, enumerators, etc.) or to check the selections made by the local supervisor.

THE POPULATION SURVEYED

Number.--In the 10 localities, schedules were obtained from about 12,000 families. The data from 11,511 of these families, including 49,136 individuals, were finally coded and transferred to punch cards, and the remainder were discarded because of incompleteness of information on the schedule. In table 1 the percentage distribution of families in each locality is given according to nativity, occupation, employment status, and relief status. Only those families are included on which economic data were complete for the 4 years, 1929-32, as the major part of the sickness tabulations refer to this group.²

Nativity.--Considering the 8 large cities, in 40 percent of the families the male household head was native white of native parents, in 18 percent of foreign or mixed parents, and in 42 percent foreign born.³ The nativity of family heads varied considerably from city to city. Birmingham and Greenville were largely native white of native parents (95 and 100 percent, respectively), while in New York and Cleveland 60 percent of the family heads were foreign born (18 and 22 percent, respectively, native white of native parents). The racial stock of the group of foreign or mixed parents was largely English, Irish, and German, while that of the foreign-born group was more evenly distributed between English, Irish, Italian, Polish, and Slavic.

² Incomplete economic data prevented the use of 1,657 families in tabulations in which income classifications were made; 727 families whose heads were married since 1929 were omitted from tabulations where families were grouped by change in income between 1929 and 1932. This left a total of 9,127 families, including 40,184 individuals, in the 10 surveyed localities, on which economic data were complete for the 4 years and other information was reasonably detailed also. These families were used in all tabulations for the localities considered separately, when classification was made by income. For many tabulations the 8 large cities were combined into one group which comprised 7,436 families, including 31,635 individuals. The entire group of 11,511 families has been used in showing the association between illness and unemployment in 1932.

³ While no attempt was made to secure sample populations representative of the city, the nativity of the heads of surveyed families is similar to that of the 1930 census for each city (excluding Negroes) with the exception of Brooklyn and Syracuse. If the census data for each city are weighted by the number of families in the surveyed population, the average so obtained gives 40 percent native white of native parents, 23-percent native white of foreign or mixed parents and 37 percent foreign born, as compared with percent ages of 40, 18, and 42, respectively (see table 1), which were actually found in the surveyed families.

TABLE 1.—Percentage distribution of white wage-earning families¹ by (1) nativity of household head, (2) occupational status of chief wage earner, (3) number of wage earners in family in 1929 and 1932, and (4) families on relief at any time during 1932

Locality	Percentage distribution of families according to specified classification												Total number of families observed ¹			
	Nativity of household head			Occupational status of chief wage earner ²			Wage earners in family ³									
							1929			1932				Families on relief		
	Native—native parents	Native—foreign parents	For—foreign born	Usual or 1929 occupation		Percent unemp. employed, 1932	All unemployed		One or more part-time, no full-time		One or more part-time, full-time					
White-collar labor				Skilled labor	Unskilled labor		Family has in-come or pension	Other families with no workers	One or more part-time, no full-time	One or more part-time, full-time	Family has in-come or pension	Other families with no workers				
Baltimore.....	67	14	19	17	60	23	16	2	10	88	3	9	39	49	24	961
Birmingham.....	95	3	2	36	62	2	8	2	10	2	2	3	32	60	11	780
Brooklyn.....	36	33	31	32	58	10	6	4	7	89	6	5	23	70	4	731
Cleveland.....	22	18	60	19	59	22	28	5	20	74	11	14	39	36	23	1,047
Detroit.....	30	15	55	63	21	19	3	2	22	73	4	8	48	28	28	1,009
New York.....	18	22	60	19	55	26	14	4	12	84	4	6	28	58	13	1,225
Pittsburgh.....	44	22	34	20	48	32	19	3	13	83	4	12	38	46	21	789
Syracuse.....	27	16	57	17	58	25	24	3	18	76	6	16	39	39	30	865
Greenville.....	100	6	6	3	91	6	2	1	4	95	1	1	73	26	2	952
Morgantown.....	58	6	36	3	42	55	1	1	27	72	1	1	71	28	2	739
Total, 10 localities ⁴	48	15	37	18	60	22	14	3	14	82	5	8	43	44	16	9,127
Total, 8 large cities ⁴	40	18	42	21	53	21	17	3	14	82	6	10	36	48	20	7,436

¹ Excludes 1,657 families for which economic data were incomplete and 727 families where marriage took place in 1930 or later. These are excluded also from tables 2, 3, 5, 6, and 7, but are included in table 4. The newly married families could not be used in tabulations dealing with illness and income change, 1929-32, because they were not an economic unit under observation in 1929.

² Excludes unknown occupations. The term "white-collar" is here used to include all workers other than skilled and unskilled laborers, that is, professional, proprietary, and clerical. "Skilled" includes "semiskilled." Farm laborers were present to a negligible extent and have been included with unskilled laborers. Household heads living on income or pension are not included with the unemployed in 1932 and are excluded from the population in making this computation.

³ Welfare work, when the sole occupation, was considered "unemployed."

⁴ Weighted average.

Excludes Greenville and Morgantown.

Occupation.—The population was largely of the wage-earning class. In the 8 large cities the usual occupation of the chief wage earner was that of skilled or semiskilled laborer in 58.1 percent of the families; unskilled, 20.5 percent; clerical and kindred worker, 12.0 percent; proprietor, manager, or official, 7.8 percent; professional, 1.6 percent.⁴ In 1932 in 17 percent of the families the chief wage earner was without employment throughout the year. This figure varied from 6 percent in Brooklyn to 28 percent in Cleveland. In Greenville and Morgantown only 1 to 2 percent of the chief wage earners were unemployed in 1932. This low figure was due to the fact that only families having workers employed in the mills or mines were allowed to live in these company-owned villages.

TABLE 2.—*Occupation shifts of chief wage earners between 1929 and 1932 in white families in 8 large cities*

Occupation of household head in 1929	Number of families ¹	Percentage of chief wage earners in each occupational group in 1932						Total, all occupa- tions, 1932
		Unem- ployed	Pro- fes- sional	Pro- pri- etary	Cleri- cal	Skilled	Un- skilled	
Professional.....	109	5.5	90.9	1.8	0.9	—	0.9	100.0
Proprietary.....	532	8.6	—	82.9	3.4	3.0	2.1	100.0
Clerical.....	814	6.1	.1	1.1	87.1	3.0	2.6	100.0
Skilled.....	3,946	17.8	.1	.9	.6	76.4	4.2	100.0
Unskilled.....	1,389	24.9	.1	.8	.6	1.9	71.7	100.0
All occupations.....	6,790	16.9	1.5	7.3	11.2	45.4	17.7	100.0

¹ Excludes families in which chief wage earner lived on income or pension in 1929 or 1932, families in which chief wage earner died after 1929, and families in which occupation of chief wage earner in 1929 or 1932 was unknown.

Unemployment and the shift in occupations between 1929 and 1932 are shown in table 2. Unemployment was highest among the unskilled laborers (25 percent) and lowest among the professional class (5.5 percent). Among skilled and unskilled laborers, the greatest shift was into the unemployed group, while in the clerical and proprietary classes, those who changed occupational status between 1929 and 1932 were about equally divided between the group that became unemployed and the groups that found other occupations. For example, 72 percent of the unskilled laborers were employed in the same class of occupation in 1932, 25 percent were unemployed, and 3 percent were in different occupational groups; 83 percent of the proprietary

⁴ Gainful white workers in the United States in 1930 similarly classified (excluding farm owners, tenants, and laborers) are distributed approximately as follows: Skilled and semiskilled, 39 percent; unskilled, 20 percent; clerks and kindred workers, 23 percent; proprietors, managers, and officials, 10 percent; professional workers, 8 percent. While the figures are not strictly comparable since the data of the present survey give the distribution of *families* by occupation of the chief wage earner, they indicate that the surveyed population contains an excess of skilled laborers and a deficiency of clerks and professional workers, as compared with the general population of the United States. See Edwards, Alba M.: *A Social-Economic Grouping of the Gainful Workers in the United States*. *Journal American Statistical Association*, December 1933, vol. 28, pp. 377-387.

class remained in that category in 1932, 9 percent were unemployed, and 8 percent were in the clerical, skilled, and unskilled classes.

Employment status.—Considering all wage earners in the family, the data (table 1) show that in 1929 only 0.8 percent of the families in the 8 large cities had no employed workers, 14 percent had one or more part-time workers and no full-time workers, 82 percent had one or more full-time workers, with or without part-time workers, and 3 percent had wage earners living on income or pension. In 1932 there were 10 percent with no employed workers, 36 percent with part-time workers only, 48 percent with full-time workers, and 6 percent with wage earners living on income or pension. In 1932, 20 percent of all surveyed families were on public or private relief for part or all of the year. This proportion varied from 4 percent in Brooklyn to 30 percent in Pittsburgh.

Greenville and Morgantown presented an entirely different picture, with 72 percent of the families having part-time workers only, 28 percent having full-time workers, and no families having all workers unemployed. The reasons for this different showing have been discussed in a preceding paragraph.

Economic history of families.—Income as computed in this study includes all receipts from any source—wages, rents, interest, and profits, and also the amount of savings or borrowed funds used and the value of a food ticket or other receipts from public or private relief agencies. The figures for 1929, when only 4 percent of the families used savings or borrowed funds, represent income in the accepted sense of the word and may exceed expenditures; the figures for 1932, when about 20 percent of the families augmented their purchasing power by some use of savings or borrowed funds, are more properly called expenditures. This definition of income was adopted because it was desired to relate incidence of illness to standard of living, as expressed by expenditures rather than by actual income.

No attempt was made to select districts in which the income distribution of the surveyed families would be representative of the city as a whole. The plan, as already outlined, was to include sections having families that, in normal times, were in moderate circumstances, but that in large numbers had been reduced to poverty during the depression.

In table 3 the distribution of families in the 8 large cities by total income is shown for each year from 1929 to 1932, and for comparison the income as estimated for all nonfarm families in the United States.

The mean income of the surveyed group in 1929 was \$1,830, as compared with \$3,225 for the United States. The median income, which affords a better comparison, was \$1,650 in the surveyed group and \$1,900 for nonfarm families in the United States. If families with incomes above \$4,000 are excluded (these constitute 15 percent

of the nonfarm families in the country), the income distribution of the surveyed group in 1929 is not far different from that of the nonfarm in the United States.⁵ By 1932, the median income of the surveyed group was \$870, which is a drop of 47 percent. In 1929, 26 percent of the canvassed families had incomes less than \$1,200 per year, as compared with 66 percent in 1932. On the other side of the picture, 35 percent of the families had incomes over \$2,000 in 1929 as compared with 10 percent in 1932.

TABLE 3.—Percentage distribution according to total income of families (1) in the surveyed population in 8 cities for 1929, 1930, 1931, and 1932, and (2) as estimated for the United States in 1929

Total family income per year	Surveyed group in 8 cities ¹				Nonfarm families United States ²
	1929	1930	1931	1932	1929
Under \$600.....	6.9	12.4	20.9	32.4	4.0
\$600, but under \$1,200.....	19.5	25.5	31.0	33.7	17.4
\$1,200, but under \$2,000.....	38.5	35.2	30.0	23.4	32.0
\$2,000, but under \$3,000.....	24.2	19.0	13.5	8.0	21.1
\$3,000, but under \$4,000.....	7.3	5.4	3.2	1.7	10.2
\$4,000 and over.....	3.6	2.5	1.4	.8	15.3
Total, all incomes.....	100.0	100.0	100.0	100.0	100.0
Number of families.....	7,436	7,436	7,436	7,436	21,674,000
Median income.....	\$1,650	\$1,440	\$1,160	\$870	\$1,900
Mean income.....	1,830	1,600	1,325	1,050	3,225

¹ Baltimore, Birmingham, Brooklyn, Cleveland, Detroit, New York, Pittsburgh, and Syracuse.

² America's Capacity to Consume. By Maurice Leven, Harold G. Moulton, and Clark Warburton. The Brookings Institution, Washington, D. C., 1934.

The change from one income class to another is better shown in table 4, which indicates the correlation between 1929 and 1932 income. For example, in the group of families having less than \$600 annual income in 1929, 80 percent were still in that class in 1932. In the group having incomes between \$2,000 and \$3,000 in 1929, 17.5 percent were still in that class in 1932, 1 percent had risen to higher brackets, and the remainder had fallen into lower income groups.

The table suggests a means of classifying families according to economic experience, which is used later in relating sickness to change in income during the depression. For example, the group of families with less than \$600 annual income in 1932 constituted 32 percent of the surveyed group in the 8 large cities. Of this group, only 17 percent had been in this class in 1929, 66 percent had incomes between \$600 and \$2,000, and 17 percent had incomes over \$2,000 in 1929. In this study of illness as related to income change, we are particularly interested in 3 general classes of the population: (1) Families re-

⁵ The relatively high mean income (\$3,225) in the nonfarm families in the United States is due mainly to the families in the group above \$4,000, which constitute 15 percent of the families but receive 50 percent of the total income. In contrast, families receiving incomes over \$4,000 are less than 4 percent of the surveyed group and receive about 10 percent of the total income. This is reflected in the fact that while the mean income of nonfarm families in the United States was 75 percent higher, the median income was only 12 percent higher than that of the surveyed group in 1929.

