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## PHYSICAL IMPAIRMENTS OF MEMBERS OF LOW-INCOME FARM FAMILIES-11,490 PERSONS IN 2,477 RURAL FAMILIES EXAMINED BY THE FARM SECURITY ADMINISTRATION, ${ }^{1} 1940{ }^{2}$

## VII. VARIATION OF BLOOD PRESSURE AND HEART DISEASE WITH AGE; AND THE CORRELATION OF BLOOD PRESSURE WITH HEIGHT AND WEIGHT

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This series of studies made on physical examination findings presents the prevalence of impairments and chronic diseases found among low-income farm families residing in selected areas of the country. These studies contribute to our knowledge of the prevalence of chronic diseases by the addition of observations on farm families to the existing data from other sources.

From November 1939 through November 1940 the Farm Security Administration made physical examinations of members of borrower families as part of a rehabilitation program. They examined the members of all borrower families residing within selected counties; thirteen of the counties were in southern States and six in northern or intermediate sections. The mean age of the total population examined ( 9,776 whites and 1,714 Negroes) is relatively young compared with that of the total population of the United States owing to the fact that young heads of families were selected for rehabilitation loans. The income of these examined families is comparatively low; the Bureau of Agricultural Economics estimates an average annual net income of $\$ 767$ per farm for all farms in 1940, while a comparable average annual net income for all rural rehabilitation farms, estimated

[^0]by the Farm Security Administration, is $\$ 500$ based on data for 1940. Further general details of the examined population can be obtained from a preceding study in this series $(16, \mathrm{I})$.

All members of borrower families (actually 91 percent of the total) were brought by automobile to examination clinics set up at central positions in each county. Each team of examining physicians consisted of an eye, ear, nose and throat specialist, an internist, gynecologist, psychologists, laboratory workers and a nurse. The same examination form was in use in all localities in an effort to keep the examining procedure uniform. Blood pressures were taken by physicians who recorded manometer readings. The subject, 15 years or over, was usually in a sitting position and blood pressures were read without regard to a specific rest period. One reading only was made routinely on each individual. To what extent blood pressure readings in these data have been affected by environmental factors is uncertain, but environmental influences are probably no greater in these results than in those of other examined groups. Some of the localities were isolated and their populations not well acquainted with hospital or clinic facilities; many persons and entire groups, however, were very cooperative as was shown by the results of the psychometric tests.

Whereas, records of blood pressure are objective and therefore give a minimum of variation associated with examiner, the prevalence of diseases and defects in these data must be considered as representing average examination findings of a relatively small number of physicians. In recording the presence of diseases or defects the examining physician made a notation of his findings under the general headings of "mouth," "chest," "abdomen," etc., and also at the end of the examination form under "summary of defects" and "measures recommended for correction."

## Distributions of Blood Pressure by Age for a Farm Population

Means of systolic and diastolic blood pressure at successive ages have appeared in medical literature from time to time since 1915. The chief sources of such information are studies on school children, insurance records, college students, industrial groups, Army officers, persons in homes for the aged, and general hospital cases and personnel. On the whole, the studies are of urban groups and made on persons of an average or above-average income status except those made in homes for the aged. The industrial groups examined were in establishments where investigations were made by the Public Health Service of possible hazards in connection with a particular industry. Insurance policyholders' records are of urban industrial groups of at least moderate income. In contrast, this study deals with an exclusively rural group of comparatively low-income status.
Table 1．－Mean systolic blood pressure for white persons in two age groups－members of rural borrower families examined by the Farm Security

| Geographic area | State | County | Number examined for blood pressure |  | Mean systolic blood pressure ${ }^{1}$（mm．） |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  | Male |  | Female |  |
|  |  |  | Male | Female | 15－44 | 45 and over | 15－44 | 45 and over |
|  | Maine＿－．．．．．．．．．．．．．．．．．．．．．．．．．．．．．．－ | Aroostook．．．．．．．．．．．．．．．．．．．．．．．．．．．．．．．．．．．． |  | 114 | $138 \pm 0.71$$130 \pm .94$ | $143 \pm 1.78$$137 \pm 2.56$ | $131 \pm 0.80$$126 \pm 1.02$ | $166 \pm 2.85$ |
|  |  |  | 130 |  |  |  |  | $156 \pm 3.46$ |
| West North Central | Missouri－ | Montgomery ．．．．．．．．．．．．．．．．．．．．．．．．． | 208 | 178 | $130 \pm 1.10$ | $143 \pm 2.16$ | $187 \pm 1.27$ | $16 \%$ $154 \pm 2.37$ |
|  |  |  | 154 | 145 | $130 \pm .93$ | $145 \pm 2.32$ | $130 \pm 1.10$ | $148 \pm 3.63$ |
| Mountain． | Colorado． | Phillips．．．．．．．．．．．．．．．．．．．．．．．．．．．．．．．．．．．．．．．．．．．．．． | 112 | 11445 | $128 \pm .83$$131 \pm 1.78$ | $141 \pm 2.59$$153 \pm 48$ | $123 \pm .90$ | $155 \pm 3.97$$161 \pm 4.81$ |
| South Atlantic．－．．．．．．．．．．．．．．．．．． | Virginia． |  |  |  |  |  | $131 \pm 1.88$ |  |
|  | North Carolina |  | $\begin{array}{r}68 \\ \hline 189\end{array}$ | 70 | $121 \pm 1.24$ | $148 \pm 3.71$ | $118 \pm 1.25$ | $142 \pm 4.46$$172 \pm 4.43$ |
|  | South Carolina |  |  | 174 | $140 \pm 1.16$ | $169 \pm 2.34$$147 \pm 2.90$ | $183 \pm 1.28$$129 \pm .90$ |  |
|  | Georgia | Worth． | 189 141 | 128 | 185土 ． 94 |  |  | $\begin{aligned} & 178 \pm 4.43 \\ & 146 \pm 4.06 \end{aligned}$ |
|  | Florida． | Levy．．．．． | 191147 | 185 |  | $156 \pm 2.15$$159 \pm 3.82$ | $121 \pm .71$$129 \pm .99$ | $\begin{aligned} & 146 \pm 2.76 \\ & 160 \pm 3.38 \end{aligned}$ |
| East South Central． | Tennessee |  |  | 141 | 139士．95 |  |  |  |
|  | Mississippi． |  | 117 | 103 | $128 \pm 1.00$ | $148 \pm 2.84$ | $185 \pm 1.51$ | $167 \pm 3.99$ |
|  | Arkansas． | Pope | $\begin{array}{r} 202 \\ 175 \\ 256 \\ 99 \\ 94 \\ 93 \end{array}$ | $\begin{array}{r} 195 \\ 171 \\ 243 \\ 75 \\ 90 \\ 94 \end{array}$ | $\begin{aligned} & 124 \pm .79 \\ & 123 \pm .67 \\ & 126 \pm .74 \\ & 126 \pm .85 \\ & 131 \pm .96 \\ & 126 \pm .78 \end{aligned}$ | $\begin{aligned} & 138 \pm 2.14 \\ & 138 \pm 1.81 \\ & 138 \pm 1.90 \\ & 141 \pm 2.35 \\ & 140 \pm 2.89 \\ & 137 \pm 2.77 \end{aligned}$ | $\begin{aligned} & 185 \pm .77 \\ & 125 \pm .78 \\ & 187 \pm .88 \\ & 131 \pm 1.82 \\ & 120 \pm 1.14 \\ & 125 \pm 1.33 \end{aligned}$ | $\begin{aligned} & 156 \pm 2.31 \\ & 148 \pm 3.20 \\ & 171 \pm 3.04 \\ & 160 \pm 5.99 \\ & 153 \pm 3.99 \\ & 152 \pm 3.62 \end{aligned}$ |
| West South Central | Oklahoma |  |  |  |  |  |  |  |
|  | Louisiana． |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
|  | Texas． |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
| 19 localities |  |  | 2， 749 | 2， 582 | 130土 ． 23 | 146土 ． 59 | 129土． 26 | 157土． 84 |
| North 2 <br> South 2 |  |  | $\begin{array}{r} 926 \\ 1,823 \end{array}$ | $\begin{array}{r} 868 \\ 1,714 \end{array}$ | $\begin{aligned} & 131 \pm .35 \\ & 130 \pm .29 \end{aligned}$ | $\begin{aligned} & 143 \pm .87 \\ & 148 \pm .78 \end{aligned}$ | $129 \pm .42$$130 \pm .33$ | $\begin{aligned} & 158 \pm 1.34 \\ & 156 \pm 1.08 \end{aligned}$ |
|  |  |  |  |  |  |  |  |  |

${ }^{1}$ Means printed in italics are signiflicantly higher than the mean for all localities；the difference is 3 or more times its probable error．
2 ＂North＂includes localities in the New England，East North Central，West North Central，and Mountain sections．＂South＂includes localities in the South Atlantic，East
South Central，and West South Central sections．

Variability in mean systolic blood pressure ${ }^{3}$ for different geographic sections (table 1) is relatively slight. There are several localities, however, which deviate significantly from the mean of all localities. The blood pressure means recorded for males in Kershaw County, S. C., Levy County, Fla., and Henderson County, Tenn., and for females in Montgomery County, Ind., Kershaw County, S. C., and Franklin Parish, La., are significantly above the average. The reason


Figure 1.-Percentage distribution of systolic and diastolic blood pressure (millimeters of mercury) at specific ages for white and Negro males and fe-males-members of rural borrower families examined by the Farm Security Administration, 1940.

