SCIENCE NEWS

Science Service, Washington, D. C.

THE HEALTH RECORD OF THE UNITED STATES FOR 1938

A YEAR ago, in a similar statement for Science Service, I said that the health outlook for 1938 was altogether favorable. This prediction was based on the remarkable health record established for 1937 among the many millions of persons who were industrial policyholders of the Metropolitan Life Insurance Company. My optimism was more than justified, for no previous year has even closely approached the record for low mortality established for 1938. Month after month, the death rates among these insured wage-earners and their families have been even lower than during 1937, and at the middle of December we find a year-to-date death rate that is over 7 per cent. below the previous minimum, as established only a year since.

What happens among these many millions of people is a pretty sensitive index of health conditions in the country, as a whole. So, even if I had no other source of information I could say that 1938 has been an extraordinary health year in the United States. But, as a matter of fact, information for the first nine months of the year is available from the health officers of thirty-nine states. The story they tell is that without a single exception, every one of these states has shown improved mortality as compared with 1937—and in many instances very marked improvement. It is thus practically certain that 1938 will be acclaimed the banner health year in the history of our country.

The principal factors in bringing about this favorable situation were the much lower mortality rates this year from diseases affecting the respiratory system, namely, pulmonary tuberculosis, influenza and pneumonia, and the gratifying accomplishments of the campaign to reduce the shameful toll of automobile accidents.

The death rates from tuberculosis, pneumonia and influenza have reached new minima for the United States during 1938. It is almost certain that the mortality from tuberculosis for the country as a whole will drop below 50 per 100,000 for the first time in history. If the present rate of decline continues for a few more years tuberculosis will reach the stage where the number of open cases will no longer be sufficient to maintain it among the leading causes of death in this country. There has been no more striking instance of the success of the public health movement than the decline in the tuberculosis death rate during the last four decades. The time is now ripe for a final and intensified drive leading to the effective suppression of this disease.

There were no major epidemics of influenza or pneumonia in 1938. In the case of pneumonia, there was also the added factor, no doubt, of the wide adoption of the new serum treatment against the more prevalent types of pneumococcus. By placing these serums at the disposal of practising physicians, an increasing number of states are materially reducing the fatality rate in pneumonia cases.

Inasmuch as respiratory disease tends to hasten the deaths of persons suffering from cardiac, vascular or renal conditions, a natural consequence was the fall in mortality from most of the chronic diseases of old age. The sole exception to this rule, in 1938, was the continuance of the rise in deaths charged to coronary artery disease. But this increase may be only apparent, reflecting improved diagnosis together with the newly awakened interest of physicians in this form of heart disease and an increasing tendency on their part to give coronary disease prominence as the chief cause of death when associated with other conditions.

Among the most gratifying aspects of the mortality picture for 1938 was the marked decline in automobile fatalities. Evidently the very active crusade against careless driving which has been waged in all parts of the country in recent years is beginning to show results. Present figures indicate that the final tabulation will show fewer deaths by one fifth from this cause than were recorded in 1937 and this will mean about 8,000 lives saved. Fatal occupational accidents, as well as those occurring in public places, likewise resulted in fewer fatalities this year, although accidents in the home appear to have been as numerous as those reported a year ago.

Further gains against both infant and maternal mortality also contributed to the salutary state of public health during the past year. It is safe to report new minimal death rates in both of these important fields of public health work.

Aside from the rise in mortality from coronary artery disease, about the only disturbing feature of the present mortality picture is the continued increase of the cancer death rate. The year 1938 is the twentieth consecutive year, with a single exception, to register a rise in this malignant form of human affliction. There is some doubt, however, as to whether this upward trend in cancer deaths actually marks an increase of the disease or merely reflects the rapid aging of our population. Since cancer is a disease that is confined largely to the later years of life it is certain that much of the apparent rise is attributable to the increasing proportion of old people in the general population. Improved means of diagnosis and more accurate reporting also have been important elements in the apparent increase in cancer mortality.

Turning to the sickness side of the subject we find a gratifying situation also. All but two of the leading communicable diseases showed below-normal prevalence during 1938. The country was especially blessed in that it was comparatively free of that scourge of childhood, poliomyelitis (infantile paralysis). Less than 1,700 cases were recorded throughout the entire country and no section has suffered what might be called a major outbreak.

Only measles and smallpox were unusually prevalent during the current year. Fortunately neither of them was responsible for much mortality, although the exceptionally low death rate from measles in 1937 was probably quadrupled in 1938.—LOUIS I. DUBLIN.

THE GERMAN JEWS

THE problem of Jewish emigration from Germany is complicated not only by its magnitude but also by the fact that German Jews belong almost exclusively to the "middle class," are mostly city dwellers, and have an extraordinarily high proportion of old people.

Figures about the social-economic conditions of the Jews are only available for Germany (1933), but things were very similar in Austria. Of the 240,000 gainfully employed Jews 10 per cent. were in professional service, 40 per cent. were proprietors, managers and officials of all kinds, 10 per cent. family workers in the businesses of their parents or other relatives, 30 per cent. in clerical and kindred occupations and only 10 per cent. wage workers, mostly skilled operatives in the "handicraft trades" (tailors, butchers, etc.) Almost no Jews were engaged in agriculture.