TABLE 4.—*Income distribution in 1932 of families in 8¹ cities classified in 6 groups according to 1929 income*

Annual family income in 1929	Number of families	Percentage of families in each income group in 1929 which was in the specified group in 1932						Total, all incomes 1932
		Under \$600	\$600 but under \$1,200	\$1,200 but under \$2,000	\$2,000 but under \$3,000	\$3,000 but under \$4,000	\$4,000 and over	
Under \$600.....	514	80.2	17.5	1.9	0.4	-----	-----	100.0
\$600 but under \$1,200.....	1,450	49.6	43.6	6.3	.5	-----	-----	100.0
\$1,200 but under \$2,000.....	2,860	31.0	39.3	27.6	1.9	0.2	-----	100.0
\$2,000 but under \$3,000.....	1,801	17.5	29.3	34.6	17.5	1.0	0.1	100.0
\$3,000 but under \$4,000.....	540	10.7	18.9	29.4	28.2	11.5	1.3	100.0
\$4,000 and over.....	271	6.6	12.5	24.0	24.4	14.4	18.1	100.0
All incomes 1929.....	7,436	32.4	33.7	23.4	8.0	1.7	.8	100.0

¹ Baltimore, Birmingham, Brooklyn, Cleveland, Detroit, New York, Pittsburgh, and Syracuse.

maining in reasonably comfortable circumstances throughout the 4 years; (2) families that suffered material loss of income and, hence, lowered standard of living during the depression; and (3) families that were poverty-stricken even in 1929—the chronic poor. The first and third groups serve as controls, whose illness rates are compared with those of families that had suffered economic reverses.

DEFINITION OF ILLNESS AND METHOD OF CLASSIFYING

Inquiry was made about illness from all diseases and accidents, including mild as well as severe cases. What was included as illness was, to a considerable extent, a matter of what the informant (usually the housewife) remembered and designated as such. Hence the records of disabling cases are probably a better measure of real sickness than are the total cases, because the disabling illnesses are more likely to be accurately and completely reported. A case sufficiently severe to be disabling or confine the individual to his bed within 3 months of the interview is very likely to be remembered, while many of the minor ailments are forgotten and are consequently not mentioned to the enumerator.

The illness rates are for the 3-month period of the survey and are not reduced to an annual basis. All rates are adjusted for differences in age distribution.⁶ The "survey period" refers to the 3 months prior to the enumerator's visit; it is the period of time for which illness data are recorded. The canvass in each city required from 3 to 4 weeks. The dates of the canvass were slightly different in each locality, but fell between March 20 and May 15, 1933, for all localities.

Illnesses were classified according to whether their time of onset was within the survey period of 3 months or prior to the survey, the

⁶ All illness rates are adjusted for age, using the method of expected cases as outlined by Raymond Pearl in *Medical Biometry and Statistics*, pp. 265-269, second edition, 1930. The standard age-specific rates which are used in the adjustment process are rates for all economic groups in all surveyed localities.

latter including illnesses that were more or less chronic. Each of these 2 groups was further subdivided into disabling and nondisabling cases. All bed cases are included in the disabling class. A disabling illness, whether its onset was within or prior to the survey period, refers to a case causing inability to pursue the usual work, school, or other activities for 1 or more days during the 3 months of the study; 86 percent of the disabling cases with onset within and 69 percent of those with onset prior to the survey were also in bed for 1 or more days during the study period.

ILLNESS EARLY IN 1933 AND UNEMPLOYMENT IN 1932

In table 5 the incidence of illness is shown for 3 groups of the entire surveyed population in the 10 localities classified according to employment status of the wage earners in 1932. Illnesses are shown as (1) All

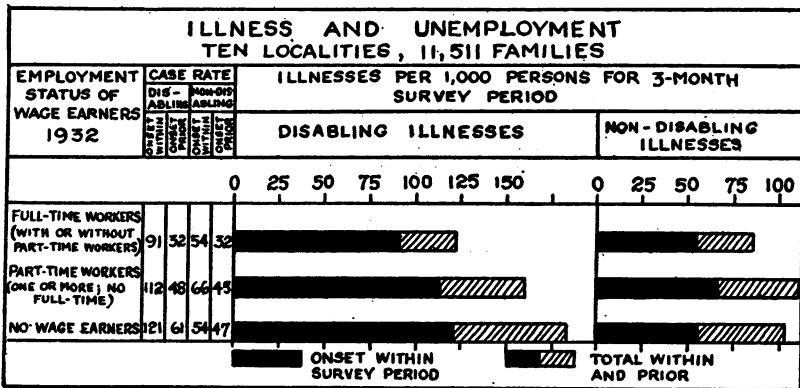


FIGURE 1.—Incidence of disabling and nondisabling illness in 10 localities during a 3-month period in the early spring of 1933 in white wage-earning families classified according to number of employed workers in 1932. (Rates are adjusted for age.)

cases; (2) nondisabling cases; and (3) disabling cases (a) not in bed, (b) in bed. In figure 1 disabling and nondisabling cases are shown for the same groups of the surveyed population as appear in table 5. The chart shows a lower incidence of disabling illness among families having full-time workers than in families having part-time workers only or families having no wage earners. The group with no employed workers has an incidence of disabling illness, onset within the survey period (121 cases per 1,000 persons), that is 33 percent higher than the rate of the group having full-time workers (91 per 1,000). Illnesses with onset prior to the period (largely chronic) are nearly twice as high in the group without employed wage earners as in the group having full-time workers (61 as against 32 disabling cases per 1,000 persons). Combining disabling illnesses having onset within and prior to the study, the unemployed group shows a rate (182 cases per 1,000) 48 percent higher than the families having full-time workers (123 per 1,000). Nondisabling cases with onset within the survey period show no logical relationship to employment status;

TABLE 5.—*Illness and unemployment*

[Incidence of disabling and nondisabling illness in the early spring of 1933 in 11,511 white wage-earning families classified according to employment status of wage earners during 1932, in 10 localities]

Employed workers in the family	Case rate ¹ per 1,000 persons for 3-month survey period								Population observed
	Onset within period				Onset prior to period				
	Total	Non-disabling	Disabling		Total	Non-disabling	Disabling		
			Not in bed	In bed			Not in bed	In bed	
Full-time workers (1 or more, with or without part-time).....	145	54	13	78	64	32	9	23	21,022
Part-time workers (1 or more; no full-time).....	178	66	15	97	93	45	15	33	21,224
No employed workers.....	175	54	14	107	108	47	21	40	4,935
Total population ²	163	59	14	90	81	39	13	29	47,181

¹ Adjusted for differences in age distribution.

² Excludes 1,955 individuals living on income or pension.

DISABLING ILLNESS AND UNEMPLOYMENT

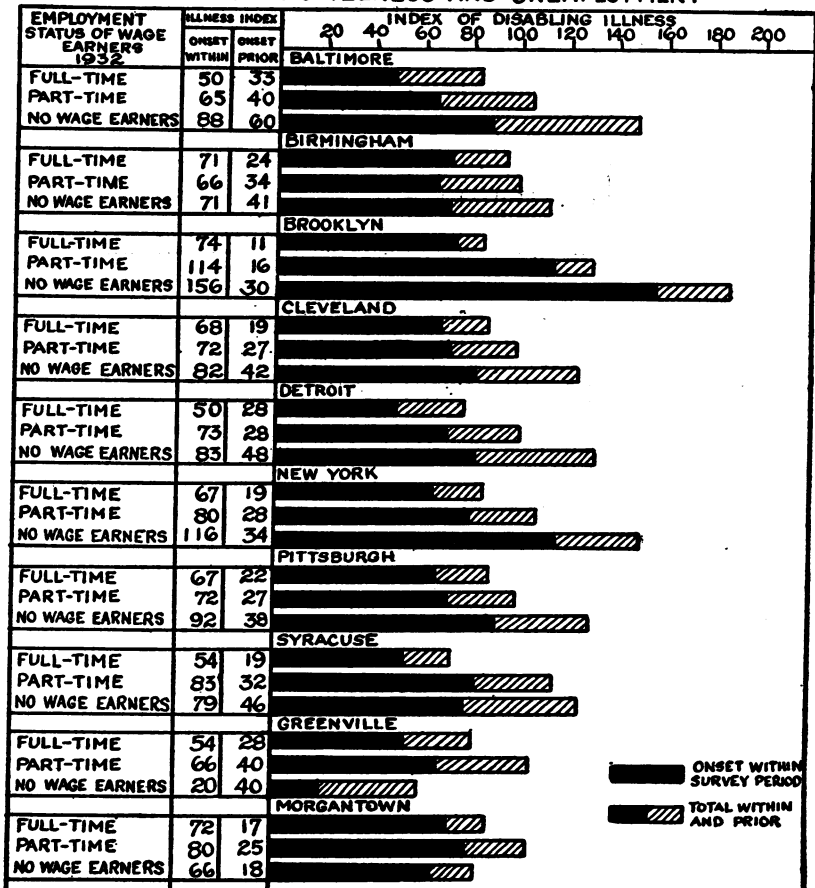


FIGURE 2.—Disabling illness in each of 10 localities, during a 3-month period in the early spring of 1933 in white wage-earning families classified according to number of employed workers in 1932. (Illness rates, adjusted for age, are expressed as an index (100 equals the disabling illness rate, adjusted for age, onset within and prior to the survey period, for the entire canvassed population in the specified city).)

nondisabling cases with onset prior to the period are 47 percent higher in the group having no wage earners than in the group having full-time workers (47 as against 32 cases per 1,000 persons).

In figure 2 and table 6 similar data are given for disabling illnesses for each of the 10 localities. A disabling illness index (100 equals the disabling illness rate, adjusted for age, onset within and prior to the period, for the entire surveyed population in the specified city) is used in figure 2 instead of the actual rate. This eliminates differences in rates from city to city and shows only the relative variation of the illness rate with employment status of the family wage earners. Actual rates adjusted for differences in age distribution, as well as cases of illness and population observed are given in table 6.

TABLE 6.—Disabling illness in the early spring of 1933 and employment status of wage earners in 1932 in white wage-earning families in each of 10 localities

Locality	Disabling illness per 1,000 persons for 3-month survey period ¹			Cases of disabling illness				Population observed				
	Full time	Part time	Unemployed	Full time	Part time	Unemployed	Income or pension	Total	Full time	Part time	Unemployed	Income or pension
Baltimore.....								5,167	2,572	1,960	531	104
Onset within.....	68	88	119	168	180	68	7					
Onset prior.....	45	55	81	119	106	42	16					
Birmingham.....								4,137	2,342	1,366	322	107
Onset within.....	105	97	104	243	135	34	14					
Onset prior.....	35	51	61	83	69	19	17					
Brooklyn.....								3,547	2,295	777	110	365
Onset within.....	81	125	171	178	95	19	26					
Onset prior.....	12	17	33	32	16	4	18					
Cleveland.....								5,080	1,814	2,015	811	440
Onset within.....	89	95	109	150	189	93	44					
Onset prior.....	25	35	56	49	70	42	26					
Detroit.....								5,633	1,842	2,676	933	182
Onset within.....	63	93	105	114	256	101	17					
Onset prior.....	36	36	61	65	88	53	15					
New York.....								5,079	2,947	1,423	441	268
Onset within.....	108	130	186	302	182	92	42					
Onset prior.....	31	46	55	96	70	21	13					
Pittsburgh.....								5,031	2,151	1,904	800	176
Onset within.....	102	109	140	206	203	113	15					
Onset prior.....	33	41	58	82	81	46	19					
Syracuse.....								5,044	2,022	1,914	889	219
Onset within.....	74	114	108	142	219	102	12					
Onset prior.....	26	44	63	55	84	63	29					
Greenville.....								5,653	1,594	3,986	48	25
Onset within.....	110	134	40	180	563	2	1					
Onset prior.....	57	82	80	76	277	3	6					
Morgantown.....								4,765	1,443	3,203	50	69
Onset within.....	111	123	102	166	409	6	3					
Onset prior.....	27	38	28	32	99	1	8					
Total, 10 localities ²								49,136	21,022	21,224	4,935	1,955
Onset within.....	91	111	118	1,849	2,431	630	181					
Onset prior.....	33	44	58	689	960	284	167					
Total eight large cities ³								38,718	17,985	14,035	4,837	1,861
Onset within.....	86	106	130	1,503	1,459	622	177					
Onset prior.....	30	41	59	581	584	280	153					

¹ Adjusted for age. Rates are not given for the group living on income or pension, because of the small number of persons included in this group in many of the cities. The average disabling illness rates in the group living on income or pension in the 10 localities are as follows: Onset within period, 89 cases per 1,000; onset prior, 87 cases per 1,000. For the 8 large cities, the corresponding illness rates are, respectively, 102 and 63 cases per 1,000 persons.

² Illness rates are simple averages of rates in the 10 localities.

³ Excludes Greenville and Morgantown. Illness rates are simple averages of rates in the 8 large cities.

With the exception of Greenville and Morgantown⁷ it will be seen that the disabling illness rate of families having no employed workers is consistently higher *in each city* than that of families having part-time or full-time workers. Inasmuch as most of the families having no employed workers in 1932 had one or more employed workers in 1929, these data are striking evidence of the association between a relatively high rate of disabling illness and loss of employment during the depression, with accompanying loss of income and reduced standard of living.