[^1]for these relatively high means is not clear from the data；they occur mainly，however，among Southern groups．Blood pressure means are slightly but significantly higher in the South than in the North for males 45 years of age and over．Examinations for life insurance（18）， however，show no association of mean blood pressure with altitude or latitude within the Temperate Zone；examinations of persons living temporarily in the tropics，including Army officers（23，32，38）indicate lower blood pressures there than in temperate or cold climates for the same ages．

Standard deviations of distributions of blood pressure by age in these data，for both systolic and diastolic pressure，increase after 40 years of age，the increase being marked after 50 years．There is no bimodal appearance to the distributions，however（fig．1）．From about 40 years of age on，means and standard deviations of both systolic and

Table 2．－Mean，median，and standard deviation of age－specific distributions of blood pressure－members of white rural borrower families examined by the Farm Security Administration， 19 localities， 1940

| Age | White male |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | Systolic pressure ${ }^{2}$（mm．） |  |  | Diastolic pressure ${ }^{2}$（mm．） |  |
|  | Mean | Median | Standard deviation | Mean | Standard deviation |
| 15－19． | $125.8 \pm 0.40$ | $125.1 \pm 0.50$ | 13． $5 \pm 0.28$ | $73.9 \pm 0.27$ | $9.0 \pm 0.19$ |
| 20－24 | $132.5 \pm .60$ | 132．4土． 76 | $12.8 \pm .43$ | 76．8土 ． 41 | $8.7 \pm .29$ |
| 25－29 | 130．9土 ． 60 | 129．6士 ． 75 | 13．8土 ． 42 | 77．1土 ． 39 | $9.0 \pm$ ． 28 |
| 30－34 | 131．3土 ． 55 | $130.1 \pm$ ． 69 | 13．9土 ． 39 | $77.2 \pm .35$ | $8.9 \pm$ ． 25 |
| 35－39 | $132.1 \pm .59$ | 131． $5 \pm .74$ | 15．2土． 41 | 79．1土 ． 38 | $9.8 \pm .27$ |
| 40－44 | 132．4土 ． 64 | 130．8土 ． 80 | 16．8土 ． 45 | $79.9 \pm$ ． 41 | 10．7土 ． 29 |
| 45－49 | 138．7土．85 | $136.0 \pm 1.06$ | $20.4 \pm .60$ | $83.1 \pm .48$ | $11.5 \pm$ ． 34 |
| 50－54． | $141.1 \pm 1.02$ | $138.1 \pm 1.27$ | $24.2 \pm .72$ | $83.7 \pm$ ． 53 | 12．5土．37 |
| 55－59 | $151.9 \pm 1.57$ | $144.5 \pm 1.97$ | $28.1 \pm 1.11$ | $88.9 \pm .77$ | 13．8土 ． 55 |
| 60－64 | $154.4 \pm 1.74$ | $150.2 \pm 2.18$ | $27.3 \pm 1.23$ | $86.7 \pm .95$ | $14.9 \pm .67$ |
| 65 and over | $159.4 \pm 1.92$ | 154．7士2．40 | $28.3 \pm 1.35$ | $89.2 \pm 1.05$ | 15．4土 ． 74 |
|  | White female |  |  |  |  |
|  | Systolic pressure ${ }^{2}$（mm．） |  |  | Diastolic pressure ${ }^{2}$（mm．） |  |
|  | Mean | Median | Standard deviation | Mean | Standard deviation |
| 15－19． | $124.5 \pm 0.39$ $123.0 \pm 0.49$ $12.7 \pm 0.28$ $76.1 \pm 0.23$ $7.3 \pm 0.16$ |  |  |  |  |
| 20－24． | $124.8 \pm .50$ | 124．1土 ． 63 | $12.8 \pm .35$ | 76． $5 \pm .33$ | $8.4 \pm .23$ |
| 25－29 | 127．5土 ． 59 | 126．2土 ． 74 | 14．4土 ． 42 | $78.4 \pm .37$ | $9.1 \pm .26$ |
| 30－34 | 128．7土 ． 54 | 127．8土 ． 67 | 14．6土 ． 38 | $80.4 \pm .32$ | $8.6 \pm$ ． 22 |
| 35－39 | 133．4土 ． 70 | 131．3土 ． 88 | 18．4土 ． 50 | $82.6 \pm .40$ | $10.4 \pm$ ． 28 |
| 40－44 | 141．0土 ． 94 | 135．6 $\pm 1.18$ | $23.5 \pm .66$ | $85.7 \pm .46$ | $11.4 \pm$ ． 32 |
| 45－49 | $148.2 \pm 1.12$ | 144．6 $\pm 1.41$ | 26．5土 ． 79 | $88.5 \pm .54$ | $12.8 \pm .38$ |
| 50－54 | 158．0土1．66 | $152.8 \pm 2.08$ | $31.5 \pm 1.18$ | $90.9 \pm .76$ | 14．4土 ． 54 |
| 55－59 | 167．4土2． 20 | $164.5 \pm 2.75$ | $32.4 \pm 1.55$ | $93.5 \pm .89$ | $13.1 \pm .63$ |
| 60－64 | $162.9 \pm 2.77$ | $155.5 \pm 3.47$ | $26.6 \pm 1.96$ | $89.1 \pm 1.25$ | $12.0 \pm .88$ |
| 65 and over | 174．4 $\pm 3.19$ | $173.3 \pm 4.00$ | $31.7 \pm 2.26$ | $95.6 \pm 1.51$ | 15．0 $\pm 1.06$ |

[^2]diastolic pressure increase significantly in successive age groups（table 2 and figs． 1 and 2）．The rate of increase in mean systolic blood pres－ sure with age is also more rapid after approximately 40 years of age （figs． 3 and 4）．

Sex differences in age－specific blood pressure are marked（table 2 and fig．2）．After approximately 35 years of age both means and standard deviations of systolic and diastolic pressure are significantly greater for females than males．

Distributions of blood pressure for Negroes have the same general characteristics as the white（fig．1）；mean systolic and diastolic pressures are，however，higher for Negroes in specific age groups（table 3 and fig．2）．Negro women between 35 and 54 years of age have particularly high average systolic and diastolic blood pressures relative to the white in these data．This relatively high age－specific mean blood

Table 3．－Mean，median，and standard deviation of age－specific distributions of blood pressure for Negro and white persons－members of rural borrower families examined by the Farm Security Administration， 9 localities ${ }^{1} 1940$

| Age | Systolic pressure ${ }^{2}$（mm．） |  |  | Diastolic pressure ${ }^{2}$（mm．） |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | Mean | Median | Standard deviation | Mean | Standard deviation |
|  | Negro male |  |  |  |  |
| 15－24． | $132.1 \pm 0.98$ | $130.0 \pm 1.23$ | $18.4 \pm 0.70$ | $79.9 \pm 0.70$ | $13.1 \pm 0.50$ |
| 25－34． | $136.7 \pm 1.69$ | $133.1 \pm 2.11$ | 18．4土1．19 | $82.6 \pm 1.28$ | 14．0土．91 |
| 35－44． | $142.7 \pm 2.42$ | $136.7 \pm 3.03$ | $28.7 \pm 1.71$ | $87.6 \pm 1.40$ | 16．6土．99 |
| 45－54 | $152.4 \pm 1.97$ | $146.4 \pm 2.47$ | $28.4 \pm 1.40$ | $92.7 \pm 1.21$ | $17.4 \pm .86$ |
| 55 and over | $162.8 \pm 2.46$ | $160.0 \pm 3.09$ | $32.3 \pm 1.74$ | $96.9 \pm 1.37$ | 17．9士．97 |
|  | Negro female |  |  |  |  |
| 15－24． | $128.1 \pm 0.82$ | 126．9 $\pm 1.03$ | 15．7 $\pm 0.58$ | $79.3 \pm 0.53$ | $10.2 \pm 0.37$ |
| 25－34 | $137.5 \pm 1.83$ | $132.2 \pm 2.29$ | $24.2 \pm 1.29$ | $85.9 \pm 1.01$ | $13.4 \pm .71$ |
| 35－44 | $154.2 \pm 1.93$ | $150.3 \pm 2.41$ | $29.7 \pm 1.36$ | $93.6 \pm .96$ | $14.9 \pm .68$ |
| 45－54． | 172．4土2．90 | $164.6 \pm 3.64$ | $35.2 \pm 2.05$ | $97.7 \pm 1.27$ | $15.4 \pm .90$ |
| 55 and over． | 179．4土4．32 | $181.3 \pm 5.41$ | $36.8 \pm 3.05$ | $99.2 \pm 2.07$ | $17.6 \pm 1.46$ |
|  | White male |  |  |  |  |
| 15－24． | $125.7 \pm 0.48$ | 125．3 $\pm 0.60$ | $13.9 \pm 0.34$ | $75.4 \pm 0.30$ | $8.7 \pm 0.21$ |
| 25－34 | 129．4土． 54 | $128.3 \pm$ ． 68 | 13．6土． 38 | $78.3 \pm .35$ | $8.8 \pm .25$ |
| 35－44． | 133．3土． 70 | $131.3 \pm .88$ | 18．3土． 50 | $81.8 \pm .41$ | 10．7土 ． 29 |
| 45－54． | $142.0 \pm 1.00$ | $138.8 \pm 1.26$ | 24．2土． 71 | $85.2 \pm .53$ | 12．8土． 37 |
| 55 and over． | 158．2 $2 \pm 1.55$ | $154.1 \pm 1.95$ | $30.4 \pm 1.10$ | $91.2 \pm .74$ | 14．5土． 53 |
|  | White female |  |  |  |  |
| 15－24． | 125．9土．40 | 125．0土． 50 | 12．3土 ． 28 | 76．9土 ． 24 | $7.3 \pm .17$ |
| 25－34． | 129．7土 ． 57 | $128.4 \pm .71$ | 14．8土 ． 40 | $79.9 \pm .35$ | $9.2 \pm .25$ |
| 35－44 | 140．5士． 91 | 135．7 $\pm 1.14$ | $23.4 \pm .64$ | $84.8 \pm .45$ | 11．6土 ． 32 |
| 45－54 | $152.1 \pm 1.46$ | 148．1 $\pm 1.83$ | $29.8 \pm 1.03$ | $87.6 \pm .67$ | 13．6土 ． 47 |
| 55 and over． | $169.3 \pm 2.35$ | $163.8 \pm 2.94$ | $32.1 \pm 1.66$ | $91.6 \pm 1.07$ | 14．6土 ． 75 |

[^3]pressure for Negroes compared with the white is substantiated by other observations (2, 10, 34). Age-specific means of systolic blood pressure for Negroes are high, however, in these farm data compared with those for Negroes recorded in the studies just referred to.