The great majority of the German Jews are city dwellers and most of these city dwellers live in large communities with more than 100,000 inhabitants. At the last census, 71 per cent. of all Jews in the old Reich and 93 per cent. of those in Austria were enumerated in such cities. To-day the metropolitan proportion must be still higher because many Jews have been forced to leave their homes in the villages and small towns and have sought refuge in the large centers.

The age composition is highly abnormal. Nearly a third (31.6 per cent.) of all Jews in Germany were 50 years of age and over in 1933 as against 21.7 per cent. of the German people as a whole and 17.1 per cent. of the total population in the United States. Figures for Austria are not available. This condition has undoubtedly become more accentuated owing to the natural process of aging, a low birth rate and heavy emigration from the younger age groups.

At the time of the last censuses the total number of Jews was about 500,000 in the old Reich (1933) and 191,000 in Austria (1934). In addition there were about 4,000 Jews in the Saar Territory and more than 20,000 in the Sudetenland. The number of Jews had been decreasing for some time as a result of an excess of deaths over births and of emigration. Both factors have been operating at an increasing rate in recent years, but for obvious reasons the exact number of Jews in Germany to-day can not be given. It may be estimated to be rather less than 500,000. These figures do not include "Non-Aryans" according to Nazi doctrines who do not belong to the Jewish religious community. Their number is unknown but probably amounts to several hundred thousand.—CHRISTOPHER TIETZE.

THE UKRAINE

THE Ukraine, split into two parts by the Polish-Soviet frontier, is the granary of much of the U.S.S.R. The Russian portion particularly, which is by far the larger, is a region of growing industrial importance. From it comes coal out of the famous Donetz basin; in it are huge factories. On its River Dnieper sits mighty Dnieproges, second largest hydroelectric development in the world, a monument to the Russians who built it and the American engineer, Hugh S. Cooper, who designed it. Only Boulder Dam in Nevada is greater.

It was not always such a province, however. Its great cities like Kiev, many times have felt the iron heel of conquest. Almost 700 years ago Batu and his celebrated general, Sabutai Bahadur, whose campaigns still teach the world's soldiers the principles of strategy and tactics, reduced Kiev by assault. The inevitable massacre wiped out its inhabitants; the inevitable pillage and looting razed it to the ground.

Through the Ukraine these Tartars, sent by the son of the terrible genius, Genghis Khan, poured, to create havoc for decades in central Europe. Centuries earlier had come another Asiatic tribe, the Magyars, who to-day are the Hungarians. Their cavalry also devastated this region and caused no end of trouble in Europe until they finally settled down. Though no exact early records exist, no doubt through this gateway came still earlier hard-fighting barbarians.

Following the final partition of Poland among Austria, Prussia and Russia, between 1772 and 1795, the entire Ukraine region passed into the hands of the Tsars. It remained thus until the Tsars themselves were ousted in the February revolution of 1917. An independent rada or council took over the Ukrainian Government in June of that year.

In March, 1918, German troops under the command of General Eichorn invaded the Ukraine, ostensibly to assure delivery of food supplies which had been guaranteed to Germany in the separate peace treaty the Ukraine Government signed with Germany at Brest-Litovsk the year before. The rada was dissolved by the German troops and a Ukrainian, Skoropadski, was named by the Germans to head this government.

But General Eichorn was assassinated, the Ukrainians rebelled. Following internal strife between the Bolsheviks, who were then coming to the fore, and the "Whites," the Bolsheviks made themselves masters of the Ukraine. The German army, the nation that sent it into a state of collapse, was expelled. So were other invaders. The bulk of the Ukraine remained in the hands of the followers of Lenin.

The western part of the Ukraine was, however, retained by Poland. To-day its inhabitants number about 3,000,000, of whom most are Ukrainians, in whom the flame of Ukrainian nationalism still burns strong. Many attempts to stir up trouble both in the Polish and Soviet Ukraine are based on this factor.

The Ukrainian Soviet Socialist Republic, one of the autonomous soviet republics, on January 1, 1933, had a population of about 32,000,000, of whom the overwhelming majority are Ukrainians. Its people number 19 per cent. of the population of the U.S.S.R. Included within the area also is the small Moldavian Soviet Socialist Republic. Both have seen intensive development in recent years.

Besides being the richest grain area in Europe, the Ukraine is also the source of many important crops. Sugar beets, cotton, sunflower seed, forage and potatoes are all grown on a large scale. Cotton, of which 230,000 hectares were sown in 1937, is a crop introduced by the Bolsheviks, for none was grown there before they came to power. Other crops have been similarly expanded.

The most famous of the Ukraine enterprises is doubtless the Donetz coal basin, claimed to be one of the most

modern in the world. In 1913, 22,800,000 long tons were mined; by 1936 the output had been pushed to nearly three times that figure, 68,300,000 long tons. Alexei Stakhanov, the introducer of rationalized production methods in the Soviet Union, was a Donetz miner. Other important Ukraine industries include iron and steel making, food packing and transportation. Its railway net is the densest in the U.S.S.R.