ILLNESS EARLY IN 1933 AND INCOME IN 1932

When families are grouped according to income in 1932, the same inverse association of illness rates with economic well-being is evident

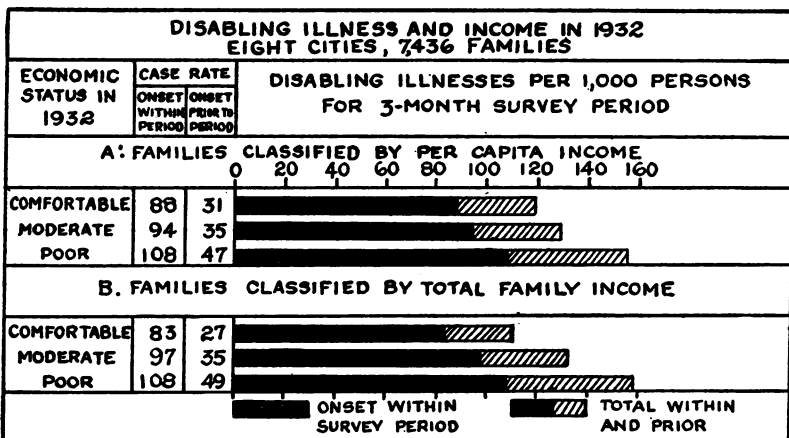


FIGURE 3.—Disabling illness in 8 large cities during a 3-month period in the early spring of 1933 in white wage-earning families classified according to (a) annual per capita income in 1932, and (b) annual total family income in 1932. (Ranges of income included as "comfortable", "moderate", and "poor" are given in footnote 8, page 608. Rates are adjusted for age.)

as in the grouping by employment status of the wage earners. Figure 3 shows the incidence of disabling illness among families in the 8 large cities grouped first according to per capita income and second according to total family income. By either classification the families in the lowest income groups show the highest rates of disabling illness. Thus the rate among families classified as "poor" is 23 percent higher in the grouping by per capita income and 30 percent higher in the

⁷ The 2 rural industrial communities, while having a relatively high average illness rate, do not show the consistent association between economic status and illness which appears in the 8 large cities. This finding, for which there is no obvious explanation at the present time, has made it seem best to consider the large cities as a group for many tabulations and reserve the 2 rural communities for separate study.

grouping by total family income than the illness rate of families classified as "comfortable."⁸ Illnesses with onset prior to the period, largely chronic, show an even greater excess among families with the lowest income.⁹ Thus the poor group has an illness rate 50 percent higher than the comfortable group in the classification of families by per capita income and 80 percent higher than the comfortable group in the classification by total family income.

⁸ For convenience, incomes have been grouped into ranges classified as "comfortable", "moderate", and "poor." *These terms have no significance other than as convenient labels for use in discussion.* The income ranges included in these groups are not the same for each city, due to differences in the averages and distributions of the incomes and the necessity for having groups of sufficient size for statistical significance. New York and Brooklyn, for example, had relatively few families with incomes under \$600, and the "poor" group in those cities includes all families with incomes under \$1,200. The need for the change in income class limits for certain of the localities is also indicated by higher and lower living costs in the communities concerned. Per capita income has been used in many of the tabulations because it represents economic status better than the total family income which takes no account of size of family. It was realized that for strict accuracy a figure taking account not only of the size of the family but also of the age and sex of its members, such as "income per adult male unit", might be better than income per capita. However, previous studies have shown excellent correlation between per capita income and these other derived units, and it was felt that the accuracy of the 4-year income record was not sufficient to justify the more refined calculations. The income ranges used in all charts and tables are as follows:

Income classification

City	Annual per capita income		
	Comfortable	Moderate	Poor
I. Baltimore, Birmingham, Cleveland, Detroit, Pittsburgh, and Syracuse.....	\$425 and over.....	\$150-\$424.....	Under \$150.
II. Brooklyn and New York City.....	\$500 and over.....	\$250-\$499.....	Under \$250.
III. Greenville and Morgantown.....	\$300 and over.....	\$150-\$299.....	Under \$150.

City	Annual total family income		
	Comfortable	Moderate	Poor
I. Baltimore, Birmingham, Cleveland, Detroit, Pittsburgh, and Syracuse.....	\$1,600 and over....	\$600-\$1,599.....	Under \$600.
II. Brooklyn and New York City.....	\$2,000 and over....	\$1,200-\$1,999.....	Under \$1,200.
III. Greenville and Morgantown.....	\$1,200 and over....	\$600-\$1,199.....	Under \$600.

⁹ This excess was not evident in the crude rates which were used in preliminary publications. The adjusted rate for illnesses having onset prior to the study period among the comfortable group is considerably lower than the crude rate, due to the fact that this group includes a relatively large proportion of older individuals with a high rate of chronic illness. Hence, with the effect of differences in age composition eliminated, the "poor" are shown to have a much higher rate of chronic illness than the "comfortable."

TABLE 7.—Disabling illness in the early spring of 1938 and family income¹ in 1932 in white wage-earning families in each of 10 localities

Locality	Disabling illness per 1,000 persons for 3-month sur- vey period ²						Cases of disabling illness						Population observed											
	Classified by per capita income			Classified by total family income			Classified by per capita income			Classified by total family income			Classified by per capita income			Classified by total family income								
	Com- fort- able	Mod- erate	Poor	Com- fort- able	Mod- erate	Poor	Com- fort- able	Mod- erate	Poor	Com- fort- able	Mod- erate	Poor	Com- fort- able	Mod- erate	Poor	Total popu- lation	Com- fort- able	Mod- erate	Poor	Com- fort- able	Mod- erate	Poor		
Baltimore.....	82.1	72	94	72	80	91	27	159	180	44	203	119	381	2,261	1,800	654	2,544	1,244						
Onset within.....	47	47	66	36	52	67	25	110	109	25	132	87												
Onset prior.....	35.0																							
Birmingham.....	100.6	92	105	99	83	111	97	162	127	55	178	103	554	1,561	1,233	705	1,612	1,081						
Onset within.....	44.3	43	39	53	34	40	60	29	63	60	27	65	60											
Onset prior.....	56.3																							
Brooklyn.....	93.7	80	94	110	78	91	111	65	108	70	62	88	89	1,185	639	842	999	862						
Onset within.....	14.1	10	13	24	10	12	20	12	17	16	10	14	21											
Onset prior.....	79.6																							
Cleveland.....	96.6	92	91	101	82	97	100	35	143	234	38	173	201	1,690	2,300	513	1,891	2,011						
Onset within.....	36.8	19	37	42	22	29	49	11	71	86	13	58	97											
Onset prior.....	59.8																							
Detroit.....	84.8	70	88	88	73	78	96	29	159	204	43	162	187	1,800	2,204	609	2,066	1,880						
Onset within.....	39.7	27	40	43	33	36	46	15	71	85	21	72	78											
Onset prior.....	45.1																							
New York City.....	122.4	102	109	149	102	116	132	84	163	293	64	172	303	929	1,690	701	1,535	2,305						
Onset within.....	34.9	31	35	38	27	36	37	40	63	69	21	57	94											
Onset prior.....	87.5																							
Pittsburgh.....	110.6	87	99	127	95	98	135	40	129	201	55	141	173	506	1,374	1,580	635	1,532	1,273					
Onset within.....	43.1	35	37	54	32	39	56	27	57	79	26	67	70											
Onset prior.....	67.5																							
Syracuse.....	101.5	106	96	103	78	108	104	31	140	248	32	206	179	1,456	2,904	621	1,933	2,160						
Onset within.....	43.4	37	34	53	22	36	59	18	60	108	11	73	102											
Onset prior.....	58.1																							
Greenville.....	122.4	122	111	128	78	134	124	37	163	405	46	267	292	328	1,532	2,313	453	2,015	1,703					
Onset within.....	77.0	73	77	78	76	73	81	25	103	183	42	121	148											
Onset prior.....	45.4																							
Morgantown.....	114.5	164	127	106	121	101	123	46	121	301	62	167	249	302	915	2,618	492	1,472	1,871					
Onset within.....	34.8	22	33	36	19	35	39	7	26	77	8	43	59											
Onset prior.....	79.7																							
Total, 10 localities.....	102.9	98	99	110	86	101	111	441	1,449	2,261	502	1,747	1,902	6,108	15,373	19,703	6,225	17,619	16,340					
Onset within.....	42.2	34	39	49	31	39	51	209	641	872	204	702	816											
Onset prior.....	60.7																							
Total, 8 large cities.....	99.0	88	94	108	88	97	108	358	1,165	1,555	394	1,323	1,381	4,452	13,002	14,181	5,112	14,214	12,309					
Onset within.....	33.8	31	35	47	27	35	49	177	512	612	154	538	609											

¹ For definition of the groups "comfortable", "moderate", and "poor", see footnote 8, page 608.² Adjusted for age.³ Illness rates are simple averages of rates in 10 localities.⁴ Excludes Greenville and Morgantown. Illness rates are simple averages of rates in 8 large cities.

In table 7 disabling illness rates are given for each of the 10 localities for families classified by per capita and by total income. In figure 4 for families classified by per capita income a disabling illness index (100 equals the disabling illness rate, adjusted for age, onset within and prior to the period, for the entire surveyed population in

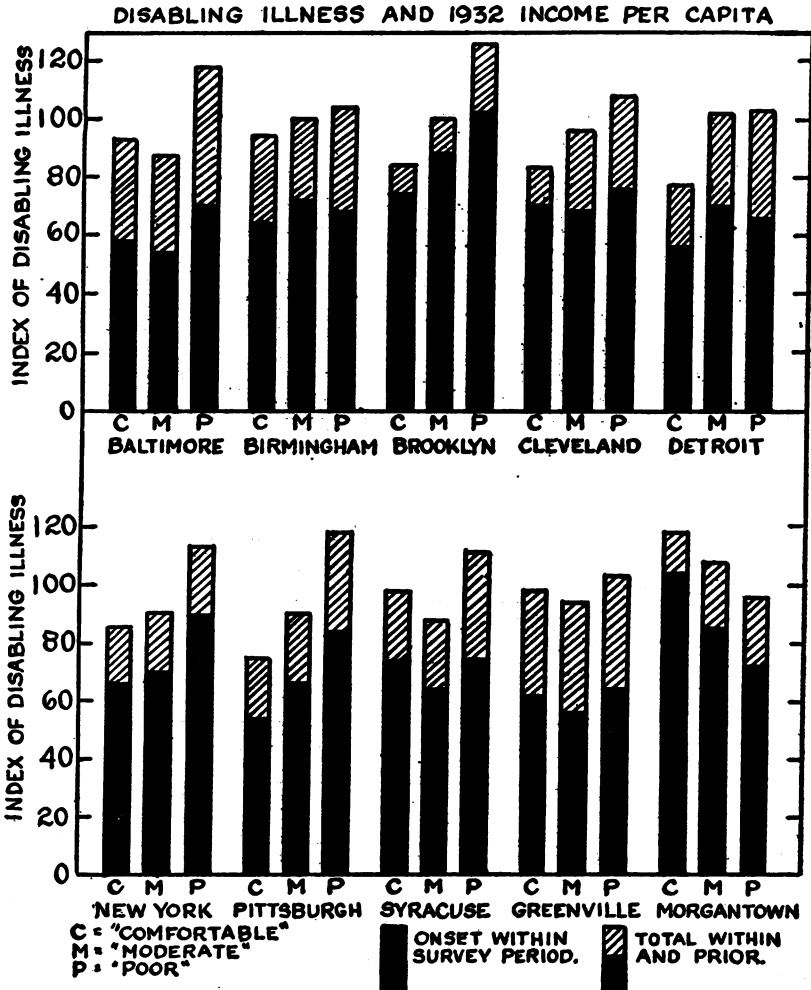


FIGURE 4.—Disabling illness in each of 10 localities during a 3-month period in the early spring of 1933 in white wage-earning families classified according to annual per capita income in 1932. (Illness rates, adjusted for age, are expressed as an index (100 equals the disabling illness rate, adjusted for age, onset within and prior to the survey period, for the entire canvassed population in the specified city. Ranges of income included as "comfortable", "moderate", and "poor" are given in footnote 8, page 608.)

the specified city) has been used instead of the actual rate. Considering illnesses having onset within and prior to the study period, sickness rates in the poor group (by per capita income) are consistently higher than in the comfortable group, with the exception of Morgantown. In the classification by total income, Morgantown

shows the same association with economic status as the other localities, the lowest income class having the highest sickness rates.¹⁰

ILLNESS EARLY IN 1933 AND INCOME CHANGE, 1929-1932

A correlation between sickness and low income is not confined to periods of depression. A high illness rate, high death rate, and high birth rate have always gone hand in hand with poverty.¹¹ It is obviously desirable, therefore, to ascertain whether the higher sickness rate among the poorer classes in the surveyed families was in any way associated with *changes* in standard of living. Tremendous shifts in economic status and standard of living took place during the depression. For example, of the 14,181 individuals in the eight large cities who were classified by per capita income as poor in 1932, only 25 percent were poor in 1929, 55 percent were moderate, and 20 percent were comfortable. An analysis of the relation between "depression history" and illness was made. For this purpose the individuals were divided into six categories according to economic status in 1929 and 1932, as follows:¹²

I. Individuals experiencing materially lowered family income between 1929 and 1932 were classified as—

1. Comfortable in 1929 and moderate in 1932.
2. Moderate in 1929 and poor in 1932.
3. Comfortable in 1929 and poor in 1932.

II. Individuals who had not experienced materially lowered income between 1929 and 1932 were classified as—

1. Comfortable in 1929 and 1932.
2. Moderate in 1929 and 1932.
3. Poor in 1929 and 1932.

Sickness data for these groups classified according to per capita income are given in figure 5. Inspection of the chart shows the significant and interesting fact that the highest illness rate is exhibited by the group hardest hit by the depression, namely, the group "comfortable in 1929 and poor in 1932." Considering disabling illnesses having onset within or prior to the survey period, this group,

¹⁰ If the differences in illness rates between the comfortable and poor groups in the individual localities are tested for statistical significance, it is found that the differences are from 1 to 4 times their respective probable errors, which vary from 10 to 14 cases per 1,000 persons in the several localities. Thus in Birmingham and Syracuse, where the difference in illness rates (onset within and prior) between the comfortable and poor groups is 17 and 15 cases per 1,000, respectively, the association between economic status and illness is within the limits of chance variation. However, the probability of finding a *consistent* association between income and sickness in this number of cities, as a result of chance, is so small that the relation is unquestionably real. This applies also to the differences in illness rates observed among families grouped by employment status of wage earners (table 6) or by change in income between 1929 and 1932 (tables 8 and 9). Considering the average results for the 8 large cities, the poor group exhibited a rate of disabling illness, onset within and prior, which was 36 cases per 1,000 above that of the comfortable group. The probable error of this difference is 4 cases per 1,000; thus the actual difference observed is 9 times its probable error.