Figure 2.-Age-specific means of systolic and diastolic blood pressure and pulse pressure (millimeters of mercury) for white and Negro males and femalesmembers of rural borrower families examined by the Farm Security Administration, 1940.

## Age-specific Means of Blood Pressure in Data from Other Sources

The variation of mean blood pressure with age has been frequently demonstrated. Data from several sources are shown in figures 3 and 4. Although the level of mean blood pressure varies among data from different sources, the general aspects of a curve of mean blood pressure covering the entire life span are obvious. Mean systolic blood pressure rises rapidly with age until 17-19 years for boys and 15-16 years for girls, after which it declines somewhat or changes relatively little until middle age when the mean again increases with age, earlier and more rapidly for women than men. Mean systolic blood pressure shows a slight decline in extreme old age. Mean diastolic blood pressure also increases rapidly until 15-19 years of age, and then increases gradually throughout the remainder of the life span, the rate of increase being somewhat greater for women than men.

Age-specific means of systolic blood pressure, as they are recorded for the following groups, are on much the same level, namely, urban industrial workers, patients in hospital out-patient services, and United States Army officers (figs. 3 and 4). The Life Extension examinations on the other hand, are of an urban industrial group previously selected


Figure 3.-Age-specific means of systolic and diastolic blood pressure for white males assembled from various sources (see note).

NOTE.-The following refers to both figures 3 and 4 unless otherwise stated:
Line 2: Rucker and Connell (33). Observations on 47 infants.
Line 3: Faber and James (12). Observations on 651 boys and 450 girls.
Line 4: Figure 3. Schwartz, Britten, and Thompson (36). Observations on 2,200 urban men and boys.

Line 4: Figure 4. Burlage (8). Observations on 1,684 women students and girls.

Line 5: Figure 3. Britten and Thompson (7). Observations on 10,000 male urban industrial workers.
for general good health and their blood pressure means are on a definitely low level. Examinations for life insurance also (1, 35, 41) are obviously of a selected group with respect to blood pressure, and their averages are so low at older ages, that their records have not


Figure 4.-Age-specific means of systolic and diastolic blood pressure for white females assembled from various sources (see note).

Line 5: Figure 4. Flinn et al. (14). Observations on 1,557 men and 873 women in industry.

Line 6: Wetherby (42). Observations on 2,282 men and 3,258 women of outpatient hospital service.

Line 7: Figure 3. Jenss (19). Observations on 1,139 Army officers.
Line 8: Robinson and Brucer (31). Observations on 7,478 men and 3,405 women urban policyholders.

Line 9: Miller (27). Observations on 853 men and 128 women residents of New York City Farm Colony.

Line 10: Willius and Smith (44). Observations on 371 hospital patients.
been included here. The examinations of low-income farmers and their families give mean systolic pressures that are definitely above those recorded for other groups. The levels of mean diastolic pres-
sure, on the other hand, are less variable in different data: the means for the farm population are similar to those for selected data from other sources except for the Life Extension Institute data (figs. 3 and 4).

With respect to an urban-rural comparison of blood pressure, Shepard and Diehl (37) record the prevalence of so-called hypertension among students examined at the University of Minnesota. Those examined were divided into five size-of-city groups, according to the size of the place in which the student had held longest residence. The results show an orderly decrease in the prevalence of hypertension as size-of-city increases, the percentage in rural areas being the highest. Wheeler (43) found that systolic blood pressure readings of 160 mm . or higher were more frequent among examinations in a rural area of Cattaraugus County, N. Y., than was reported by an urban hospital out-patient service.

A recent study of blood pressure at specific ages (24) uses as a measure of high blood pressure a reading of 150 mm . or more of systolic, combined with 90 mm . or more of diastolic, pressure. The same criterion is used in every age group. The percentage of persons

Tarle 4.-Age-specific prevalence of high blood pressure as defined variously by systolic and diastolic pressure-members of white rural borrower families examined by the Farm Security Administration, 19 localities, 1940

${ }^{1}$ Listed in table 1.
at specific ages who have high blood pressure must necessarily increase with age. In these farm data the percentage with high blood pressure so defined, at ages 20,40 , and 60 years is approximately 2 , 10 , and 40 percent for men and 2,20 , and 60 percent for women, respectively. High blood pressure has also been defined as other combinations of systolic and diastolic pressure; some of these are shown for the farm data in table 4.

- The only measure of high blood pressure which can be used to compare the farm data with the recent study made by Master, Marks, and Dack (24) of blood pressure readings on some 15,000
persons, is a systolic pressure of 150 mm . or more. Such a comparison is shown in figure 5; here also, the farm population shows a comparatively large percentage of persons with high blood pressure at specific ages.


Figure 5.-Percentage at specific ages of white males and females with 150 millimeters or more systolic blood pressure-rehabilitation farm families (FSA) ; 10,000 male industrial workers (PHS) (7) ; and data from Master, Marks and Dack, examinations of persons over 40 years of age.

In computing the percentage of the population with high blood pressure at specific ages the criterion used for high blood pressure, so far as the author has found in a review of the literature, may vary but is always the same figure applied in every age group. Some allowance might well be made for a normal increase in mean blood pressure with advancing age from which to measure high or above-the-mean blood pressure at successive ages. From table 2 of this study mean systolic and diastolic pressures in three age groups are approximately as follows:

| Age | Male |  | Female |  |
| :---: | :---: | :---: | :---: | :---: |
|  | Mean systolic pressure (mm.) | Mean diastolic pressure (mm.) | Mean systolic pressure (mm.) | Mean diastolic pressure (mm.) |
| Under 45 | 130 | 80 | 130 | 80 |
| 45-54. | 140 | 80 | 150 | 90 |
| 55-64 | 150 | 90 | 160 | 90 |
| 65 and over | 160 | 90 | 170 | 95 |

It is obvious that when age-specific criteria are used, as could be done for the general population from a table similar to the above, the
'Table 5.-Prevalence of specified circulatory conditions as recorded for white persons in two broad age groups-members of rural borrower families examined by the Farm Security Administration, 11 localities, 1940

| County and State | Total examined |  | Heart disease only ${ }^{1}$ |  | Heart disease and hy pertension ${ }^{2}$ |  | Hypertension only ${ }^{1}$ |  | Arteriosclerosis only ${ }^{1}$ |  | Blood pressure Sys: $150+$ and Dias: $90+$ |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 15-44 | 45 and over | 15-44 | 45 and over | 15-44 | 45 and over | 15-44 | $\begin{gathered} 45 \text { and } \\ \text { over } \end{gathered}$ | 15-44 | $\left\|\begin{array}{c} 45 \text { and } \\ \text { over } \end{array}\right\|$ | 15-44 | $\begin{gathered} 45 \text { and } \\ \text { Over } \end{gathered}$ |
|  | White male |  |  |  |  |  |  |  |  |  |  |  |
|  | Number |  | Percent |  |  |  |  |  |  |  |  |  |
| Aroostook, Maine | 142 | 72 | 9.2 | 1.4 | 1.4 |  | 5.6 | 18.1 |  | 8.3 | 4.9 | 29.2 |
| Champaign, Ohio | 92 | 39 | 30.4 | 23.1 |  | 2.6 | 3.3 | 5.1 |  | 2.6 | 2.2 | 17.9 |
| Montgomery, Ind. | 65 | 45 | 9.2 | 17.8 |  |  |  | 6.7 |  |  |  | 15.6 |
| Callaway, Mo | 137 | 72 | 3.6 |  |  | 4.2 | 5.8 | 9.7 |  | 4.2 | 2.9 | 20.8 |
| Spotsylvania, Va | 29 | 22 | 3.4 | 18.2 |  |  | 6.9 | 27.3 | 3.4 | 4.5 | 10.3 | 45.5 |
| Avery, N. ${ }^{\text {c }}$ | 46 | 23 | 23.9 | 4.3 |  | 30.4 |  | 4.3 |  | 17.4 |  | 43.5 |
| Kershaw, S. C | 127 | 63 | 15.7 | 7.9 | 3.1 | 31.7 | 13.4 | 27.0 | 4.7 | 22.2 | 18.1 | 74.6 |
| Levy, Fla | 127 | 71 | 13.4 | 7.0 | 3.9 | 28.2 | 1.8 | 14.1 |  | 2.8 | 9.4 | 43.7 |
| Henderson, Tenn | 116 | 33 | . 9 | 3.0 | . 9 | 3.0 | 17.2 | 33.3 |  |  | 11.2 | 45.5 |
| Pope, Ark | 149 | 54 | . 7 | 1.9 |  | 1.9 |  | 3.7 |  | 7.4 | . 7 | 13.0 |
| Okfuskee, Okla | 115 | 62 | . 9 | 3.2 |  | 1.6 |  | 12.9 |  |  | 1.7 | 17.7 |
| 11 localitie | 1,145 | 556 | 9.1 | 6.7 | 1.0 | 9.7 | 5.2 | 14.4 | . 6 | 6.3 | 5.9 | 32.6 |
|  | White female |  |  |  |  |  |  |  |  |  |  |  |
|  | Number |  | Percent |  |  |  |  |  |  |  |  |  |
| Aroostook, Maine. | 158 | 59 | 3.8 | 1.7 | 0.6 | 15.3 | 5.7 | 28.8 |  |  | 12.7 | 59.3 |
| Champaign, Ohio | 91 | 26 | 3.3 | 7.7 |  | 3.8 | 2.2 | 15.4 |  |  | 6.6 | 46.2 |
| Montgomery, Ind. | 83 | 30 | 2.4 | 20.0 | 1.2 | 16.7 | 4.8 | 13.3 |  |  | 20.5 | 76.7 |
| Callaway, Mo | 121 | 61 | 5.0 | 3.3 |  | 4.9 | . 8 | 18.0 |  |  | 3.3 | 47.5 |
| Spotsylvania, Va | 32 | 14 | 9.4 | 7.1 |  | 7.1 | 6.3 | 21.4 |  | 7.1 | 6.3 | 42.9 |
| Avery, N. C- | 57 | 14 | 7.0 | 7.1 |  | 7.1 |  |  |  | 7.1 | 1.8 | 21.4 |
| Kershaw, S. C. | 146 | 31 | 2.1 | 6.5 | 1.4 | 9.7 | 5.5 | 35.5 | 3.4 |  | 15.1 | 71.0 |
| Levy, Fla---.--- | 133 | 55 | 3.0 |  |  | 18.2 | 6.0 | 5.5 |  |  | . 8 | 25.5 |
| Henderson, Tenn | 111 | 32 | 6.3 | 6.3 |  | 6.3 | 2.7 | 53.1 |  |  | 3.6 | 56.3 |
| Pope, Ark | 176 | 32 | 1.7 |  |  |  |  | 3.1 |  |  | - 8.0 | 40.6 |
| Okfuskee, Okla | 127 | 45 |  | 2.2 |  | 2.2 |  | 8.9 |  |  | . 8 | 20.0 |
| 11 localities. | 1,235 | 399 | 3.3 | 4.5 | . 3 | 9.0 | 3.0 | 18.8 | . 4 | . 5 | 7.4 | 46.1 |