The Ukrainians themselves are a people who came out of Poland centuries ago to escape persecution in the old Polish-Lithuanian empire that existed prior to the partitioning. Their intense nationalism can probably be traced to this heritage, as well as to their suffering at the hands of the Russian Tsars, one of whose cardinal principles was the Russification of all non-Russian peoples within the empire.—LEONARD H. ENGEL.

THE THIRTY-FIFTH ANNIVERSARY OF BIRTH OF AVIATION

ALPHEUS W. DRINKWATER, the telegrapher who flashed a nine-word message to an unbelieving world on December 17, 1903, that the Wright brothers had successfully made the first airplane flight in history, was at his old post, tapping out the news, as aviation leaders gathered to mark the thirty-fifth anniversary of the birth of aviation.

But this time Mr. Drinkwater was more than the unbelieved telegrapher, for he is also head of the Kill Devil Hill, North Carolina, Memorial Association, in charge of the celebration. Two hundred planes roared overhead as Mr. Drinkwater and Army, Navy, Coast Guards and Marine Corps representatives placed wreaths on the memorial beacon in honor of the two brothers who gave the world wings.

After the ceremony, Mr. Drinkwater retired to his home in Manteo to send out the news reports from this isolated sand dune, Kill Devil Hill, down which the Wrights' plane skidded precariously to make the first successful take-off of a power-driven heavier-than-air craft.

Representing the Army Air Corps at the ceremony was General H. H. Arnold, its recently elevated commandant, while Assistant Secretary Charles Edison represented the Navy. Mail from a specially established Kill Devil Hill post office and bearing a special cancellation was sent out *via* air.

As a matter of historical record, Mr. Drinkwater recalled that the telegraph message, which startled the world and gave the skeptics of that day some short-lived innings, was sandwiched in between wires of news at Kitty Hawk that appeared much more important at the moment.

That news, now forgotten, concerned the beaching of Uncle Sam's first submarine. Mr. Drinkwater, who had set his key on an orange crate on the beach, was wiring news of this wonder, which attracted all the attention from the local citizenry, to President Theodore Roosevelt, who was keenly interested.

But while no one remembers the submarine, no one has forgotten the Wrights.

ITEMS

TERMITES have chewed wood, apparently, ever since there has been any wood to chew. New evidence on this point has been found by Professor Austin F. Rogers, of Stanford University, in a piece of opalized wood from Santa Barbara County. Areas of the wood tissue had been eaten away and the spaces thus left were packed with petrified pellets of the size and shape left by the tunneling operations of termites. The specimen is of pliocene geologic date, which gives it an age of perhaps ten million years.

ALL the laws in the world can not create industrial health, V. P. Ahearn, of the National Industrial Sand Association, told a meeting of the Air Hygiene Foundation in Pittsburgh. Improved health for the worker can only come when industrial management takes an interest in the problem and actively supports research to learn the ways in which industrial health can be achieved. Promoting industrial hygiene, Mr. Ahearn said, is the newest task of industry, if it is forward-looking, it will not stand content on its older idea that its function was to earn profits and provide labor—in so far as it was able—with steady jobs at fair wages. There is a definite trend, Mr. Ahearn indicated, toward legislation in the industrial health field. It can only be sound legislation if it is based on research in iudustrial hygiene promoted by industry as a whole.

STUDIES by investigators at the U. S. Bureau of Mines are disclosing the causes of disastrous boiler explosions which create $700,000 worth of damage to stationary and locomotive boilers each year. In a lecture on November 22, at the University of Maryland, Dr. W. C. Schroeder described how intercrystalline cracking penetrates through the boiler wall, forming cracks, in some cases, before they become visible. Causes of the cracking, Dr. Schroeder pointed out, include the concentration of boiler water as much as 1,000 times. Ordinary water, not concentrated, does not cause the cracks. This concentrated water will cause the cracking only if a peculiar balance is achieved between corrosive and protective properties. It seems necessary—as a cause of the cracking—that the grain face be protected but the grain boundaries should be exposed.

JAPAN is undertaking the exploitation of aluminum ores discovered in Manchuria, according to *Industrial and Engineering Chemistry*, official journal of the American Chemical Society, published in Washington. The Manchurian ores are high in phosphorus content and so must first be refined by a process credited to investigators at the University of Tokyo. The ore is treated with sulfuric acid, yielding phosphoric acid and aluminum sulfate. The latter is treated with gaseous ammonia at 1,200 degrees Centigrade. Out of the reaction comes ammonium sulfate and aluminum oxide. The reduction of the aluminum oxide to metallic aluminum is accomplished by standard electrolytic methods. Plans for the development call for the treatment of 15,000 tons of ore annually from which will be obtained 5,100 tons of metallic aluminum (about 11,000,000 pounds). American aluminum production, in contrast, is nearly 300,000,000 pounds a year.