¹¹ See Public Health Bulletin 165, Economic Status and Health (Govt. Printing Office, Wash., 1927), for a summary of data bearing on the association of illness and death rates with economic status.

¹² Ranges of income included as "comfortable", "moderate", and "poor" are given in footnote 8, p. 608.

with a rate of 174 cases per 1,000 persons, showed an incidence of illness that was 45 percent higher than the rate (120 per 1,000) for their more fortunate neighbors who were equal in status in 1929 but suffered no drop in income by 1932; that is, the "comfortable in 1929 and 1932."¹³ The group that had dropped from comfortable to moderate showed a 10 percent higher disabling illness rate than the comfortable group that had experienced no drop in income. The group that had dropped from moderate to poor showed a 17 percent higher illness' rate than those who were in moderate circumstances throughout the 4 years. It is interesting to note that the rate for

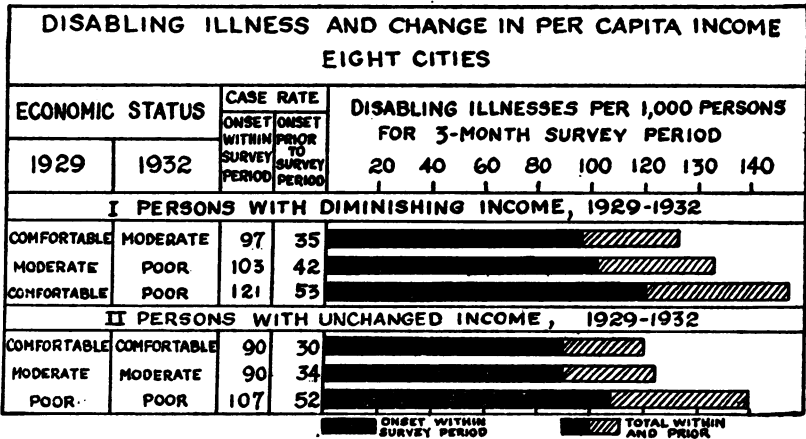


FIGURE 5.—Disabling illness in 8 large cities during a 3-month period in the early spring of 1933 in white wage-earning families classified according to change in per capita income, 1929-1932. (Ranges of income included as "comfortable", "moderate", and "poor" are given in footnote 8, page 608. Rates are adjusted for age.)

the group that had dropped in income from comfortable to poor was 9 percent higher than that of the chronic poor, that is those who were poverty stricken even in 1929—a finding which suggests that illness is associated with sudden change in standard of living.

¹³ In preliminary tabulations a larger number of income groups was used, each group including a narrow range of incomes. It was found, however, that the broad groups finally used were adequate. For example, the "comfortable" class (\$425 and over by per capita income) was divided into 3 groups, (1) \$425-\$499, (2) \$500-\$749, and (3) \$750 and over. It was found that the illness rates among families that had dropped in income from either of these classes into the "poor" group were similar and were all higher than in families that remained in either of the three classes from 1929 to 1932. Similar subdivision of the "moderate" and "poor" groups was made and found not to change the general picture as presented in this paper.

TABLE 8.—Disabling illness in the early spring of 1933 and change in annual per capita income,¹ 1929-32, in white wage-earning families in each of 10 localities

Per capita income: ¹ 1929	Disabling illness per 1,000 persons for 3-month survey period ²						Cases of disabling illness						Population observed												
	Com-fort-able		Mod-erate		Poor		Com-fort-able		Mod-erate		Poor		Com-fort-able		Mod-erate		Poor		Com-fort-able		Mod-erate		Poor		
	Mod-erate	Poor	Mod-erate	Poor	Mod-erate	Poor	Com-fort-able	Mod-erate	Poor	Com-fort-able	Mod-erate	Poor	Com-fort-able	Mod-erate	Poor	Com-fort-able	Mod-erate	Poor	Com-fort-able	Mod-erate	Poor	Com-fort-able	Mod-erate	Poor	
1932																									
Baltimore	76	89	82	67	89	66	104	41	26	87	35	35	895	1,086	340	351	1,328	374							
Onset within	45	56	78	45	84	46	53	29	22	62	27	27	948	720	322	536	599	191							
Birmingham	123	98	118	78	73	116	75	38	46	45	14	12	2,565	572	327	162	783	150							
Onset within	43	49	50	43	30	72	43	31	17	28	18	12	814	1,179	467	402	817	654							
Brooklyn	127	110	60	79	60	162	73	35	10	57	32	25	1,067	1,259	590	415	681	445							
Onset within	10	16	89	10	15	26	7	5	7	11	9	4	4,457	1,067	298	301	841	637							
Cleveland	88	85	126	87	94	69	102	63	31	70	29	28	731	939	334	846	812	749							
Onset within	41	34	49	18	32	50	40	35	23	10	29	28	4,411	731	939	334	846	812	749						
Detroit	73	57	98	73	109	62	70	112	64	28	73	28	3,373	681	307	483	629	392							
Onset within	38	38	48	29	41	54	41	40	25	15	26	20	4,087	632	298	301	841	637							
New York City	117	142	138	106	102	140	82	130	48	80	79	105	4,024	844	1,892	756	559	756							
Onset within	23	44	23	31	41	37	24	37	8	37	36	24	3,797	649	1,042	291	239	826							
Pittsburgh	84	119	170	60	108	54	107	53	40	66	41	17	39,337	7,833	4,326	4,725	7,076	5,174							
Onset within	36	57	57	35	35	45	30	44	20	26	23	16	4,087	632	298	301	841	637							
Syracuse	59	95	130	111	69	111	54	132	42	30	79	28	4,024	844	1,892	756	559	756							
Onset within	37	47	77	33	32	51	30	54	26	15	29	28	3,797	649	1,042	291	239	826							
Greenville	130	131	129	132	89	120	113	201	107	36	48	97	30,916	6,340	2,820	4,117	6,278	3,592							
Onset within	72	70	66	63	57	105	58	78	43	20	42	62	3,797	649	1,042	291	239	826							
Morgantown	109	111	112	125	161	94	77	125	65	56	34	61	39,337	7,833	4,326	4,725	7,076	5,174							
Onset within	34	39	48	23	23	26	19	32	28	7	6	17	4,087	632	298	301	841	637							
Total, 10 localities ³	102	107	121	98	86	107	763	1,133	558	410	614	570	30,916	6,340	2,820	4,117	6,278	3,592							
Onset within	38	45	54	33	39	55	338	409	225	191	280	237	3,797	649	1,042	291	239	826							
Total, 8 large cities ⁴	97	103	121	90	90	107	593	807	399	338	532	392	3,797	649	1,042	291	239	826							
Onset within	35	42	53	30	34	52	261	299	158	164	232	158	4,457	1,067	298	301	841	637							
Onset prior																									

For definition of the groups "comfortable", "moderate", and "poor", see footnote 8, p. 608.

¹ Adjusted for age.

² Excludes 847 persons in families with rising income, 1929-32. Illness rates are simple averages of rates in the 10 localities.

³ Excludes Greenville and Morgantown. Excludes 719 persons in families with rising income, 1929-32. Illness rates are simple averages of rates in the 8 large cities.

TABLE 9.—Disabling illness in the early spring of 1933 and change in annual total family income,¹ 1929-32, in white wage-earning families in each of 10 localities

Total family income: ¹ 1929.....	Disabling illness per 1,000 persons for 3-month survey period ²						Cases of disabling illness						Population observed														
	Com- fort- able		Mod- erate		Poor		Com- fort- able		Mod- erate		Poor		Com- fort- able		Mod- erate		Poor		Total		Com- fort- able		Mod- erate		Poor		
	Com- fort- able	Mod- erate	Com- fort- able	Mod- erate	Com- fort- able	Poor	Com- fort- able	Mod- erate	Com- fort- able	Mod- erate	Com- fort- able	Poor	Com- fort- able	Mod- erate	Com- fort- able	Mod- erate	Com- fort- able	Poor	Com- fort- able	Mod- erate	Com- fort- able	Mod- erate	Com- fort- able	Mod- erate	Com- fort- able	Poor	
Baltimore	64	81	113	69	92	97	73	69	39	39	125	11	341	1,187	787	610	1,315	116									
Onset within.	51	72	62	34	47	57	63	55	22	22	59	10															
Onset prior.	125	117	81	82	83	63	141	63	30	52	37	10															
Birmingham.	42	68	41	35	31	75	49	32	15	27	14	13															
Onset within.	89	107	89	78	96	146	40	46	20	56	45	27															
Onset prior.	15	20	11	10	11	29	8	10	3	9	6	8															
Brooklyn.	95	92	101	85	103	123	91	99	69	35	79	43															
Onset within.	33	43	54	23	26	57	35	43	32	12	22	22															
Onset prior.	72	89	104	76	88	94	93	82	81	42	65	24															
Cleveland.	38	45	35	35	34	79	47	35	23	21	23	20															
Onset within.	95	130	117	95	130	145	55	125	65	53	108	116															
Onset prior.	28	31	34	28	41	44	18	29	21	20	35	44															
New York.	86	128	174	89	97	86	71	100	60	49	59	13															
Pittsburgh.	42	58	57	33	32	46	41	41	21	25	22	8															
Onset within.	99	105	102	82	111	101	85	105	43	31	112	31															
Onset prior.	41	58	50	23	30	74	37	55	22	11	32	25															
Syracuse.	131	130	119	80	136	108	167	170	92	45	92	30															
Onset within.	68	78	75	74	75	118	77	72	50	39	37	26															
Onset prior.	102	127	121	112	104	116	114	115	92	61	38	42															
Greenville.	36	34	46	21	30	35	31	23	26	8	9	10															
Morgantown.	96	111	112	85	104	108	980	974	581	453	760	347															
Onset within.	39	51	47	32	36	61	406	395	235	194	259	186															
Onset prior.	91	106	110	82	100	107	649	689	397	357	630	275															
Total, 10 localities. ³	36	49	43	28	31	68	298	300	159	147	213	150															
Total, 8 large cities. ⁴	39,140	9,804	8,310	5,086	6,745	7,261	2,944																				
Onset prior.	30,783	7,484	6,320	3,642	4,716	6,274	2,847																				

¹ For definition of the groups "comfortable", "moderate", and "poor", see footnote 3, p. 608.

² Adjusted for age.

³ Excludes 1,044 persons in families with rising income, 1929-32. Illness rates are simple averages of rates in the 10 localities.

⁴ Excludes Greenville and Morgantown. Excludes 832 persons in families with rising income, 1929-32. Illness rates are simple averages of rates in the 8 localities.

In figure 6, the results for each of the 10 localities are shown for 2 economic groups classified by per capita income in 1929 and 1932, (a) comfortable in 1929 and 1932, (b) comfortable in 1929 and poor in 1932. With the exception of Greenville, a higher illness rate is exhibited in each locality by the group that had dropped from comfortable to poor than by the one that remained in the comfortable

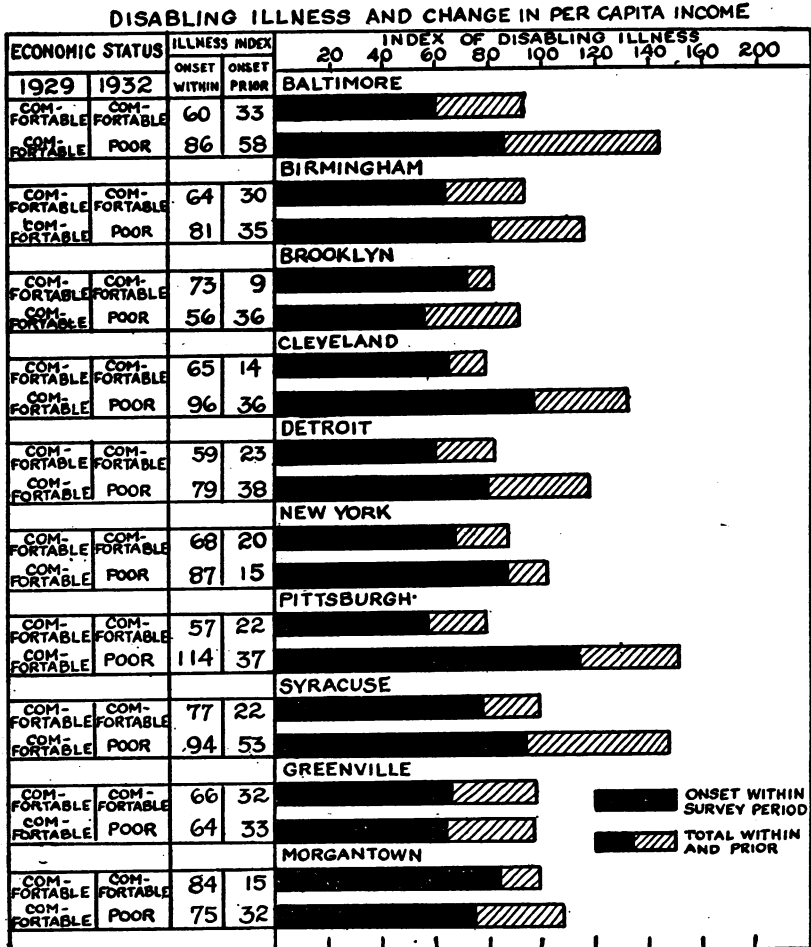


FIGURE 6.—Disabling illness in each of 10 localities during a 3-month period in the early spring of 1933 in white wage-earning families classified as "comfortable in 1929 and 1932" and "comfortable in 1929 and poor in 1932". (Illness rates, adjusted for age, are expressed as an index (100 equals the disabling illness rate adjusted for age, onset within and prior to the survey period, for the entire canvassed population in the specified city). Ranges of income included as "comfortable" and "poor" are given in footnote 8, page 608.)

class for the 4 years. In table 8 disabling illness rates are given for all of the economic groups classified by 1929 and 1932 income per capita; and in table 9 illness rates are given for families grouped by total income in 1929 and 1932. Classification by total family income gives, in general, the same sequences as classification by per capita income.