1 Cases of heart disease, hypertension, and arteriosclerosis were recorded by the physician in the following subdivisions and combinations of subdivisions:

| Diagnosis | White male |  | White female |  |
| :---: | :---: | :---: | :---: | :---: |
|  | 15-44 | $\begin{aligned} & 45 \text { and } \\ & \text { over } \end{aligned}$ | 15-44 | $\begin{aligned} & 45 \text { and } \\ & \text { over } \end{aligned}$ |
|  | Number of cases |  |  |  |
| Heart disease only: |  |  |  |  |
| Diseases of the mitral valve | 6 | 1 |  |  |
| Other chronic rheumatic heart disease. <br> Diseases of the coronary arteries and angina pectoris. | 21 3 | 1 | 7 | 1 |
| Functional diseases of the heart.-.............. | 9 | 3 | 6 |  |
| Other diseases of the heart | 65 | 21 | 26 | 15 |
| Heart disease with arteriosclerosis. |  | 7 | 2 | 1 |
| Heart disease and hypertension: |  |  |  |  |
| Hypertensive cardio-vascular disease.-.-.-.---.-.-.- | 10 | 27 | 4 | 35 |
| Hypertensive cardio-vascular disease with arteriosclerosis. | 2 | 27 |  | 1 |
| Hypertension only: --..-.....-.-.-. |  |  |  |  |
| Other hypertensive vascular diseases.....--.-...-...-- Arteriosclerosis only: Arteriosclerosis | 4 5 | 30 50 | ${ }_{3}^{2}$ | 7 |
|  | 7 | 35 | 5 | 2 |
| Total number of cases. | 182 | 206 | 87 | 131 |

percentage of persons with high blood pressure does not increase as rapidly with age as it does when computed from a base which is not age-specific.

## Recorded Cases of Heart Disease and Hypertension

Variability in the recorded prevalence of circulatory diseases (table 6) is extreme in these data. The high prevalence of cases of hypertension and arteriosclerosis seen in some counties, however, is on the whole substantiated by blood pressure readings.

Compared with other available data (table 7), which includes National Youth Administration, university student, and Selective Service exminations, these farm data show a relatively high recorded prevalence of cardiovascular disease in young ages, particularly among men. The age-specific prevalence of heart diseases in these data (fig. 6) shows high rates under 30 years for men and boys and under 20 years for women and girls; the increase in the rate is so marked at these young ages, particularly for men, that the assumption is that a comparatively high prevalence of the after effects of rheumatic fever was recorded as heart disease for this low-income farm group. A comparison of these data with the National Youth Administration examinations of boys and girls shows a comparatively high rate among boys (17-19 years) in these farm families, whereas girls have about the same prevalence rates in the two groups. For ages over 30 years the prevalence of heart disease among men in the low-income farm

Table 6.-Age-specific prevalence of specified circulatory conditions-members of white rural borrower families examined by the Farm Security Administration, 11 localities, 1940

| Age | Total examined |  | White male |  |  |  | White female |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Male | Female | Heart disease ${ }^{2}$ (total) | Hyper- ten- sion (total) | Arteri-osclerosis ${ }^{2}$ (only) | Blood pressys: $150+$ and Dias: 90+ | Heart discase ${ }^{2}$ (total) |  | Arteri-osclerosis ${ }^{2}$ (only) | Blood presSys: $150+$ and Dias: $90+$ |
| All ages...........-- | Number |  | Percent |  |  |  |  |  |  |  |
|  | 3,000 | 2,905 | 9.5 | 6.8 | 1.4 | 8.3 | 6.0 | 5.2 | 0.2 | 9.5 |
| Under 5 | 355 | 378 | 2.3 |  |  |  | 2.6 |  |  |  |
| 5-9 | 461 | 413 | 7.6 |  | -- |  | 6.1 |  |  |  |
| 10-14. | 483 | 480 | 7.2 |  |  |  | 8.1 |  |  |  |
| 15-19 | 333 | 316 | 12.3 | 6.6 | . 3 | 2.7 | 3.2 |  |  | 6 |
| 20-24- | 145 | 197 | 12.4 | 5.5 | -..---- | 3.4 | 2.0 | . 5 | ------- | 2.5 |
| 25-29 | 150 | 169 | 8.7 | 5.3 |  | 3.3 | 3.0 | 1.8 |  | 3.6 |
| 30-34 | 154 | 190 | 6.5 | 7.8 |  | 7.8 | 4.2 | 3.7 |  | 6.8 |
| 35-39 | 177 | 186 | 11.3 | 5.1 | . 6 | 7.3 | 3.8 | 7.5 | . 5 | 14.0 |
| 40-44 | 186 | 177 | 7.5 | 6.5 | 2.7 | 12.4 | 6.2 | 9.0 | 2.3 | 22.6 |
| 45-49 | 155 | 151 | 11.0 | 12.9 | 5.2 | 21.9 | 7.9 | 19.2 | . 7 | 36. 4 |
| 50-54. | 163 | 112 | 12.9 | 19.6 | 3.7 | 27.0 | 9.8 | 25.9 | . 9 | 42.0 |
| 55-59 | 89 | 71 | 21.3 | 32.6 | 5.6 | 42.7 | 21.1 | 36. 6 |  | 64.8 |
| 60-64 | 77 | 31 | 22.1 | 33.8 | 7.8 | 40.3 | 19.4 | 38.7 |  | 54.8 |
| 65 and over | 72 | 34 | 23.6 | 37.5 | 13.9 | 47.2 | 29.4 | 44.1 |  | 55.9 |

[^4]

Figure 6.-Age-specific prevalence of heart disease (total), high blood pressure or hypertension (total), and percentage at specific ages of white males and females with 150 mm . or more systolic and $\mathbf{9 0} \mathrm{mm}$. or more diastolic pressure-members of rural borrower families examined by the Farm Security Administration, 11 localities, 1940.
group can be compared with that recorded for urban workers in selected industries and with the Life Extension Institute examinations of urban indystrial policyholders (table 7). All three groups show about the same recorded prevalence of heart disease and of hypertension, 35-54 years, although a somewhat lower prevalence of heart disease might be expected for the rural group on the basis of the low mortality rate for heart disease in rural areas among the general population.

Table 7.-Reported prevalence of cardiovascular disease among white persons

| Cardiovascular disease | School <br> children <br> Approx- <br> imately <br> y-15 <br> years | National <br> Youth Ad-ministration ${ }^{2}$ |  | Uni-ver-sitystu-dents | Selec- <br> tive <br> Serv- <br> ice <br> regis- <br> trants | 10,000 industrial workers ${ }^{8}$. |  | Life Extension Institute (total) |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | 16-24 years |  |  | $\begin{aligned} & 18-46 \\ & \text { years } \end{aligned}$ | $\begin{aligned} & 35-44 \\ & \text { years } \end{aligned}$ | $\left\lvert\, \begin{aligned} & 45-54 \\ & \text { years } \end{aligned}\right.$ | $\begin{array}{\|l} 35-44 \\ \text { years } \end{array}$ | $\begin{array}{\|l\|l\|} \hline 45-54 \\ \text { years } \end{array}$ | $35-44$ years | $45-54$ years |
|  | Both sexes | Male | Female | Male | Male | Male |  | Male ${ }^{6}$ |  | Female 7 |  |
| Heart disease (total) <br> High blood pressure and arteriosclerosis (total) | Percent |  |  |  |  |  |  |  |  |  |  |
|  | 1. 0-2.0 | 4.8 | 6.4 | 3.6 | 3.3 | 9.9 | 12.8 | 9.2 | 12.4 | 15.2 | 19.8 |
|  |  |  |  | 1.1 | 1.7 | 11.1 | 18.2 | 11.2 | 18.8 | 9.4 | 18.7 |

[^5]A higher age-specific prevalence rate of both heart disease and high blood pressure or hypertension is recorded for Negroes than whites in these farm data (table 8).

