ice in these interglacial intervals had no greater extent than at present.

Evidence of four glacial stages has been found in the Alps, and of at least four stages in North America. There is some division of opinion as to whether there were five glacial stages, which it is to be hoped will be cleared up in the near future. The controversy is as to the relation of the Iowan drift to the third or Illinoian drift. No serious difference of opinion has been expressed as to the place and rank of the three other drifts.

The students of the northern European glaciation are still battling over the question whether there were any intervals of complete deglaciation, such as are considered established in the Alps and in North America. Those who are favorable to the view that such intervals of deglaciation occurred have in most cases been unable to differentiate clearly more than three drifts. Intense interest in the matter is shown by German, Polish and Russian glacialists, so it is probable that the succession of ice invasions in that field will soon be satisfactorily settled.

From what has been already stated, it seems clear that a lowering of temperature, rather than an increase of precipitation, was the chief factor in bringing on the glacial stages. But the cause for the lowering of temperature is still a matter of wide difference of opinion, and will not be entered into at this time.

FRANK LEVERETT

U. S. GEOLOGICAL SURVEY

SCIENTIFIC EVENTS

THE LENGTHENED LIFE OF THE GERMAN POPULATION

ACCORDING to the Berlin correspondent of the *Journal* of the American Medical Association, the mortality statistics, as set forth in the new German mortuary tables for the years 1924 to 1926, may be regarded as comparatively favorable. The mortality of all age groups, in comparison with the decade 1901–1910, has been greatly diminished. The mortality for the first year of life for the years 1924 to 1926 was 115.4 and 93.9, respectively, per thousand living births (boys and girls), as compared with 202.3 and 170.5, respectively, for the decade 1901 to 1910, and 252.7 and 217.4, respectively, for the period 1871 to 1880. It is evident, therefore, that infant mortality has decreased, since the beginning of the twentieth century, by about 44 per cent., and since the founding of the German reich (1871), by more than 50 per cent. Still greater has been the decline of mortality among young children aged 1 to 5. Of 1,000 children who have withstood the dangers of infancy, 16.2 boys and 14.9 girls die in the second year of life, or only two fifths as many as twenty years ago and only one fourth as many as during the period 1870 to 1880. In the 3 to 6 age group the mortality of boys and girls has dropped to from one fifth to one sixth of what it was formerly. The mortality of 10-year-olds has decreased from 2.4 per thousand, for boys, in the years 1901 to 1910, to 1.4 per thousand, and from 2.6 per thousand, for girls, to 1.2 per thousand.

The mortality of men of the 45 and the 50 age groups also is about 40 per cent. lower, according to the recent tables, than it was according to the tables for the period 1901 to 1910. In the age groups above 50, however, the improvement in the mortality rates becomes less and less with increasing age. Nevertheless, the attained reduction of the mortality of 70-year-old men and women from 69.4 and 62.1, respectively, to 58.1 and 52.0, respectively, per thousand, and likewise the lowered mortality of 80-year-old men and women are noteworthy. The marked diminution in the mortality of all age groups results naturally in a considerable lengthening of the life of the population as a whole. Corresponding to the especially marked reduction of mortality in infancy and the early years of childhood, the lengthening of life is most noticeable in the first five years of life. Starting with a given number of new-born (omitting still-births), 12 per cent. more reach the self-supporting age than in the decade from 1901 to 1910, and even 23 per cent. more than under the mortality conditions of the period 1871 to 1880.

According to the mortality conditions of the period 1871 to 1880, the new-born boys reached an average age of 35.6, and, according to the conditions that prevailed during the decade 1901 to 1910, they attained an average age of 44.8. Under the present conditions, however, the average length of life of boys is 56. The entire reduction in mortality brought about since 1870 amounts, therefore, to an average lengthening of the life of new-born boys of 20.4 years. During the same period of fifty years, the life expectancy of new-born girls has increased from 38.5 years to 58.8 years, or a net gain of 20.3 years. In Denmark, England and Wales, Australia and New Zealand, the new-born, chiefly because of a lower infant mortality and a lower mortality of young children, attain, on the average, a still higher age than in the German reich.

THE USE OF ETHYL GASOLINE AS MOTOR FUEL

THE use of gasoline containing ethyl fluid as an automobile engine fuel does not affect materially the percentage of carbon monoxide contained in the exhaust gases, says the Department of Commerce, fol-

lowing a series of tests conducted at the Pittsburgh Experiment Station of the U. S. Bureau of Mines.