ILLNESS EARLY IN 1933 AND RELIEF STATUS IN 1932

In 1932, in the 8 large cities 20 percent of the surveyed families received public or private relief for all or part of the year. The proportion on relief varied from 4 percent in Brooklyn to 30 percent in Syracuse (table 1). At that time (1932 and 1933) eligibility for relief indicated that a family was in very dire straits. These relief families had the lowest standards of living of any in the surveyed group. It will be of interest to compare their illness record with that of families not on relief.

Relief families were nearly all in the group classified as poor in 1932 (footnote 8, p. 608). Hence only this group has been separated into relief and nonrelief classes. In figure 7, rates of disabling illness are shown for individuals classified by economic status in 1929 and 1932

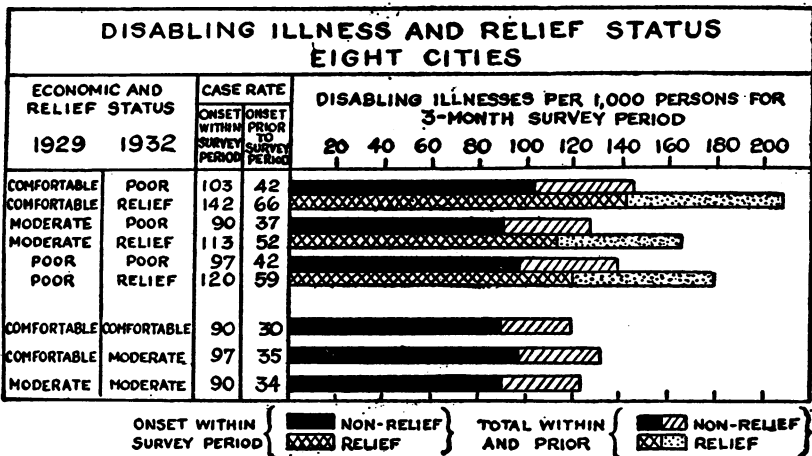


FIGURE 7.—Disabling illness in 8 large cities during a 3-month period in the early spring of 1933 in white wage-earning families classified according to change in per capita income, 1929-32, and relief status in 1932. (Ranges of income included as "comfortable", "moderate", and "poor" are given in footnote 8, page 608. Rates are adjusted for age.)

with the groups that were poor in 1932 classed as (1) poor but not on relief and (2) poor and on relief. It is seen that individuals in families on relief have a higher incidence of disabling illness than any of the other groups of the surveyed population, whatever their economic history during the depression. Thus, the group that dropped from the comfortable class in 1929 to relief in 1932 exhibits an illness rate (within plus prior) 44 percent higher than that of the group that fell from comfortable to poor but not on relief and 73 percent higher than that of the group that was comfortable in 1929 and 1932. Among relief families, the income change between 1929 and 1932 is associated with illness in the same manner as for families not on relief; that is, the families that suffered the greatest change in economic status exhibit the highest illness rate.

In figure 8, illness rates for each of the 8 large cities are shown for 3 groups of families: (1) Comfortable in 1929 and 1932; (2) comfortable in 1929 and poor in 1932; and (3) comfortable in 1929 and on relief in 1932. To facilitate comparisons, a disabling illness index is used instead of the actual illness rate. With the exception of Brooklyn and Birmingham, the highest illness rate is shown by the group that was comfortable in 1929 but on relief in 1932. In Brooklyn the group on relief was too small to give illness rates of statistical signifi-

DISABLING ILLNESS AND RELIEF STATUS.

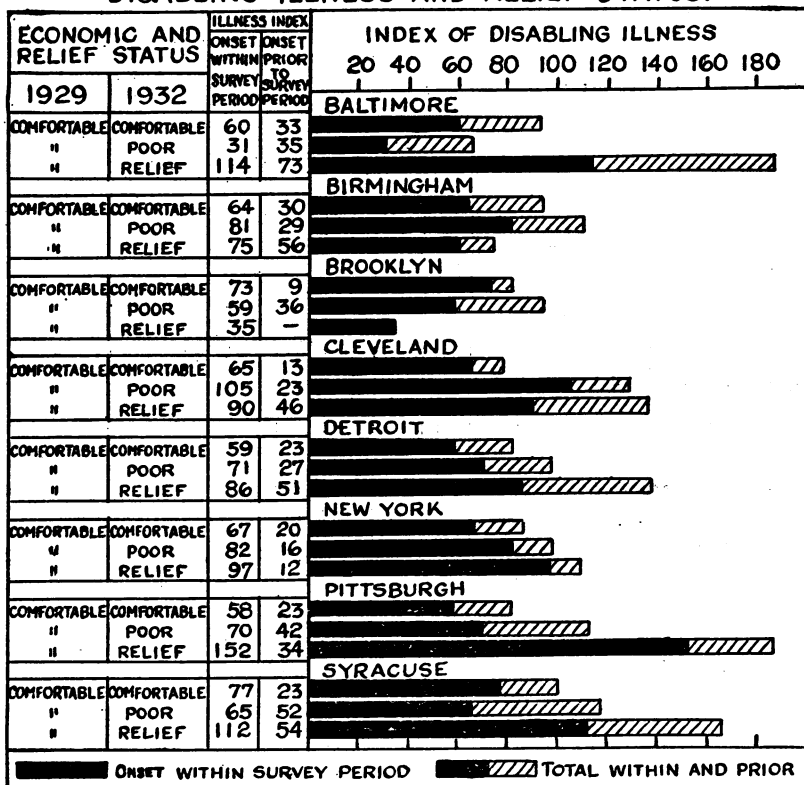


FIGURE 8.—Disabling illness in each of 8 localities during a 3-month period in the early spring of 1933 in white wage-earning families classified as "comfortable" in 1929 and (1) "comfortable", (2) "poor," and (3) "on relief" in 1932. (Illness rates, adjusted for age, are expressed as an index (100 equals the disabling illness rate, adjusted for age, onset within and prior to the survey period, for the entire canvassed population in the specified city). Ranges of income included as "comfortable" and "poor" are given in footnote 8, page 608.)

cance. In the other cities except Baltimore the group comfortable in 1929 and poor but not on relief in 1932 exhibits a lower illness rate than the relief group but higher than the group which was comfortable in 1929 and 1932. In all of the 8 cities except Baltimore the group which was comfortable in 1929 and poor but not on relief in 1932 has a higher illness rate than the class which was comfortable in 1929 and 1932. Results for the relief and nonrelief groups are given in detail in table 10.

TABLE 10.—Disabling illness in the early spring of 1933 as associated with change in annual per capita income, 1929-32, and relief status, 1932, among white wage-earning families in each of 8 large cities

Per capita income and relief status, 1929.....	Disabling illnesses per 1,000 persons for 3-month survey period ¹						Cases of disabling illness						Population observed					
	Comfortable		Moderate		Poor		Comfortable		Moderate		Poor		Comfortable		Moderate		Poor	
	Poor	Relief	Poor	Relief	Poor	Relief	Poor	Relief	Poor	Relief	Poor	Relief	Poor	Relief	Poor	Relief	Poor	Relief
1932.....																		
Baltimore.....	42	155	78	98	69	102	5	36	43	61	11	24	122	218	529	557	100	214
Onset within.....	48	99	46	66	96	76	7	22	23	30	14	13	239	79	447	272	91	100
Birmingham.....	118	109	105	86	101	49	28	9	50	25	9	5	139	24	294	35	135	16
Onset within.....	42	81	44	57	74	69	11	6	18	13	6	6						
Brooklyn.....	64	38	112	89	154	214	9	1	32	3	21	4						
Onset within.....	39	21	18	70	21	70	6	6	5		3	1						
Cleveland.....	140	120	74	100	106	120	28	32	43	59	31	41	210	282	604	552	309	333
Onset within.....	31	62	33	35	38	61	7	15	18	16	10	18	287	301	549	704	181	264
Detroit.....	89	107	55	111	45	74	28	36	30	82	8	20						
Onset within.....	34	63	36	40	46	58	9	16	17	23	7	13	220	114	650	289	404	330
New York.....	129	153	122	186	120	165	29	19	81	68	48	57	140	158	419	462	215	177
Onset within.....	25	19	41	80	31	40	6	2	24	13	11	11						
Pittsburgh.....	108	234	115	122	69	154	15	38	47	60	14	27	113	182	733	645	266	371
Onset within.....	64	52	38	74	49	39	11	9	15	28	9	6						
Syracuse.....	94	162	75	113	97	121	31	31	55	78	28	46						
Onset within.....	76	70	35	54	23	71	10	16	22	29	8	23						
Total 8 cities ²	103	142	90	113	97	120	153	202	181	434	167	224	1,479	1,328	4,225	3,516	1,761	1,806
Onset within.....	42	66	37	52	42	59	67	86	142	182	66	91						

¹ For definition of the groups "comfortable", "moderate", and "poor" see footnote 8, p. 608.

² Adjusted for age.

³ Weighted average.

DISCUSSION OF RESULTS

The general result is clearly shown, by surveys of samples of the poorer sections of eight large cities, that wage-earning families reduced to poverty during the depression suffered to a greater extent from disabling illness in 1933 than their more fortunate neighbors. Individuals in families supported by public or private relief exhibited a higher illness rate than any other group. This finding was true for children as well as for adults and in general for respiratory and non-respiratory illnesses, with the exception of the communicable diseases of childhood.¹⁴ Whatever the implications of the results, the fact remains that illness was most prevalent among those who could least afford this handicap.

However, the survey data raise the question of the relative importance of nurture and nature in bringing about the observed results. In other words, did reduced standard of living cause *increase* of illness among the new poor between 1929 and 1933 or were they more sickly than their neighbors even in 1929? Have we observed the *effect* of the depression on health or merely the results of a great sifting process?

In considering factors that may have brought about the situation in which a group of families characterized by a newly acquired poverty reported a relatively high illness rate, the methodology of the survey must be borne clearly in mind. All sickness data are for a 3-month period early in 1933 with no data for 1929 or other years; the economic data cover the years 1929 to 1932. If we find, as has been shown, a higher illness rate among the depression poor than existed among families remaining in the comfortable class for all 4 years, then it seems reasonable to suppose that reduced standard of living, including crowded housing conditions and lack of adequate food and clothing and medical care, which accompanied this loss of income, had a part in *causing* this higher sickness rate in 1933.

However, other factors may have played a part:¹⁵

(1) Unemployment of wage earners due to sickness probably contributed to the loss in income of certain families; these persons may have been concentrated in the group that suffered economic reverses during the depression and have been responsible for at least a part of the high illness rate in this group. However, analysis of the data shows this to be a relatively unimportant factor. Individuals unemployed due to sickness were not concentrated among the new poor, and, furthermore, the same excess in sickness rates was observed in this group when all families were excluded in which there was unem-

¹⁴ A forthcoming paper will analyze the results by age and by type of illness.

¹⁵ Knowingly false or unconsciously exaggerated reporting of illness by the poorer groups of the population does not appear to be a factor in the results observed, because the observed variation of illness with age, sex, and diagnosis agrees with other known data. Only an omniscient housewife could *invent* this complicated pattern.

ployment due to sickness at any time between 1929 and 1932 (prior to the survey period).

(2) The depression may have been a sifting process, separating the fit from the unfit. In spite of innumerable exceptions, the men who kept their jobs were, on the average, the more vigorous, capable, and intelligent ones. Moreover, with many exceptions, those who lost their jobs were less efficient than those who remained employed. This inefficiency may have been exhibited in many ways distinct from inability to compete in the economic struggle—perhaps a diathesis or tendency toward sickliness existed among these families as a concomitant of the economic inefficiency of the wage earner. This explanation of the higher sickness rates among the new poor does not assume sickness *per se* as a cause of unemployment, but postulates an inherent inferiority of which unemployment was one manifestation and ill health another. According to this hypothesis, the “new poor” would have exhibited a high illness rate even in 1929 (if they could have been singled out for observation), and their lowered standard of living during the depression was not the prime cause of their high illness rate.

The writers admit the possibility that selection played a part in bringing about the situation observed in 1933, but it does not seem probable that selection of the less fit by the depression screen is the whole story. Undoubtedly, those who became unemployed during the depression were, on the average, the least well equipped to compete in the keen struggle for jobs. For example (table 11), when we compare the “new poor” in the surveyed group with those who remained comfortable throughout the depression, we find that they had fewer household heads with high school or college education, fewer in the white-collar occupations in 1929, that they lived in more crowded living quarters even in 1929, and exhibited a higher birth rate. Some of these findings appear to indicate that families of certain *types* were least successful in weathering the depression. However, it seems highly improbable that a theory of selection contains the sole explanation of the results of the present survey. As a matter of fact, when illness rates are made specific for age, sex, race, education, occupation, and relief status, the association between drop in income and high illness rate is still evident.

A study now being made of the death rate among families who became unemployed during the depression will throw further light on the question, because it is possible to obtain information on deaths for a number of years prior to the canvass, which is not feasible in a sickness survey. Hence, *trends* in the death rate from 1929 to the present time can be studied for groups of families that had various types of economic history during the depression. Preliminary results indicate a rise in the death rate between 1929 and 1933 among families in which the wage-earner became unemployed during this period.