Table 8.-Age-specific prevalence of specified circulatory conditions for Negro and
white persons-members of rural borrower families examined by the Farm Security Administration, 5 localities, ${ }^{1} 1940$


[^6]
## Correlation of Systolic Blood Pressure With Height and Weight

The correlation of systolic bood pressure with height and weight for these measurements of members of low-income farm families agrees with the results of an analysis made by Reed and Love (29) of similar measurements on United States Army officers. Systolic blood pressure in these data shows no correlation with height for ages over 25 years for men and for ages over 35 years for women; the correlation coefficient for systolic blood pressure with weight is small, but significant from 15 to 54 years of age for both men and women, and persists when height is held constant (table 9). Mean systolic blood pressure increases markedly after 45 years for men and after 35 years
for women in these data；mean height shows a slight increase from 15 to 35 years of age for men and a slight decrease thereafter for both men and women；mean weight increases from 15 to 54 years of age for both men and women．The variability of systolic blood pres－ sure increases markedly with age，that of weight also increases with age，while that of height is practically the same at all ages over 15 years（table 9）．

Table 9．－Distribution constants of systolic blood pressure，height，and weight in specific age groups；and the correlation of systolic blood pressure with height and weight－members of white rural borrower families examined by the Farm Security Administration， 19 localities， 1940

| Constant and probable error | Age |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 15－24 | 25－34 | 35－44 | 45－54 | 55－64 | 65 and over |
|  | White male |  |  |  |  |  |
| Systolic blood pressure （mm．）： |  |  |  |  |  |  |
| Mean． | $127.7 \pm 0.34$ | $131.1 \pm 0.41$ | $132.2 \pm 0.43$ | $139.9 \pm 0.66$ | $153.0 \pm 1.17$ | $159.4 \pm 1.92$ |
| Median | 127．4土－${ }^{43}$ | $129.9 \pm .51$ $13.9 \pm .29$ | $131.1 \pm .54$ $16.0 \pm .31$ | $136.9 \pm .83$ $22.4 \pm .47$ | $147.7 \pm 1.46$ $27.8 \pm .83$ | $154.7 \pm 2.40$ $28.3 \pm 1.35$ |
| Height（inches）： |  |  |  |  |  |  |
| Mean ．．．．．．．．．－ | $67.2 \pm .08$ | $68.3 \pm .08$ | $68.2 \pm .07$ | $67.6 \pm .07$ | 66．9士．12 | 66．9土 ． 20 |
| Median | $67.5 \pm .10$ | $68.2 \pm .11$ | $68.2 \pm .09$ | 67．6士．09 | $67.0 \pm .15$ | $66.7 \pm .26$ |
| Standard deviation． | 3．2土 ． 06 | $2.8 \pm$ ． 06 | $2.7 \pm$ ． 05 | 2．5土 ． 05 | $2.8 \pm$ ． 08 | 3．0土 ． 14 |
| Weight（pounds）： |  |  |  |  |  |  |
| Mean | ${ }_{126.9}^{131.8 \pm} .64$ | $147.8 \pm .56$ $141.2 \pm .70$ | ${ }_{142.4 \pm .} 150.85$ | $151.2 \pm .74$ | $147.2 \pm 1.06$ $138.2 \pm 1.33$ | $145.3 \pm 1.97$ $135.5 \pm 2.47$ |
| Standard deviation．－－ | $21.3 \pm .38$ | 19．0土 ． 40 | $23.9 \pm .46$ | $24.9 \pm$ ． 53 | $25.0 \pm$ ． 75 | $28.5 \pm 1.39$ |
| Correlation between－ |  |  |  |  |  |  |
| Blood pressure and height | 122土．025 | ＋．022土．030 | ＋．039土 ． 027 | －．013士 ．030 | ＋．013土 ． 042 | －．093土 ． 069 |
| Blood pressure and weight． | ＋． $217 \pm .024$ | ＋．208土 ． 028 | $+.177 \pm .027$ | ＋． $232 \pm .028$ | $+.141 \pm .042$ | ＋．072土 ． 069 |
| Height and weight．．．－ | ＋．678土 ${ }^{\text {a }}$ ． 013 | $+.390 \pm .025$ | $+.449 \pm .022$ | $+.363 \pm .026$ | ＋．399土．036 | $+.231 \pm .065$ |
| Blood pressure and height for constant weight | $-.036$ | －． 066 | －． 047 | －． 114 | －． 047 | －． 113 |
| Blood pressure and weight for constant height | ＋． 185 | $+.216$ | ＋． 179 | ＋． 255 |  | ＋． 096 |
|  | White female |  |  |  |  |  |
|  |  |  |  |  |  |  |
| Systolic blood pressure （mm．）： |  |  |  |  |  |  |
| Mean | $124.6 \pm 0.31$ $123.4 \pm .39$ | $128.1 \pm 0.40$ | $137.0 \pm 0.59$ $133.3 \pm .74$ | 152．0 $\pm 0.96$ | $166.0 \pm 1.75$ $162.8 \pm 2.20$ | $174.4 \pm 3.19$ |
| Standard deviation．．．－ | 12．7土． 22 | $14.6 \pm .28$ | $21.4 \pm .42$ | $29.0 \pm .68$ | $30.8 \pm 1.24$ | $31.7 \pm 2.26$ |
|  |  |  |  |  |  |  |
| Mean Median －－．－．－．－．．．．．．． | $63.8 \pm .06$ $63.8 \pm .09$ | $63.8 \pm .07$ $63.9 \pm .08$ | $63.6 \pm .07$ $63.6 \pm .08$ | 63．3土．08 | $62.8 \pm .13$ | $61.7 \pm .25$ $61.6 \pm .31$ |
| Median． <br> Standard deviation． | $63.8 \pm .09$ $2.6 \pm .04$ | $\begin{array}{r} 63.9 \pm .08 \\ 2.6 \pm .05 \end{array}$ | $63.6 \pm \pm$ $2.4 \pm$ | $63.6 \pm .11$ $2.5 \pm .06$ | $62.8 \pm .17$ $2.3 \pm .09$ | $\begin{array}{r} 61.6 \pm .31 \\ 2.4 \pm .18 \end{array}$ |
|  |  |  |  |  |  |  |
| Mean． | 122．7土 ． 62 | 135．7土． 89 | 144．1土． 92 | $147.2 \pm 1.23$ | $145.8 \pm 1.96$ | $134.2 \pm 2.92$ |
| Median－－－．－－－－．．－－－ | 113．5士．77 | $124.9 \pm 1.11$ | $134.9 \pm 1.16$ | $135.7 \pm 1.54$ | $139.7 \pm 2.45$ | $125.0 \pm 3.65$ |
| Standard deviation．－－ | $24.8 \pm$ ． 44 | 31．1土 ． 63 | $32.9 \pm$ ． 65 | 36．6土 ． 87 | $34.0 \pm 1.38$ | $28.4 \pm 2.06$ |
| Correlation between－ <br> Blood pressure and height． | ＋．109土．024 | $+.113 \pm .027$ | ＋．057土．028 | ＋．065士．033 | ＋．003士 ．058 | $+.066 \pm .102$ |
| Blood pressure and weight． <br> Height and weight | $+.224 \pm .024$ $+.380 \pm .021$ | $+.329 \pm .026$ $+.242 \pm .027$ | $\begin{array}{r} +.214 \pm .027 \\ +.271 \pm .026 \end{array}$ | $\begin{gathered} +.282 \pm .031 \\ +.257 \pm .031 \end{gathered}$ | $\begin{array}{r} +.174 \pm .056 \\ +.185 \pm .055 \end{array}$ | $\begin{aligned} & +.062 \pm .102 \\ & +.328 \pm .091 \end{aligned}$ |
| Blood pressure and height for constant weight | ＋． 028 | ＋． 036 | －． 002 | －． 008 | －． 030 | ＋． 048 |
| Blood pressure and weight for constant height | ＋． 199 | ＋． 313 | ＋． 206 | ＋． 275 | ＋． 176 | ＋． 043 |

## Summary

During the course of general physical examinations of farm owners and their families receiving rehabilitation loans from the Farm Security Administration a record was made of systolic and diastolic blood pressure and of the prevalence of circulatory and other defects found by the medical examiner. Members of the farm families were brought into a central clinic in each locality and the examinations conducted by a staff of physicians; the blood pressure of all persons 15 years of age and over was read with a manometer and the heart examined with a stethoscope.

Variability in mean blood pressure among counties in different geographic sections is moderate, although a few counties show significant deviations from the mean for all localities. Means and standard deviations of systolic and diastolic blood pressure are shown for both white and Negro males and females.

Age-specific mean systolic blood pressure for members of low-income farm families is higher than that in recorded observations for other population groups, mainly urban; mean diastolic blood pressure for the farm group does not differ greatly from that recorded for urban groups.

The prevalence of heart disease and hypertension or high blood pressure as stated by the examining physician is shown specific for color, sex, and age; males under 30 years of age in these data have a relatively high prevalence of heart disease; over 30 years of age the farm rates are similar to those for male industrial workers examined by the Public Health Service, and for urban life insurance policyholders.

Systolic blood pressure shows no correlation with height; the correlation coefficient for systolic blood pressure with weight is small, but significant, and persists when height is held constant.