Public interest in atmospheric pollution by automobile exhaust gas and in the ventilation of vehicular tunnels makes it desirable to ascertain whether the use of modern automobile fuels is tending to change the amount and combustion of the products of combustion. The U. S. Bureau of Mines, in cooperation with the Ethyl Gasoline Corporation, has completed a series of tests to determine whether any significant difference exists in the carbon monoxide content of the exhaust gas produced by an internal-combustion engine when its fuel is changed from straight gasoline to the same gasoline containing ethyl fluid whose active ingredient is tetraethyl lead.

In the tests data were sought relative to the composition and amount of the gas produced by ordinary comparatively low-compression motors as well as by higher-compression motors in which distinct detonation occurred with straight gasoline, but which operated without detonation when using the same gasoline containing tetraethyl lead.

The gasoline used for these tests was all taken from the same refinery run to insure similar composition and characteristics. One portion was used as received from the refinery; to a second portion, ethyl fluid in the proportion of 2¼ cc of tetraethyl lead per gallon was added (this represented the antiknock value of standard ethyl gasoline as marketed); to a third portion was added ethyl fluid in the proportion of 3 cc of tetraethyl lead per gallon.

Tests were made with the engine operating at full load and at three quarter load with various carbureter adjustments.

When the engine was operated at a fixed adjustment no significant change was found in the carbon monoxide content, nor in the content of any other constituent of the exhaust gas, upon changing the fuel supply of the engine from straight gasoline to gasoline containing tetraethyl lead (ethyl gasoline). This was true of both the tests in which a detonation was evident and those in which no detonation was audible. Also, no significant difference in the amount of carbon monoxide per horsepower hour was noted.

However, if the spark was retarded to alleviate detonation during operation on straight gasoline the amount of carbon monoxide per horsepower hour was approximately 5 to 7 per cent. less for ethyl gasoline than for straight gasoline.

As to the effect of ethyl gasoline on health and safety the amounts of carbon monoxide produced by the engine, under any comparable operating condition, were the same for ethyl gasoline and straight gasoline.

Further details are given in Serial 2908, "Carbon Monoxide from Automobiles Using Ethyl Gasoline," by W. P. Yant and L. B. Berger, copies of which may be obtained from the U. S. Bureau of Mines, Department of Commerce, Washington, D. C.

THE FIFTY-THIRD ANNIVERSARY OF THE FOUNDING OF THE JOHNS HOPKINS UNIVERSITY

COMPLETION of one $3,000,000 medical project and a $3,000,000 gift for the beginning of another were announced by Dr. Frank J. Goodnow, president of the Johns Hopkins University, at the fifty-third anniversary of the founding of that institution on February 22.

Funds of $125,000 from the Wilmer Foundation of New York City, of which Herbert L. Satterlee is president, have, according to the report in the New York *Times*, made possible a completion of the William Holland Wilmer Ophthalmological Institute. There was also made public an anonymous gift of $3,000,000, to provide endowment for a large number of additional ward beds in new medical and surgical clinics.

The new clinics are to be the center of the Johns Hopkins medical institutions, Dr. Goodnow said. They will together contain 350 beds and will replace the old medical and surgical wards which were built before the hospital opened in 1889. The buildings will be erected with $1,300,000 from funds given by the General Education Board.

Dr. Goodnow also announced two other gifts. One was a fund of $60,000 from Francis P. Garvan, president of the Chemical Foundation, for cancer research in connection with the work of Dr. Joseph C. Bloodgood. The other was a gift of $10,000 from Dr. Emanuel Libman, of New York City, to establish a lectureship in the department of the history of medicine as a memorial to Hideyo Noguchi, of the Rockefeller Institute for Medical Research, who lost his life while engaged in yellow fever researches in Africa.

One outstanding student from every state in the nation to engage in advanced studies and research in chemistry at the university is the ideal of a fellowship plan that was announced. Dr. Goodnow said that state committees of prominent chemists would be formed to aid in selecting students who showed marked aptitude for developing as leaders in chemistry.

Nine state fellowships have already been established toward this national plan, as follows:

By the Eli Lilly Company, of Indianapolis; the J. T. Baker Chemical Company, of Phillipsburg, N. J.; the Firestone Tire and Rubber Company, of