TABLE 11.—*Characteristics of white wage-earning families classified according to per capita income change, 1929-32: 5 cities surveyed early in 1933*¹

	Comfortable in 1929 and 1932 ²	Comfortable in 1929, poor in 1932 ²	Poor in 1929 and 1932 ²
Percentage of all families:			
With full-time workers, 1929.....	89.4	88.3	33.1
With full-time workers, 1932.....	72.7	7.0	19.7
With no employed workers, 1932.....	7	36.8	34.6
With chief wage-earner in white-collar occupation in 1929.....	33.4	9.6	13.0
On relief, 1929.....	3.0	.6	14.7
On relief, 1932.....	.7	55.9	58.9
With household head native of native parents.....	44.3	43.3	26.3
With household head having high school or college education.....	27.9	19.4	7.2
With unemployment due to sickness, 1931-32.....	6.3	6.0	9.1
Persons per family, 1933.....	2.8	4.0	6.1
Persons per room, 1929.....	.54	.78	1.21
Persons per room, 1933.....	.55	.93	1.27
Annual birth rate ³ per 1,000 married women, aged 15-44 years, 1929-32.....	107	133	178
Disabling illness per 1,000 persons for 3-month period ⁴	119	185	153

¹ Baltimore, Cleveland, Detroit, Pittsburgh, and Syracuse.

² For definition of groups "comfortable" and "poor", see footnote 3, p. 608.

³ Total family income was used in classifying families for birth-rate tabulation. "Comfortable" indicates annual family income of \$2,000 and over; "poor", under \$1,200. (Rates adjusted for age.)

⁴ Adjusted for age.

The facts that the excess in illness rates appears among children as well as adults and that the highest illness rates are exhibited by families that had dropped from the highest level in 1929 appear to point to a definite causal relation between lowered standard of living and high illness rate. But whatever the cause, the result of the depression has been to present to society for support a group of some 20 million persons in the United States who are on relief rolls and among whom sickness is probably more prevalent than in the rest of the population. It must be recognized that medical care and preventive services for these persons are a necessity of life as well as food, clothing, and shelter. These necessities must be made available to all if the health of the wage-earning population is to be maintained.

SUMMARY

Records of illness during a 3-month period early in 1933 and economic history from 1929 to 1932 have been collected from about 12,000 wage-earning families in the poorer sections of 8 large cities, a group of coal-mining communities, and a group of cotton-mill villages. This paper, the first of a series dealing with the investigation, presents the method of the study and general results for each locality.

Tremendous changes in economic status and standard of living took place among the surveyed families during the depression. The median income of the group in the 8 large cities dropped from \$1,650 in 1929 to \$870 in 1932. In 17 percent of the families the chief wage earner was without employment in 1932; in 10 percent of the families all wage earners were unemployed that year. Public and private relief agencies contributed to the support of 20 percent of the families for part or all of 1932.

Disabling illness was found to be 48 percent higher among families having no employed wage earners in 1932 than in families having full-time workers. The group of families that had dropped from fairly comfortable circumstances to relief rolls during the depression showed a rate of disabling illness 73 percent higher than that of their more fortunate neighbors who had remained in the comfortable class throughout the 4 years. The higher sickness rates were observed in general in each of the 8 large cities as well as in the group as a whole. No consistent association between illness and economic status was found in the two rural industrial communities. Insofar as disabling illness is evidence of ill health, the results of the survey show that families hardest hit by the depression suffered to a greater extent from ill health in 1933 than others who had weathered the depression more successfully.

While concentration of the less fit in the ranks of the unemployed may have played a part in bringing about the situation observed in 1933, it does not seem probable that selection is the whole story. Particularly significant are the facts that the highest illness rates were observed among those who had suffered the greatest *change* in standard of living and that the excess in illness existed among children as well as adults. Whatever the cause, the fact remains that illness was most prevalent among families reduced to poverty and on relief rolls, who could least afford this handicap.

In forthcoming papers analysis of illnesses will be made by cause, by age and sex, and by social status of the families as indicated by such items as nativity, education, and occupation of the household head. The broad implications of the results will be discussed further after these data shall have been presented.

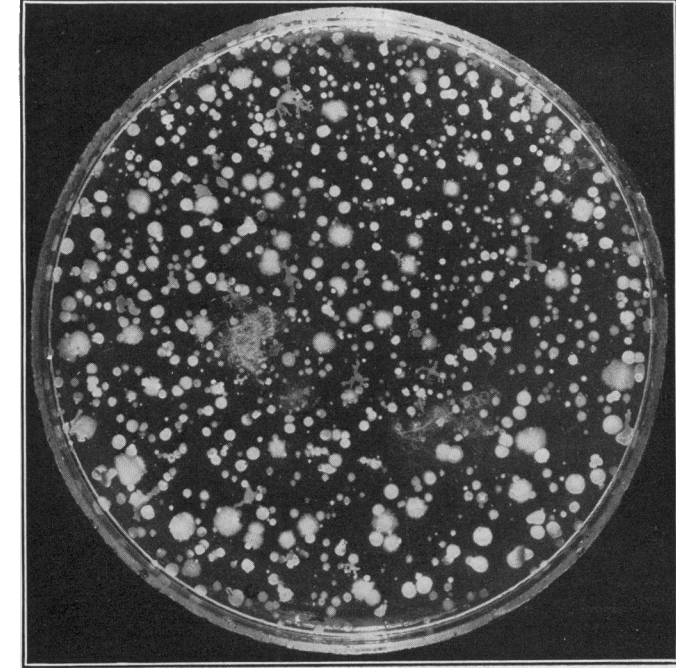
BACTERIAL CONTENT OF THE KANSAS DUST STORM ON MARCH 20, 1935

By CASSANDRA RITTER, *Bacteriologist, Division of Sanitation, Kansas State Board of Health, Lawrence, Kans.*

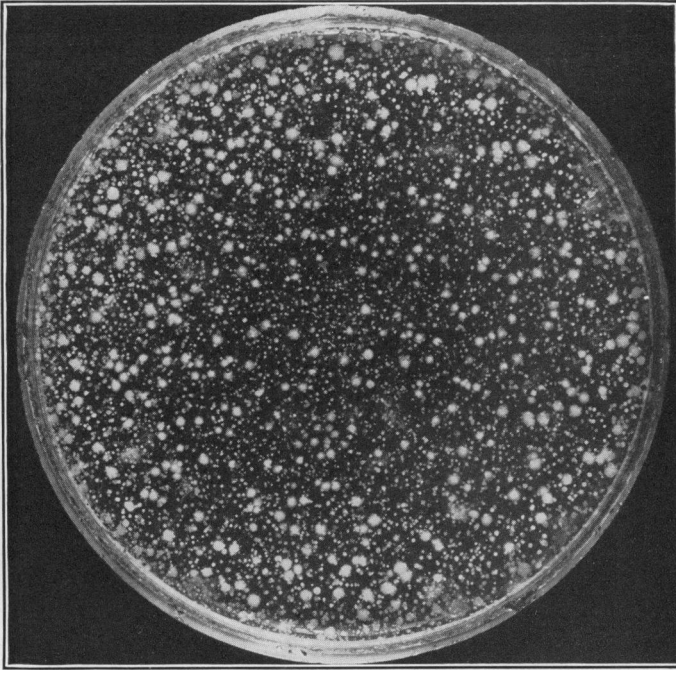
On March 20, 1935, there occurred a dust storm of unusual intensity, and the number of bacteria present, both outside and inside the laboratory, seemed to be a matter of such interest that they were determined by a simple experiment.

Petri dishes were prepared with sterile nutrient agar culture media. After the agar had hardened, the tops of the dishes were removed for certain lengths of time, which allowed the surface of the agar to become seeded with particles of dust. The plates were then incubated at 37° C. for 24 hours.

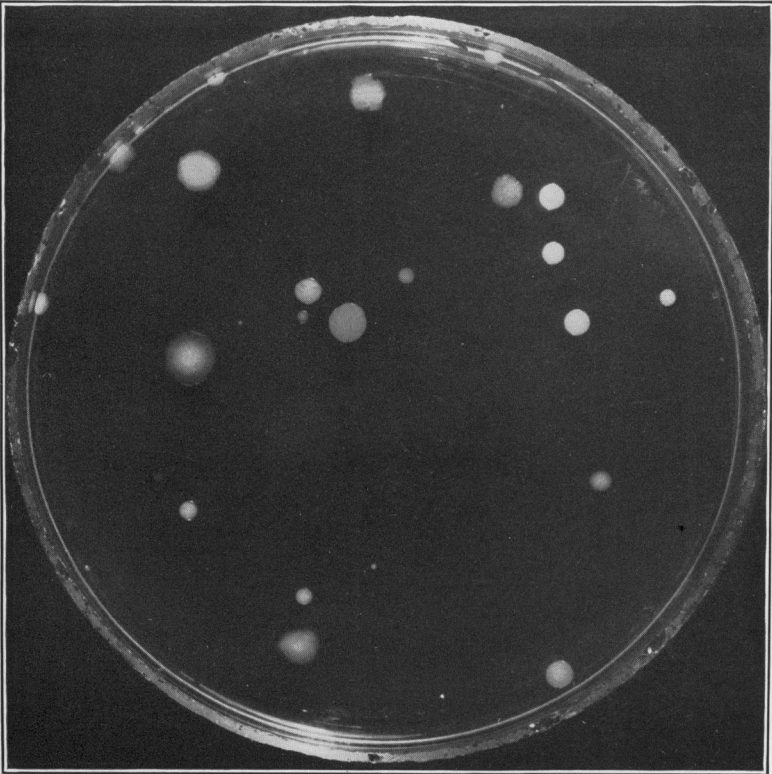
The outside exposures were made at the south entrance of Marvin Hall, University of Kansas, at Lawrence, where there was no obstruction to the wind. The exposures were made between 3 and 3:20



March 20, 1935. Exposure, 30 seconds.



March 20, 1935. Exposure 5 minutes.



March 25, 1935: Exposure, 5 minutes.

o'clock in the afternoon, after the storm had been in progress for several hours. Exposure times were 15 and 30 seconds, and 1, 1½, 2, 3, 5, and 10 minutes. In the laboratory, plates were exposed for 20 seconds and for 1 minute, and a control plate was not exposed.

It was possible to count the colonies on only a few plates. Those with longer exposures were not only too crowded, but it was obvious that all the organisms falling on the surface did not have a chance to develop. The counts that could be made were as follows:

15 seconds, duplicate plates.....	600 and 650 bacteria colonies.
30 seconds.....	1,100 bacteria colonies.
20 seconds, inside exposure.....	56 bacteria colonies.
1 minute, inside exposure.....	95 bacteria colonies.
Control plate, inside exposure.....	28 bacteria colonies.

As a matter of interest, the number of bacteria falling on 1 square foot per minute was computed. Using the number 600 falling on a Petri dish of measured area in 15 seconds, we calculated 31,000 bacteria per square foot per minute.

The colonies of bacteria on the plates appeared very similar to those formed by soil organisms, some of which will appear on plates made from raw waters. This was borne out by a microscopical examination of a number of colonies. Of 11 colonies examined, all but 2 had formed spores in 24 hours; they were all rather large bacillus forms, and most of them were Gram-positive. No coccus forms were found, either in that or later microscopical examinations. This strongly indicated that the bacteria surviving in the dust were resistant soil types.

In order to show the contrast between the number of bacteria present in the air during the dust storm and the number normally present, plates were exposed in the same location and at the same time on March 25. The day at the time of exposure, 3 o'clock, was clear and calm, although dust clouds had been visible in the morning. Plates exposed 1 minute and 5 minutes showed counts of 12 and 30, respectively. A plate exposed inside for 1 minute showed a count of 12.

DEATHS DURING WEEK ENDED APRIL 13, 1935

[From the Weekly Health Index, issued by the Bureau of the Census, Department of Commerce]

	Week ended Apr. 13, 1935	Correspond- ing week, 1934
Data from 86 large cities of the United States:		
Total deaths.....	8,438	8,874
Deaths per 1,000 population, annual basis.....	11.8	12.4
Deaths under 1 year of age.....	579	675
Deaths under 1 year of age per 1,000 estimated live births.....	53	63
Deaths per 1,000 population, annual basis, first 15 weeks of year.....	12.7	12.6
Data from industrial insurance companies:		
Policies in force.....	67,734,319	67,698,617
Number of death claims.....	13,248	14,298
Death claims per 1,000 policies in force, annual rate.....	10.2	11.0
Death claims per 1,000 policies, first 15 weeks of year, annual rate.....	10.8	11.1

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers

Reports for Weeks Ended Apr. 20, 1935, and Apr. 21, 1934

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended Apr. 20, 1935, and Apr. 21, 1934

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Apr. 20, 1935	Week ended Apr. 21, 1934	Week ended Apr. 20, 1935	Week ended Apr. 21, 1934	Week ended Apr. 20, 1935	Week ended Apr. 21, 1934	Week ended Apr. 20, 1935	Week ended Apr. 21, 1934
New England States:								
Maine.....		1	8		109	14	0	0
New Hampshire.....					2	167	0	1
Vermont.....	2				46	53	0	0
Massachusetts.....	3	14			453	1,953	3	2
Rhode Island.....	2			2	343	3	1	0
Connecticut.....	2		6	2	1,065	52	1	1
Middle Atlantic States:								
New York.....	33	62	19	10	3,156	1,227	24	1
New Jersey.....	12	16	15	16	1,244	657	3	0
Pennsylvania.....	35	36			3,044	4,033	6	3
East North Central States:								
Ohio.....	49	31	19	14	1,549	1,207	11	4
Indiana.....	20	15	22	14	365	1,073	4	1
Illinois.....	29	31	46	21	3,197	1,813	23	15
Michigan.....	5	17	2	1	6,488	251	5	2
Wisconsin.....	1	3	6	24	1,555	1,595	1	2
West North Central States:								
Minnesota.....	6	3	3		615	231	1	0
Iowa.....	8	11	3	4	537	240	4	0
Missouri.....	44	34	103	49	776	936	8	4
North Dakota.....	5	1	13	2	31	152	0	0
South Dakota.....	6	3	1		68	336	0	0
Nebraska.....	5	1		10	365	232	0	0
Kansas.....		9	8	2	1,372	510	2	0
South Atlantic States:								
Delaware.....	1	1			13	102	0	0
Maryland.....	5	9	7	8	49	1,900	6	0
District of Columbia.....	15	7	2	2	92	226	5	2
Virginia.....	11	18			735	1,400	7	2
West Virginia.....	17	19	37	64	317	89	1	8
North Carolina.....	11	16	10	17	225	2,238	1	1
South Carolina.....	6	7	157	372	39	708	1	0
Georgia.....	4	6				592	0	1
Florida.....	2	9	2	2	81	1,187	0	0