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## Plague Infection Reported in the United States in $1947^{1}$

## Human Case

A fatal case of plague was reported in Modoc County, Calif., on June 30, 1947, confirmed by animal inoculation in the State laboratory. The plague victim was a 12 -year-old boy living in Alturas. It was believed that he acquired the infection in the vicinity of the Fitzhugh Ranger Station, about 13 miles southeast of Alturas. Later in the year, wood rats in this area were found to be infected. (See the following table.) Plague infection was reported found in Modoc County first in 1934, and subsequently in 1935, 1936, and 1942.

This is the first human case of plague acquired in nature in the United States since 1943, in which year one case was reported, and a death occurred in a case which was reported late in 1942. Both were in Siskiyou County, which borders Modoc County on the west of the latter county. ${ }^{2}$ A case of primary pneumonic plague, in which the infection was acquired in the Laboratory, occurred in San Francisco in $1944{ }^{3}$

## Plague Infection in Wild Rodents and Their Ectoparasites

During the calendar year 1947, plague infection was reported in wild rodents or their ectoparasites in the six western States: Arizona, California, Colorado, Kansas, Washington, and Texas. The species of animals found infected by inoculation of tissue or pools of ectoparasites were ground squirrels, tree squirrels, chipmunks, field mice, meadow mice, pocket mice, white-footed deer mice, grasshopper mice, kangaroo mice, wood rats, pack rats, prairie dogs, and marmots. The ectoparasites in pools of which infection was found by mass inoculation were principally fleas, but in one instance infection was found in a pool of lice and some pools of fleas included ticks and lice.

The farthest east that plague infection has been reported to date in wild rodents or their ectoparasites is Scott County, Kans., where infection was proved in a pool of fleas from prairie dogs and in a specimen of tissue from one prairie dog in 1946. The locality is approximately on the 100th meridian west longitude.

The fact that human cases of plague are still occurring in the United States, and the gradual extension to the east of proved areas

[^7]of wild rodent infection indicates that the disease is still to be reckoned with in this country. Although in recent years there has been no outbreak of plague in the United States, Dr. R. H. Creel has pointed out that "Unless controlled, plague infection can be expected to extend into any city in the western States having a substantial rat population. Likewise, there is no reason to assume that the infection will not spread to rodents of the Great Plains and into the Mississippi Valley and eastern United States." ${ }^{4}$

The reports summarized in the accompanying table are not to be interpreted as a delineation of all areas in which plague infection was present in wild rodents of the western States in 1947, nor a quantitative measure of such infection. The field surveys are limited by the number of personnel, the areas in which the surveys are conducted, and the seasonal periods favorable for field operations. At best, these field surveys are essentially sampling procedures. However, in recent years they have demonstrated a wide biologic and geographic distribution of plague infection in western United States and a gradual extension eastward of the area of proved infection.

In the reports presented in the table, infection in animal tissue and ectoparasites was proved in each instance by laboratory procedures. The identification of the species is given as reported by the respective laboratories.

## Table 1.-Plague infection in wild rodents and their ectoparasites reported to the Division

 of Public Health Methods, Public Health Service during 1947

See footnotes at end of table.

[^8]Table 1.- Plague infection in wild rodents and their ectoparasites reported to the Division of Public Health Methods, Public Health Service during 1947-Continued


See footnotes at end of table.

Table 1.-Plague infection in wild rodents and their ectoparasites reported to the Division of Public Health Methods, Public Health Service during 1947-Continued

| State and county | Date | Infection found in- |
| :---: | :---: | :---: |
| washington: Kittitas County. | May 13 2. <br> May 15 2. | Pools of 132 fleas from 70 meadow mice, Microtus sp. 22 fleas from 13 pocket mice, Perognathus sp., and 200 fleas from 85 white-footed deer mice, Peromyscus sp., taken at the head of Squaw Creek. |
|  |  |  |
| Do. |  | Pools of 16 fleas from 56 meadow mice, Microtus sp., 8 fleas from 26 white-footed deer mice, Peromyscus sp., and 6 fleas from 16 pocket mice, Perognathus taken at the head of Squaw Creek. |
| Do. | May 21 2. <br> May $23{ }^{2}$. | A pool of 94 fleas from 28 chipmunks, Eutamias sp., taken 8 miles west of Vantage. |
| Do. |  | Pools of 150 fleas from 66 white-footed deer mice, Peromyscus sp., and 200 fleas from 128 meadow mice, Microtus sp., taken on the north slope of Saddle Mountain ridge above Boylston railroad station. |
| Do. | June $4^{1}$. | A pool of 137 fleas from 78 deer mice, Peromyscus sp., and a pool of 13 fleas from 11 kangaroo mice, Perognathus sp . [so reported, possibly Zapus sp.-Ed.], taken 8 miles west of Vantage. |
| Do. | June $5^{2}$ | A pool of 126 fleas from 75 meadow mice, Microtus sp., and a pool of 119 fleas from 43 chipmunks, Eutamias sp., taken on the Kittitas County Divide above Hansen's Creek. |
| Do. | June 12. | A pool of 197 fleas from 106 meadow mice, Microtus sp., a pool of 200 fleas from 74 white-footed deer mice, Peromyscus sp., and a pool of 200 fleas from 90 chipmunks, Eutamias sp., taken 6 miles southeast of Kittitas. |
| Do. | Aug. 142 | A pool of 76 fleas from 46 chipmunks, Eutamias sp., taken 6 miles southeast of Kittitas, and a pool of 230 fleas from 60 field mice, Peromyscus sp., taken 6 miles southeast of Kittitas. |
| Yakima County | March 22 | A pool of 91 fleas from 59 meadow mice, Microtus sp., taken 12 miles east of Yakima. |
| Do. | A pr | Pools of 18 fleas from 19 pocket mice, Perognathus sp., 89 fleas from mice of the same species, 6 fleas from 1 ground squirrel C. townsendii, and 30 fleas from a field mouse, Microtus sp., all taken' 6 miles east of Firing Range Headquarters. |
|  | May 9 2. | Pools of 94 fleas from 87 field mice, Microtus sp ., 50 fleas from 2 ground squirrels, C. townsendii, and 34 fleas from 11 chipmunks, Eutamias sp., all taken 6 miles east of Firing Range Headquarters. |
| Yakima-Kittitas County line. | Apr. $25{ }^{2}$ | Pools of 60 fleas from 108 meadow mice, Microtus sp.,and 45 fleas from white-footed mice Peromyscus sp., taken at top of Umatanum Ridge. |

${ }^{1}$ Date specimen was proved positive.
2 Date specimen was collected.
${ }^{3}$ Plague infection in wild rodents in Colorado was first reported in San Miguel County in 1941 and was subsequently found in Baca, Bent, Hucrfano, Larimer and Las Animas Counties.
${ }^{4}$ In July 1947 a widespread epizootic was reported among prairie dogs in Park County, and specimens from Hartsell and Fairplay were found positive for plague. A number of deaths of cattle in the general area were also reported at the same time.
${ }^{5}$ This locality is about 15 miles southeast of Cochran County where plague infection in wild rodents was first reported in Texas in 1946.

## DEATHS DURING WEEK ENDED JULY 24, 1948

[From the Weekly Mortality Index, issued by the National Office of Vital Statistics]

|  | Week ended <br> July 24, 1948 | Corresponding week, 1947 |
| :---: | :---: | :---: |
| Data for 91 large cities of the United States: |  |  |
| Total deaths --- | 7,865 | 7,953 |
| Median for 3 prior years | 8,095 |  |
| Total deaths, first 30 weeks of year | 279, 323 | 278,418 |
| Deaths under 1 year of age | 624 | 715 |
| Median for 3 prior years........................ | 652 |  |
| Deaths under 1 year of age, first 30 weeks of year | 19,758 | 22,345 |
| Data from industrial insurance companies: |  |  |
| Policies in force ${ }^{\text {Number of death claims. }}$ | $71,001,899$ 10,658 | 67, 250, 1156 |
| Death claims per 1,000 policies in force, annual | , 7.8 | 11,794 9.1 |
| Death claims per 1,000 policies, first 30 weeks of year, annual rate | 9.6 | 9.6 |

# INCIDENCE 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

## REPORTS FROM STATES FOR WEEK ENDED JULY 31, 1948

## Summary

The incidence of poliomyelitis increased from 981 cases reported last week to 1,215 for the current week, as compared with 911 (the highest in the past 5 years) for the corresponding week of 1946 and a 5 -year median of 391 . Of 25 States reporting currently 10 or more cases each, 21 showing increases reported 1,027 cases (last week 770). The 17 States reporting more than 20 cases currently are as follows (last week's figures in parentheses): Increases-California 224 (192), North Carolina 212 (206), Texas 82 (68), New York 51 (33), South Carolina 50 (35), Iowa 47 (23), Virginia 42 (18), Minnesota 38 (22), Oklahoma 33 (27), Illinois 32 (22), Nebraska 28 (23), Tennessee 28 (8), Pennsylvania 24 (15), Florida 23 (16), Georgia 21 (9); decreasesOhio 44 (48), New Jersey 21 (23). Of the total of 5,451 cases reported since March 20 (average date of seasonal low incidence), 3,013 cases ( 55 percent) occurred in 3 States- 1,079 in North Carolina, 995 in California, and'939 in Texas. No other State has reported more than 168 cases for that 19-week period. Other than North Carolina, California and Texas, only 10 States have reported more than 50 cases during the 3 -week period ended July 31, and only 3 have reported more than 75 cases-Ohio 117, New York 103, and South Carolina 93.

Of 32 cases of Rocky Mountain spotted fever reported (last week 34, 5 -year median 28), 28 occurred in the South Atlantic and South Central areas, and 1 each in New Jersey, Indiana, Illinois, and Colorado.

One case of smallpox was reported during the week, in Idaho. The total for the year to date is 48 , as compared with 142 last year (which was the lowest number for a corresponding period of the past 5 years), and a 5 -year median of 270 .

A total of 8,295 deaths was recorded during the week in 93 large cities in the United States, as compared with 7,992 last week, 8,447 and 7,986, respectively, for the corresponding weeks of 1947 and 1946, and a 3 -year (1945-47) median of 8,152 . The total to date is 292,859 , as compared with 292,455 for the corresponding period last year. Infant deaths totaled 691, as compared with 627 last week and a 3 -year median of 671 . The cumulative figure is 20,825 , as compared with 23,423 for the same period last year.

Telegraphic case reports from State health officers for week ended July 31, 1948
[Leaders indicate that no cases were reported]

| Division and State | Diphtheria | En-cephalitis, infectious | Influenza | Menin- gitis, menin- gococ- cal | Polio-myelitis | Rocky Mountain spotted fever | $\begin{array}{c\|c\|c} \hline \text { Scar- } \\ \text { let } \\ \text { dever } \end{array}$ | Tula remia | Typhoid paraty: phoid fever ${ }^{8}$ | Whoop- ing cough |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| NEW ENGLAND |  |  |  |  |  |  |  |  |  |  |
| Maine - |  |  |  | (1) | .. 3 |  | 12 |  | 1 | $\begin{array}{r}9 \\ \hline\end{array}$ |
| Vermont. ......- |  |  |  | 1 |  |  | 4 |  |  | 18 |
| Massachusetts | 4 |  |  | 2 | 5 |  | 38 |  |  | 34 |
| Rhode Island. |  |  |  |  |  |  | - |  | 1 | 1 |
| Connecticut-.......... |  |  |  |  | 10 |  | 7 |  | , | 9 |
| New York.............. | 3 | 1 | ${ }^{1}$ | 3 | 51 |  | ${ }^{\text {c }} 33$ |  | 3 | 92 |
| New Jersey |  |  |  | 2 | ${ }^{1} 21$ | 1 | 12 |  | 1 | 79 |
| Pennsylvania. $\qquad$ <br> EAST NORTH CENTRAL | 3 |  | (b) |  | 24 |  | 22 |  | 5 | 60 |
| Ohio...-.-................. | 6 |  | 2 | 2 | 44 |  | 39 |  | 2 | 76 |
| Indiana. | 3 |  | 1 |  | 19 | 1 | 6 |  | 2 | 14 |
| Illinois- | 1 | 2 | 7 | 7 | 32 | 1 | 21 |  | 1 | 56 |
| Michigan ${ }^{\text {e }}$ - |  |  |  | 2 | 18 |  | 19 |  | 4 | 26 |
| Wisconsin --.-. -......... |  |  |  | 1 | 15 |  | 16 |  |  | 41 |
| Minnesota... | 2 |  | 1 | 3 | 38 |  | 3 |  |  | 3 |
| Iowa-..-- |  |  |  |  | 47 |  | 5 | $1$ |  | 6 |
| Missouri | 1 |  |  | 1 | 17 |  | 1 | 1 | 2 | 11 |
| South Dakota |  |  |  |  | , |  | 2 |  |  | 1 |
| Nebraska. |  |  | 4 |  | 28 |  | 7 |  |  | 5 |
| Kansas.. | 1 |  |  | 2 | 8 |  |  | 1 |  | 29 |
| SOUTH ATLANTIC |  |  |  |  |  |  |  |  |  |  |
| Delaware.- |  |  |  |  | 10 |  |  |  |  |  |
| Maryland ©-- | 5 |  |  |  | 4 | 2 | 4 |  | 3 | 26 |
| District of Columbia |  |  |  |  | 4 | 1 |  |  |  | 7 |
| Virginia. | 2 |  | 228 | 3 | 42 | 4 | 10 |  | 8 | 40 |
| West Virginia | 3 |  | 2 | $\stackrel{2}{2}$ | 9 | 2 | 9 |  | 5 | 7 |
| South Carolina | 11 |  |  | 3 | 1212 | 9 | 12 | 1 | 4 | 67 |
| Georgia.... | 6 |  | 118 |  | 5 | 2 |  |  |  | 64 |
| Florida | 9 |  | 1 |  | 23 | 2 | 3 |  | 3 | 9 |
| East South Central |  |  |  |  |  |  |  |  |  |  |
| Kentucky | 3 |  |  |  | 11 | 1 | 4 |  | 5 | 40 |
| Tennessee. | 2 |  | 7 | 1 | 28 | 3 | 10 |  |  | 22 |
| A labama | 6 | 2 |  | 6 | 9 | 2 |  |  | 1 | 16 |
| Mississippi e----....... | 3 |  | 7 | 3 | 8 |  | 2 |  | 2 | 1 |
| west south central Arkansas |  |  | 35 |  | 9 |  |  | 1 |  |  |
| Louisiana. | 1 |  |  |  | 5 |  | 2 |  | 9 | 5 |
| Oklahoma. | 4 |  | 4 |  | 33 | 2 | 11 |  | 4 | 13 |
| Texas.-.-- | 20 | J | 228 | 2 | 82 |  | 10 |  | 11 | 135 |
| MOUNTAIN |  |  |  |  |  |  |  |  |  |  |
| Idaho.... |  |  | 5 |  | 1 |  | 1 |  |  | 3 |
| W yoming |  |  |  |  | 13 |  | -1 |  |  |  |
| Colorado. |  |  | 9 |  | 2 | 1 | 3 | 1 |  | 15 |
| New Mexico |  | 1 |  | 1 | 5 |  | 1 |  |  | 6 |
| Arizona. |  |  | 11 |  | 1 |  | 1 |  |  | 7 |
| Utah ${ }^{\text {c }}$ | 4 |  |  |  | 5 |  | 2 | 1 |  | 6 |
| Nevada.- |  |  |  |  |  |  |  |  |  |  |
| PACIPIC | 2 |  |  |  |  |  |  |  |  |  |
| Oregon.-.-. |  |  |  |  | 3 |  | 6 |  |  | 21 |
| California |  | 3 | 10 | 1 | 224 |  | 32 |  | 7 | 61 |
| Total | 113 | 11 | 691 | 54 | 1,215 | 32 | 395 | 7 | 94 | 1,189 |
| Median, 1943-47 | 164 | 15 | 571 | 111 | ${ }^{1} 291$ | 28 | 677 | 23 | 163 | 3,115 |
| Year to date, 30 weeks | 4,919 | 275 | 138,815 | ${ }^{1} 2,121$ | ${ }^{1} 5,798$ | 318 | 54,945 | 599 |  |  |
| Median, 1943-47...........- | 6, 743 | 319 | 190, 197 | 5,881 | 2, 439 | 284 | 95, 462 | 548 | 2,299 | 76, 405 |
| Seasonal low week ends... | July 10 |  | July 31 | Sept. 18 | Mar. 20 |  | Aug. 14 |  | Mar.20 |  |
| Since seasonal low week.-. | 309 |  | 182, 373 | 12,958 | 15,451 |  | 77, 484 |  | 1,377 | 85,841 |
| Median, 1943-47............ | 479. | --3 | 334, 488 | 8,333 | 2,042 |  | 33, 783 | ....... | 1,675 | 98, 452 |

[^9]See footnote 1 next page.

## PLAGUE INFECTION IN RIO ARRIBA COUNTY, NEW MEXICO

Under date of July 28 plague infection was reported proved in a pool of 207 fleas from 58 prairie dogs, Cynomys gunnisoni, and a pool of 30 fleas from 6 marmots, Marmota flaviventris, taken July 14 at a location in Rio Arriba County, New Mexico, on the Nutritas River road 26 miles southwest of a point 10 miles south of Antonito, Colorado, on U. S. Highway No. 285.

## FOREIGN REPORTS

## CANADA

Provinces-Communicable diseases-Week ended July 10, 1948.During the week ended July 10, 1948, cases of certain communicable diseases were reported by the Dominion Bureau of Statistics of Canada as follows:

| Disease | Prince Edward Island | Nova Scotia | New Brunswick | Quebec | Ontario | Manitoba | Sas-katchewan | Alberta | $\begin{aligned} & \text { British } \\ & \text { Colum- } \\ & \text { bia } \end{aligned}$ | Total |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Chickenpox |  | 83 |  | 62 | 279 | 73 | 42 | 48 | 41 | 628 |
| Diphtheria-- |  |  |  | 9 | 2 | 3 |  | 1 | 1 | 16 |
| Dysentery: |  |  |  |  |  |  |  |  |  |  |
| Amebic. |  |  |  |  |  | 1 |  |  |  | 1 |
| Encephalitis, infectious.-- |  |  |  |  | 1 |  |  |  |  | 1 |
| German measles....-...- |  |  |  | 11 | 3 |  | 1 | 4 | 3 | 22 |
| Influenza. |  | 56 |  |  | 6 | 2 |  |  |  | 64 |
| Measles -- |  | 1 | 1 | 174 | 468 | 37 | 4 | 41 | 68 | 794 |
| Meningitis, meningococcus. |  |  |  | 2 | 2 | 1 |  |  |  | 5 |
| Mumps |  | 1 |  | 30 | 81 | 24 | 22 | 18 |  | 176 |
| Poliom yelitis. |  |  |  | 1 | 4 | 2 | 2 | 9 | 9 | 27 |
| Scarlet fever-..---.-.-- |  | 2 | 2 | 34 | 27 | 7 |  | 4 | 1 | 77 |
| Tuberculosis (all forms).- |  | 7 | 18 | 133 | 31 | 50 | 7 | 7 |  | 253 |
| Typhoid and paratyphoid fever. $\qquad$ |  | 1 |  | 8 |  |  |  | 1 | 1 | 11 |
| Undulant fever.....-.-.-.- |  |  |  | 1 |  |  |  |  |  | 1 |
| Venereal diseases: |  |  |  |  |  |  |  |  |  |  |
| Gonorrhea... |  | 3 | 11 9 | 95 |  | 37 12 | 15 5 | 36 |  | 254 |
| Syphilis.-.-.......--- |  | 3 | 9 | 64 | 130 | 12 | 5 |  | 8 | 101 |
| Whooping cough..--.---- |  | 4 |  | 21 | 9 | 3 | 4 | 10 | 1 | 52 |