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended Apr. 20, 1935, and Apr. 21, 1934—Continued

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Apr. 20, 1935	Week ended Apr. 21, 1934	Week ended Apr. 20, 1935	Week ended Apr. 21, 1934	Week ended Apr. 20, 1935	Week ended Apr. 21, 1934	Week ended Apr. 20, 1935	Week ended Apr. 21, 1934
East South Central States:								
Kentucky.....	16	9	20	6	514	185	4	1
Tennessee.....	5	5	40	39	19	816	6	0
Alabama.....	12	17	73	53	214	881	2	1
Mississippi ¹	1	6					2	0
West South Central States:								
Arkansas.....	4	1	18	7	70	65	1	3
Louisiana ¹	19	18	4	6	35	349	0	1
Oklahoma ⁴	11	5	58	39	91	240	4	0
Texas ¹	36	79	301	169	185	942	6	2
Mountain States:								
Montana.....	2	1	27	110	609	40	0	0
Idaho ¹	1		3	2	4	36	0	0
Wyoming ¹	2	3			120	90	0	0
Colorado.....	5	3			233	352	1	1
New Mexico.....	3	2	6	2	27	162	0	0
Arizona.....		3	9	14	23	58	2	0
Utah ¹	3			5	10	256	0	0
Pacific States:								
Washington.....	1	5			342	156	3	2
Oregon ¹	7		33	37	205	87	1	0
California.....	30	42	62	36	1,413	942	4	3
Total.....	497	580	1,133	1,161	32,046	30,943	154	64
First 16 weeks of year.....	10,985	13,021	96,179	40,248	420,741	408,544	2,138	903

Division and State	Polio-myelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Apr. 20, 1935	Week ended Apr. 21, 1934	Week ended Apr. 20, 1935	Week ended Apr. 21, 1934	Week ended Apr. 20, 1935	Week ended Apr. 21, 1934	Week ended Apr. 20, 1935	Week ended Apr. 21, 1934
New England States:								
Maine.....	0	0	6	11	0	0	1	1
New Hampshire.....	0	0	9	12	0	0	0	0
Vermont.....	0	0	7	11	0	0	0	0
Massachusetts.....	0	0	237	225	0	0	5	3
Rhode Island.....	0	0	7	22	0	0	0	0
Connecticut.....	0	0	110	91	0	0	0	0
Middle Atlantic States:								
New York.....	0	0	1,241	874	0	0	10	8
New Jersey.....	2	0	173	212	0	0	0	4
Pennsylvania.....	0	0	548	741	0	0	3	11
East North Central States:								
Ohio.....	1	1	773	796	3	0	5	5
Indiana.....	0	0	168	169	0	0	2	7
Illinois.....	0	2	1,251	610	0	5	18	4
Michigan.....	0	1	352	803	0	1	2	2
Wisconsin.....	0	0	410	242	14	50	2	1
West North Central States:								
Minnesota.....	0	1	339	66	0	7	0	1
Iowa.....	0	0	81	55	18	4	0	0
Missouri.....	0	1	69	95	2	7	4	8
North Dakota.....	0	0	66	24	0	0	0	0
South Dakota.....	0	0	8	4	5	6	0	1
Nebraska.....	0	1	57	49	33	2	1	0
Kansas.....	2	0	70	39	17	11	2	2
South Atlantic States:								
Delaware.....	0	0	7	8	0	0	0	1
Maryland.....	0	0	108	58	0	0	7	7
District of Columbia.....	0	0	90	14	0	0	0	1
Virginia.....	0	0	26	29	0	0	11	5
West Virginia.....	0	1	57	78	0	0	3	20
North Carolina.....	0	0	14	23	2	2	7	1
South Carolina.....	0	1	6	8	0	0	1	0
Georgia ¹	0	0	5	10	1	0	11	16
Florida.....	0	0	3	3	0	2	8	7

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended Apr. 20, 1935, and Apr. 21, 1934—Continued

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Apr. 20, 1935	Week ended Apr. 21, 1934	Week ended Apr. 20, 1935	Week ended Apr. 21, 1934	Week ended Apr. 20, 1935	Week ended Apr. 21, 1934	Week ended Apr. 20, 1935	Week ended Apr. 21, 1934
East South Central States:								
Kentucky.....	0	0	28	43	0	0	8	0
Tennessee.....	0	1	25	26	0	1	5	2
Alabama.....	0	0	8	9	0	0	1	3
Mississippi ¹	0	0	5	8	0	1	1	1
West South Central States:								
Arkansas.....	0	0	4	3	1	1	1	1
Louisiana ²	0	0	4	24	0	9	18	20
Oklahoma ³	0	1	11	9	1	8	6	4
Texas ⁴	0	0	50	81	11	36	6	14
Mountain States:								
Montana.....	0	1	5	8	5	0	0	0
Idaho ⁵	0	0	4	4	1	9	0	0
Wyoming ⁶	0	0	21	8	15	0	0	1
Colorado.....	0	0	215	31	0	0	0	2
New Mexico.....	1	0	14	22	1	0	5	4
Arizona.....	0	0	55	15	0	0	1	2
Utah ⁷	0	0	135	11	0	6	0	0
Pacific States:								
Washington.....	0	0	48	31	15	8	1	4
Oregon ⁸	0	0	58	50	2	9	1	1
California.....	2	10	205	213	3	2	6	6
Total	8	22	7,193	5,974	150	182	163	181
First 16 weeks of year	386	328	115,048	97,044	3,068	2,383	2,103	2,409

¹ New York City only.

² Typhus fever, week ended Apr. 20, 1935, 6 cases, as follows: Georgia, 1; Louisiana, 1; Texas, 4.

³ Week ended earlier than Saturday.

⁴ Exclusive of Oklahoma City and Tulsa.

⁵ Rocky Mountain spotted fever, week ended Apr. 20, 1935, 5 cases, as follows: Idaho, 2; Wyoming, 2; Oregon, 1.

SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of cases reported monthly by States is published weekly and covers only those States from which reports are received during the current week.

State	Menin- gococ- cus menin- gitis	Diph- theria	Influ- enza	Malaria	Measles	Pel- lagra	Polio- mye- litis	Scarlet fever	Small- pox	Ty- phoid fever
<i>January 1935</i>										
Colorado.....	1	34	17	-----	2,795	-----	1	1,049	10	5
New Hampshire.....	-----	7	5	-----	-----	-----	0	48	0	0
<i>February 1935</i>										
Colorado.....	8	43	30	2	3,457	-----	1	1,206	15	4
New Hampshire.....	-----	-----	-----	-----	-----	-----	0	32	0	0
<i>March 1935</i>										
Illinois.....	88	250	266	12	13,448	-----	2	5,187	2	28
Maine.....	1	7	254	-----	1,170	-----	2	79	0	8
Maryland.....	15	23	202	1	389	2	1	458	0	9
Michigan.....	8	56	27	-----	16,266	-----	1	1,929	0	7
Minnesota.....	9	31	86	-----	7,126	-----	5	916	55	-----
New Jersey.....	10	89	89	5	5,388	-----	3	786	0	10
Ohio.....	59	220	278	-----	6,471	-----	3	4,735	0	15
Oregon.....	7	1	489	-----	473	-----	1	254	5	4
Pennsylvania.....	18	200	-----	-----	2,110	1	2	2,757	0	17
South Carolina.....	23	99	1,775	279	248	84	0	61	0	8
South Dakota.....	5	24	20	-----	273	-----	1	65	0	0
Tennessee.....	32	60	851	34	462	6	0	127	0	9
Texas.....	25	279	5,217	785	855	81	5	429	77	60
West Virginia.....	12	62	495	-----	2,189	-----	1	388	-----	16
Wyoming.....	1	5	-----	-----	741	-----	0	95	42	0

January 1935		March 1935—Continued		March 1935—Continued	
	Cases		Cases		Cases
Colorado:					
Chicken pox.....	519	Food poisoning:		Septic sore throat—Contd.	
Impetigo contagiosa.....	8	Ohio.....	7	Maryland.....	21
Mumps.....	131	German measles:		Michigan.....	88
Tetanus.....	1	Illinois.....	5,768	Ohio.....	297
Trachoma.....	1	Maine.....	252	Oregon.....	17
Vincent's infection.....	4	Maryland.....	135	Tennessee.....	14
Whooping cough.....	96	New Jersey.....	1,576	Wyoming.....	9
		Ohio.....	3,775		
		Pennsylvania.....	3,429	Tetanus:	
		Tennessee.....	5	Illinois.....	2
		Hookworm disease:		New Jersey.....	2
		South Carolina.....	46	Ohio.....	1
		Impetigo contagiosa:		Trachoma:	
		Illinois.....	1	Illinois.....	765
		Maryland.....	6	Michigan.....	5
		Oregon.....	31	Ohio.....	1
		Tennessee.....	1	South Dakota.....	5
		Jaundice, acute infectious:		Tennessee.....	30
		Michigan.....	6	Trichinosis:	
		Lead poisoning:		Illinois.....	8
		Illinois.....	9	Maine.....	9
		New Jersey.....	9	Maryland.....	1
		Ohio.....	2	New Jersey.....	2
		Mumps:		Ohio.....	7
		Illinois.....	699	Pennsylvania.....	2
		Maine.....	53	Tularaemia:	
		Maryland.....	123	Illinois.....	5
		Michigan.....	977	Maryland.....	3
		New Jersey.....	723	Michigan.....	2
		Ohio.....	2,007	New Jersey.....	2
		Oregon.....	951	South Carolina.....	1
		Pennsylvania.....	4,008	Tennessee.....	5
		South Carolina.....	342	Typhus fever:	
		South Dakota.....	238	Tennessee.....	1
		Tennessee.....	197	Texas.....	18
		Texas.....	568	Undulant fever:	
		West Virginia.....	418	Illinois.....	7
		Wyoming.....	10	Maine.....	5
		Ophthalmia neonatorum:		Maryland.....	1
		Illinois.....	4	Michigan.....	8
		Maryland.....	1	Minnesota.....	12
		Minnesota.....	1	New Jersey.....	2
		New Jersey.....	1	Ohio.....	5
		Ohio.....	68	Oregon.....	1
		Pennsylvania.....	4	Pennsylvania.....	1
		South Carolina.....	14	South Carolina.....	1
		Tennessee.....	2	Tennessee.....	1
		Paratyphoid fever:		Texas.....	2
		Illinois.....	1	Vincent's infection:	
		Maine.....	1	Illinois.....	16
		Maryland.....	1	Maine.....	11
		Michigan.....	1	Maryland.....	15
		Oregon.....	2	Michigan.....	23
		Texas.....	3	Oregon.....	8
		Puerperal septicemia:		Tennessee.....	8
		Illinois.....	5	Whooping cough:	
		Ohio.....	9	Illinois.....	1,075
		Rabies in animals:		Maine.....	141
		Illinois.....	37	Maryland.....	199
		Maryland.....	6	Michigan.....	1,073
		New Jersey.....	7	Minnesota.....	103
		Oregon.....	2	New Jersey.....	1,672
		South Carolina.....	73	Ohio.....	755
		Rocky Mountain spotted fever:		Oregon.....	121
		Oregon.....	2	Pennsylvania.....	1,478
		Scabies:		South Carolina.....	152
		Maryland.....	2	South Dakota.....	39
		Oregon.....	44	Tennessee.....	230
		Septic sore throat:		Texas.....	483
		Illinois.....	19	West Virginia.....	207
		Maine.....	1	Wyoming.....	49

WEEKLY REPORTS FROM CITIES

City reports for week ended Apr. 13, 1935

[This table summarizes the reports received regularly from a selected list of 121 cities for the purpose of showing a cross section of the current urban incidence of the communicable diseases listed in the table. Weekly reports are received from about 700 cities, from which the data are tabulated and filed for reference]