[^10][^11]
## CUBA

Habana-Communicable diseases-4 weeks ended June 26, 1948.During the 4 weeks ended June 26, 1948, certain communicable diseases were reported in Habana, Cuba, as follows:

| Disease | Cases | Deaths | Disease | Cases | Deaths |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Chickenpox | 1 |  | Scarlet fever.. | 2 |  |
| Diphtheria. | 9 |  | Tuberculosis | 1 | 1 |
| Malaria | 1 |  | Typhoid fever.- | 6 | 1 |
| Measles. | 10 |  |  |  |  |

Provinces-Notifiable diseases-4 weeks ended June 26, 1948.During the 4 weeks ended June 26, 1948, cases of certain notifiable diseases were reported in the Provinces of Cuba as follows:

| Disease | Pinar del Rio | Habana : | $\begin{gathered} \text { Matan- } \\ \text { zas } \end{gathered}$ | Santa Clara | Camaguey | Oriente | Total |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Cancer.-- | 5 | 8 | 8 | 24 | 1 | 21 | 67 |
| Chickenpox | 1 |  |  |  | 3 |  | 4 |
| Diphtheria |  | 12 | 1 | 1 | 1 | ---...-. | 15 |
| Leprosy............ |  | 5 |  |  |  | 1 | 2 |
| Malaria. | 1 | 1 |  | 2 | 8 | 12 | 24 |
| Measles |  | 16 | 2 |  |  | 1 | 19 |
| Poliomyelitis. |  |  |  | 1 |  |  | 1 |
| Rickettsiosis | 1 |  |  |  |  |  |  |
| Scarlet fever- |  | 2 |  |  |  | 1 | 3 |
| Tuberculosis | 3 | 11 | 16 | 20 | 2 | 10 | 62 |
| Typhoid fever-- | 7 | 16 | 9 | 15 | 10 | 18 | 75 |
| Whooping cough. |  | 164 |  |  |  |  | 164 |

${ }^{1}$ Includes the city of Habana.

## JAMAICA

Notifiable diseases-4 weeks ended June 26, 1948.—During the 4 weeks ended June 26, 1948, cases of certain notifiable diseases were reported in Kingston, Jamaica, and in the island outside of Kingston, as follows:

| Disease | Kingston | Other localities | Disease | $\begin{aligned} & \text { King- } \\ & \text { ston } \end{aligned}$ | Other localities |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Cerebrospinal meningitis |  | 1 | Erysipelas. | 1 | 3 |
| Chickenpox | 6 | 22 | Leprosy..-- |  | 2 |
| Diphtheria ..........-. | 3 | 2 | Tuberculosis (pulmonary) | 37 | 55 |
| Dysentery, unspecified | 1 |  | Typhoid fever............. | 8 | 60 |

# reports of cholera, plague, smallpox, typhus fever, and yellow fever received during the current week 


#### Abstract

Nore.-Except in cases of unusual incidence, only those places are included which had not previously reported any of the above-mentioned diseases, except yellow fever, during recent months. All reports of yellow fever are published currently. A table showing the accumulated figures for these diseases for the year to date is published in the Public Healti Reports for the last Friday in each month.


## Cholera

India-Bombay and Calcutta.-During the week ended July 17, 109 cases, with 19 deaths, were reported in Calcutta and 17 cases were reported in Bombay.

Indochina (French).-During the week ended July 17, 29 cases, with 21 deaths, were reported in French Indochina, of which 21 cases, 18 deaths, occurred in Cambodia State and 8 cases, 3 deaths, in Laos State.

## Plague

British East Africa-Kenya.-One case of plague was reported in Kenya for the week ended July 10, 1948. The last reported case in Kenya occurred in April, but 15 cases, with 9 deaths, were reported during the period January-March, inclusive.

## Smallpox

Peru.-During the period January 1-February 29, 211 cases were reported in Peru, including 12 cases in Lima during February.

Venezuela.-During March, 718 cases (alastrim) with 19 deaths were reported in Venezuela, including 68 cases, 1 death, in Maracaibo and 44 cases, 4 deaths, in Puerto La Cruz; and in April, 711 cases, 20 deaths, were reported in Venezuela, including 36 cases, 1 death, in Maracaibo and 5 cases in Puerto La Cruz.

## Typhus Fever

Peru.-During January and February, 214 cases of typhus fever were reported in Peru; the largest numbers were reported by Departments as follows: Amazonas 26, Cuzco 22, Junin 13, and Apurimac 11.

## Yellow Fever

Argentina.-A fatal case of yellow fever was reported in Cerro Azul, Misiones Territory, Argentina, on July 24. No case has been officially reported in Argentina in the past 25 years or more, although the presence of the virus is reported to have been demonstrated there in 1940.


[^0]:    ${ }^{1}$ Now the Farmers Home Administration.
    ${ }^{2}$ From the Division of Public Health Methods, Public Health Service, in cooperation with the Farmers Home Administration, Department of Agriculture.
    This is the seventh (16) in a series of papers deeling with physical defects found on examination of members of low-income farm families residing in 19 localities in the United States. The physical findings were coded and transferred to punchcards by the Farm Security Administration under the supervision of Jesse B. Yaukey. Acknowledgment is made to Dr. S. D. Collins for critical suggestions and advice throughout the preparation of the studies.

[^1]:    ${ }^{2}$ Systolic blood pressure has been recorded on punchcards in millimeters. Since there is an obvious concentration on multiples of ten, the data have been tabulated in the intervals 85-94, 95-104 mm., etc. Diastolic blood pressure was coded in the intervals $80-89,90-99 \mathrm{~mm}$., etc. Actual centering points of these intervals of diastolic pressure were obtained from a hand tabulation of a sample of the records, and were used in the computation of means and standard deviations (tables 2 and 3).

[^2]:    ${ }^{1}$ Listed in table 1.
    ${ }^{2}$ Distribution constants and probable errors of blood pressure readings are tabled．The probable error of the median is 1.25332 times the probable error of the mean．

[^3]:    ${ }^{1}$ Spotsylvania County，Va．，Kershaw County，S．C．，Worth County，Ga．，Levy County，Fla．，parts of Carroll，Leflore，and Humphreys Counties，Miss．，Pope County，Ark．，Okfuskee County，Okla．，Franklin Parish，La．，and Panola County，Tex．
    3 See table 2，footnote 2.

[^4]:    ${ }^{1}$ Listed in table 5.
    2 See table E, footnote 1.

[^5]:    ${ }^{1}$ From Goodman and Prescott (15).
    ${ }^{2}$ From McDowell and Meroney (25).
    3 From Wood (46). Ages center at 20 years.
    4 From Medical Statistics (26). Ages center at 24 years.
    ${ }^{3}$ From Britten and Thompson (7).
    6 From Sydenstricker and Britten (40).
    7 From Britten (6).
    ${ }^{1}$ The content of diagnostic groups varies with different data; however, the percentages quoted seem to represent best the broad group of "high blood pressure and arteriosclerosis" for a comparison with equivalent farm data.

[^6]:    ${ }^{1}$ Spotsylvania County, Va., Kershaw County, S. C., Levy County, Fla., Pope County, Ark., and Okfuskee County, Okla.
    ${ }^{2}$ See table 5, footnote 1 .
    The percent with arteriosclerosis only, all ages, in 5 southern localities is: 3.4, 0.0, 2.0, and 0.4 percent for Negro males, Negro females, white males, and white females, respectively; and 8.5 percent for Negro males, 45 years and over.

[^7]:    ${ }^{1}$ From the Division of Public Health Methods. A consolidation of reports received from the Publice Health Service Plague Laboratory in San Francisco, Calif., and the California and Texas State Departments of Health and published currently in the Public Health Reports. For a similar 1946 summary see Public Healith Reports 62: 1336 (1947), and for references to reports for earlier years see Public Health Reports 59: 911 (1944).
    ${ }^{2}$ Pub. Health Rep. 58: 1361 (1943).
    ${ }^{3}$ Pub. Health Rep. 59: 962 (1944).

[^8]:    4 Am. J. Pub. Health, 31: 1162 (1941).

[^9]:    - Period ended earlier than Saturday.
    - Including cases reported as streptococcal infections and septic sore throat.
    \& Including cases reported separately as paratyphoid fever and salmonella infections, as follows: Rhode Island 1, New York, 1 (salmonella infection), Pennsylvania, 1 (salmonella infection), Ohio, 1, Michigan, 2,
    Louisiana, 1, Texas, 2, California, 3.
    Smallpox:'Idaho, 1 case.
    Alaska: Measles, 1, German measles, 11, mumps, 1, whooping cough, 15, bacterial food poisoning, 52.
    Territory of Hawaii: Measles, 4, lobar penumonia, 3, whooping cough, 5 .

[^10]:    Note.-No report was received from Prince Edward Island for the above period.

[^11]:    ${ }^{1}$ Corrections.-Meningitis, meningococcal: Maine, week ended February 14, no case (instead of 1); week ended July 3, 1 case (instead of 2). Poliomyelitis: Week ended July 10, North Carolina, 129 cases (instead of 130). Typhoid fever: Week ended July 17, Georgia, 5 cases (4 paratyphoid fever), instead of 1.