State and city	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Small-pox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
		Cases	Deaths								
Maine:											
Portland.....	0		0	0	6	6	0	0	2	0	29
New Hampshire:											
Concord.....	0		0	0	2	3	0	0	0	3	13
Nashua.....	0			0		0	0		0	0	
Vermont:											
Barre.....											
Burlington.....	0		0	69	0	1	0	0	0	0	15
Massachusetts:											
Boston.....	2		0	34	25	54	0	7	1	13	214
Fall River.....	1		0	16	7	3	0	1	0	2	30
Springfield.....	0		0	134	1	11	0	1	0	10	47
Worcester.....	0		0	5	10	22	0	1	0	5	62
Rhode Island:											
Pawtucket.....	1		0	0	0	0	0	0	0	0	14
Providence.....	0		0	141	7	9	0	3	0	16	75
Connecticut:											
Bridgeport.....	0	1	0	2	4	9	0	1	0	3	32
Hartford.....	1		0	28	10	16	0	1	0	18	60
New Haven.....	0		0	634	4	1	0	0	0	0	46
New York:											
Buffalo.....	1		1	153	13	53	0	7	0	20	140
New York.....	25	5	3	1,472	153	848	0	92	5	223	1,465
Rochester.....	0		0	245	2	14	0	1	0	30	64
Syracuse.....	0		0	431	5	8	0	1	0	26	60
New Jersey:											
Camden.....	3	2	0	1	5	5	0	0	0	0	38
Newark.....	0	6	0	490	11	11	0	7	0	80	116
Trenton.....	0		0	23	5	5	0	5	0	2	49
Pennsylvania:											
Philadelphia.....	8	11	7	36	51	121	0	23	0	78	499
Pittsburgh.....	3	8	4	507	25	46	0	11	0	21	182
Reading.....	1		0	62	2	9	0	2	0	1	23
Scranton.....	0			56		1	0		0	0	
Ohio:											
Cincinnati.....	4		2	3	14	31	0	9	0	0	122
Cleveland.....	9	53	2	500	15	52	0	14	1	33	194
Columbus.....	2		0	166	6	36	0	3	0	5	69
Toledo.....	0	2	1	98	5	14	0	4	1	19	75
Indiana:											
Fort Wayne.....	3		1	14	3	2	0	1	0	1	23
Indianapolis.....	0		0	77	20	20	0	8	0	22	115
South Bend.....	0		0	3	3	8	0	0	0	0	20
Terre Haute.....	1		0	0	0	1	0	0	0	0	23
Illinois:											
Chicago.....	19	5	3	1,568	57	675	0	36	2	61	724
Springfield.....	0		1	22	2	19	0	1	0	12	27.
Michigan:											
Detroit.....	1	2	2	2,832	24	145	0	15	1	123	267
Flint.....	0		1	51	4	8	0	1	0	2	27
Grand Rapids.....	0		1	140	4	10	0	0	0	31	43
Wisconsin:											
Kenosha.....	0		0	73	1	34	0	0	0	5	6
Milwaukee.....	0	1	1	141	7	139	0	5	0	42	107
Racine.....	0		0	71	1	14	0	0	0	7	9
Superior.....	0		0	80	1	1	0	0	0	0	7
Minnesota:											
Duluth.....	0		0	437	6	0	0	0	0	1	28
Minneapolis.....	3		0	499	10	166	0	1	0	27	97
St. Paul.....	3	1	1	13	7	43	0	0	0	13	66
Iowa:											
Davenport.....	0			1		1	0		0	0	
Des Moines.....	2			396		5	0		0	0	34
Stoux City.....	2			3		1	0		0	1	
Waterloo.....	3	2		2		2	0		0	0	
Missouri:											
Kansas City.....	8		1	130	10	7	0	5	0	2	103
St. Joseph.....	0		0	5	1	0	0	1	2	2	8
St. Louis.....	12		2	24	15	12	0	13	1	3	206

City reports for week ended Apr. 13, 1935—Continued

State and city	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Small-pox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
	Cases	Deaths								
North Dakota:										
Fargo.....	1	1	7	0	10	0	0	0	0	9
Grand Forks.....	0		1		4	0		0	2	
South Dakota:										
Aberdeen.....	0		23		0	0		0	0	
Nebraska:										
Omaha.....	2	1	74	9	10	1	0	0	0	57
Kansas:										
Topeka.....										
Wichita.....	0	0	490	2	5	0	0	0	1	32
Delaware:										
Wilmington.....	0	0	4	6	9	0	0	0	1	22
Maryland:										
Baltimore.....	1	4	2	32	26	51	0	14	1	22
Cumberland.....	0	0	3	0	1	0	0	0	0	9
Frederick.....	0	0	0	0	0	0	0	0	0	4
District of Col.:										
Washington.....	16	2	1	50	18	74	0	21	0	4
Virginia:										
Lynchburg.....	0	0	17	1	1	0	1	0	30	16
Norfolk.....	0	1	41	5	2	0	0	0	5	44
Richmond.....	0	2	129	4	0	0	1	0	0	57
Roanoke.....	1	0	15	1	0	0	0	0	0	19
West Virginia:										
Charleston.....	0	0	8	3	2	0	2	0	0	23
Huntington.....	1		3		3	0	0	0	0	
Wheeling.....	0	1	60	4	4	0	0	0	3	16
North Carolina:										
Raleigh.....	0	0	0	2	0	0	1	0	0	5
Wilmington.....	0	0	0	2	1	0	0	0	6	11
Winston-Salem.....	0	0	3	2	2	0	0	0	4	11
South Carolina:										
Charleston.....	0	10	3	2	0	0	2	0	0	22
Columbia.....	0	0	0	1	0	0	0	0	0	19
Greenville.....	0	0	1	1	3	0	0	0	0	16
Georgia:										
Atlanta.....	4	23	0	0	8	2	0	4	0	62
Brunswick.....	0	0	0	0	0	0	0	0	0	5
Savannah.....	0	2	2	0	4	1	0	1	1	26
Florida:										
Miami.....	1	2	4	1	0	0	1	0	4	23
Tampa.....	1	0	68	1	2	0	1	0	3	27
Kentucky:										
Ashland.....	0	0	15	1	0	0	0	0	0	
Lexington.....	1	0	20	1	0	0	0	0	4	19
Louisville.....	1	4	0	442	11	19	0	0	47	66
Tennessee:										
Memphis.....	0	0	1	7	4	0	3	1	5	69
Nashville.....	0	1	1	6	14	0	1	0	2	60
Alabama:										
Birmingham.....	3	6	20	6	1	0	4	0	9	57
Mobile.....	0	1	1	2	1	0	3	0	0	29
Montgomery.....	1		27		0			0	4	
Arkansas:										
Fort Smith.....	0		0		0	0		0	1	
Little Rock.....	1	0	26	6	0	0	0	0	1	7
Louisiana:										
New Orleans.....	17	2	2	49	8	7	0	9	7	131
Shreveport.....	1	0	3	7	0	0	5	0	0	51
Texas:										
Dallas.....	5	2	1	4	4	0	1	0	1	42
Fort Worth.....	0	0	0	3	0	0	3	2	0	35
Galveston.....	1	0	0	3	1	0	0	0	0	11
Houston.....	4	0	4	4	0	1	4	0	0	64
San Antonio.....	0	2	0	4	1	0	9	0	1	66
Montana:										
Billings.....	0	0	14	0	0	0	0	0	0	7
Great Falls.....										
Helena.....	0	0	18	0	0	0	0	0	1	5
Missoula.....	0	0	150	0	1	0	0	0	0	5
Idaho:										
Boise.....	0	0	1	1	3	0	0	0	0	8
Colorado:										
Denver.....	4	43	0	147	4	136	2	6	6	93
Pueblo.....	0		0	116	0	3	0	1	0	6

City reports for week ended Apr. 13, 1935—Continued

State and city	Diphtheria cases	Influenza		Measles cases	Pneumonia death	Scarlet fever cases	Small-pox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all cases
		Cases	Deaths								
New Mexico:											
Albuquerque..	1	-----	0	1	1	0	0	2	0	1	10
Utah:											
Salt Lake City..	0	-----	1	7	5	84	0	1	0	115	33
Nevada:											
Reno.....	0	-----	0	2	0	0	0	0	0	0	4
Washington:											
Seattle.....	0	-----	0	130	1	13	3	3	0	7	84
Spokane.....	0	-----	0	173	1	7	0	1	0	0	45
Tacoma.....	0	-----	0	3	3	4	3	0	0	5	36
Oregon:											
Portland.....	0	1	0	121	6	9	0	0	0	0	75
Salem.....	0	-----	0	0	-----	1	0	0	0	0	-----
California:											
Los Angeles.....	7	32	2	65	14	55	1	26	0	11	337
Sacramento.....	0	-----	0	113	1	9	0	2	0	0	19
San Francisco..	2	1	0	24	11	18	0	14	1	16	196

State and city	Meningococcus meningitis		Polio-myelitis cases	State and city	Meningococcus meningitis		Polio-myelitis cases
	Cases	Deaths			Cases	Deaths	
Rhode Island:				Missouri:			
Providence.....	0	1	0	St. Joseph.....	2	0	0
Connecticut:				Nebraska:			
Hartford.....	0	0	1	Omaha.....	0	1	0
New York:				Maryland:			
New York.....	6	9	1	Baltimore.....	4	0	1
Rochester.....	2	0	0	District of Columbia:			
New Jersey:				Washington.....	4	1	0
Newark.....	0	1	0	Virginia:			
Pennsylvania:				Norfolk.....	1	1	0
Pittsburgh.....	1	2	0	Kentucky:			
Ohio:				Louisville.....	2	0	0
Cincinnati.....	8	3	0	Tennessee:			
Cleveland.....	2	0	0	Nashville.....	1	0	0
Toledo.....	2	2	0	Alabama:			
Indiana:				Birmingham.....	1	0	0
Indianapolis.....	1	0	0	Louisiana:			
Illinois:				New Orleans.....	1	0	1
Chicago.....	10	4	0	Washington:			
Springfield.....	2	1	0	Seattle.....	1	2	0
Michigan:				Spokane.....	0	0	1
Detroit.....	3	1	0	Oregon:			
Wisconsin:				Portland.....	4	2	0
Milwaukee.....	0	1	0	California:			
Minnesota:				Los Angeles.....	4	2	0
Minneapolis.....	1	0	0	Sacramento.....	1	0	0
Iowa:				San Francisco..	0	0	1
Davenport.....	1	1	0				
Sioux City.....	1	0	0				

Epidemic encephalitis.—Cases: New York, 16; Cleveland, 2; Toledo, 1; St. Paul, 1.
Pellagra.—Cases: Winston-Salem, 2; Charleston, S. C., 3; Atlanta, 1; Tampa, 1.
Typhus fever.—Cases: New York, 1; Atlanta, 1.

FOREIGN AND INSULAR

CEYLON

Malaria.—A report dated March 1, 1935, states that the peak of the malaria epidemic was thought to have been passed in Ceylon. A severe drought in many parts of the island was causing additional anxiety. The following mortality figures were given, showing the great increase in deaths (all causes) which occurred during the epidemic.

	<i>Number of deaths</i>		<i>Number of deaths</i>
November 1933.....	9,447	November 1934.....	12,200
December 1933.....	9,049	December 1934.....	19,738
January 1934.....	11,541	January 1935.....	36,255

CUBA

Provinces—Notifiable diseases—4 weeks ended April 6, 1935.—During the 4 weeks ended April 6, 1935, cases of certain notifiable diseases were reported in the Provinces of Cuba, as follows:

Disease	Pinar del Rio	Habana	Matan- zas	Santa Clara	Cama- guey	Oriente	Total
Cancer.....	1	2	—	4	—	—	7
Chicken pox.....	—	5	—	1	4	1	11
Diphtheria.....	—	—	4	1	—	1	6
Hookworm disease.....	—	—	—	7	—	—	7
Leprosy.....	—	—	—	2	—	21	23
Malaria.....	188	—	42	778	137	460	1,605
Measles.....	—	13	7	34	—	2	56
Poliomyelitis.....	1	—	—	2	—	—	3
Tuberculosis.....	4	5	24	70	12	51	166
Typhoid fever.....	—	1	8	21	20	6	56

CZECHOSLOVAKIA

Communicable diseases—February 1935.—During the month of February 1935, certain communicable diseases were reported in Czechoslovakia, as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Anthrax.....	6	1	Paratyphoid fever.....	5	—
Cerebrospinal meningitis.....	25	6	Poliomyelitis.....	8	2
Chicken pox.....	275	1	Puerperal fever.....	42	15
Diphtheria.....	2,554	195	Scarlet fever.....	1,630	20
Dysentery.....	11	4	Trachoma.....	81	—
Influenza.....	41,747	37	Typhoid fever.....	309	33
Lethargic encephalitis.....	2	1	Typhus fever.....	18	—
Malaria.....	6	—			

NOTE.—Figures for December 1934 and January 1935 are provisional.

ITALY

Communicable diseases—4 weeks ended December 9, 1934.—During the 4 weeks ended December 9, 1934, certain communicable diseases were reported in Italy, as follows:

Disease	Nov. 12-18		Nov. 19-25		Nov. 26-Dec. 2		Dec. 3-9	
	Cases	Com-munes affected	Cases	Com-munes affected	Cases	Com-munes affected	Cases	Com-munes affected
Anthrax.....	21	20	22	21	12	12	15	14
Cerebrospinal meningitis.....	13	13	10	9	12	11	13	12
Chicken pox.....	263	113	417	130	432	144	345	118
Diphtheria and croup.....	658	377	872	380	898	440	826	384
Dysentery.....	11	10	8	6	9	8	10	7
Lethargic encephalitis.....	6	6	3	3	1	1	1	1
Measles.....	1,382	256	1,808	252	1,857	300	2,000	292
Poliomyelitis.....	13	10	14	13	16	14	7	7
Scarlet fever.....	511	221	550	203	515	185	476	190
Typhoid fever.....	604	359	655	351	559	324	563	319

YUGOSLAVIA

Communicable diseases—March 1935.—During the month of March 1935, certain communicable diseases were reported in Yugoslavia, as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Anthrax.....	29	2	Paratyphoid fever.....	5	2
Cerebrospinal meningitis.....	17	6	Scarlet fever.....	192	7
Diphtheria and croup.....	559	60	Sepsis.....	13	7
Dysentery.....	16	1	Tetanus.....	16	10
Erysipelas.....	155	7	Typhoid fever.....	159	20
Influenza.....	70,620	109	Typhus fever.....	117	7
Measles.....	1,787	34			

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER

(NOTE.—A table giving current information of the world prevalence of quarantinable diseases appeared in the PUBLIC HEALTH REPORTS for Apr. 26, 1935, pp. 580-594. A similar cumulative table will appear in the PUBLIC HEALTH REPORTS to be issued May 31, 1935, and thereafter, at least for the time being, in the issue published on the last Friday of each month.)

Plague

British East Africa—Kenya.—During the week ended March 16, 1935, 1 case of plague was reported at Kenya, British East Africa.

Indo-China—Island of Nao-Tchao.—During the period March 1-10, 1935, 20 cases of plague with 15 deaths were reported in the Island of Nao-Tchao, Indo-China.

Yellow Fever

Sierra Leone—Freetown.—On March 10, 1935, 1 case of yellow fever was reported at Freetown, Sierra Leone.