the coast of Florida seemed to show that flies come down the wind from Cuba (ninety miles distant), and at times from the Marquesas Keys (twenty-four miles distant), and even from Key West, Fla., forty-six miles away. The maximum distance traveled by the house fly in these experiments was 13.14 miles. The tests proved that the injurious forms of fly life were not distributed on any large scale by artificial means, but rather that many of the far-flying species showed marked migratory habits.

IMPACT ON BRIDGES

A NEW instrument devised by the Bureau of Public Roads of the United States Department of Agriculture measures with scientific precision the effect of every shock and blow delivered by moving vehicles in crossing a bridge. Attached to any part of the bridge structure, this instrument makes a photographic record of the effect of the moving load. The amount of stretching or shortening of the part as a result of the shocks is represented by a fine black line on the photograph. No blow or shock can be delivered so quickly that the instrument will not record its effect. It has never before been possible to measure the effect of such blows. Engineers have long been able to calculate the effect of standing loads very exactly; but because of their inability to measure the effect of quickly delivered blows or impacts, they have never been able to proportion the various parts of a bridge with absolute assurance. It has been necessary to make a liberal allowance for this unknown quantity. In some cases the allowance has not been sufficient and the bridges have collapsed under moving loads. Many bridges still in service are probably too weak to withstand safely the sharp blows of swiftly moving vehicles, though they will safely carry the same vehicles at rest or moving at a slow speed. The familiar warning posted at the portals of a bridge: "Speed limit on this bridge 8 miles per hour," means that the design of the bridge to which it is attached is not strong enough to allow for impact. In the light of the recent experiments with motor trucks in which it was shown that a swiftly moving motor truck may strike a blow equivalent to seven times its actual weight, it is rather surprising, the department road experts say, that failures have been so few. It is believed this new measuring instrument will soon do away with uncertainty. The knowledge gained by its use will enable the engineer to design bridges which are sure to hold up under fast-moving vehicles, and to build such bridges without undue waste of material and money.

THE TORONTO MEETING

THE section of medical sciences of the American Association has arranged the following program:

Vice-presidential Address: "The past and the future of the medical sciences in the United States": Professor Joseph Erlanger, professor of physiology, Washington University.

"Hereditary factors in development": Dr. Charles B. Davenport, director of the Laboratories for Experimental Evolution of the Carnegie Institution.

"The metabolism of children in health and disease": Professor Harold Bailey, Cornell Medical School, N. Y.

"Newer aspects in dietetics of children": Dr. Alfred Hess, College of Physicians and Surgeons, New York.

"Movie exhibition of tonsil-adenoid clinics in operation": Dr. George W. Goler, health officer, Rochester, N. Y.

"The mental hygiene of children": Dr. C. M. Hincks, associate medical director, Canadian National Committee for Municipal Hygiene, Toronto, Canada.

PROFESSOR E. S. MOERE, secretary of the section of geology and geography, writes:

The section has prepared a very interesting program for the Toronto meeting and the officers of the section will be glad to hear at once from any of the members who wish to contribute. While the meetings of the other societies affiliated with the association are drawing many of the geologists and mineralogists from this side of the international boundary to Amherst, quite a number are going to take part in the Toronto meeting and the Canadian geologists are most heartily cooperating in preparation for the meeting. Many of the geologists of the Canadian Geological Survey and

of the Canadian universities have prepared papers and some of them dealing with new geological fields will be of special interest. Dr. Eliot Blackwelder, at present at Harvard University, will deliver his address as retiring vice-president of this section on "The trend of earth history." It is intended that the geological and engineering sections will combine for a banquet.

The second meeting of geneticists interested in agriculture will be held at Toronto, on Tuesday, Dec. 27.

The program will take up "The genetics curriculum in the college of agriculture." Discussion of various phases of the subject will be opened as follows: (1) The elementary course in genetics. Prof. C. B. Hutchinson, Cornell University. (2) Advanced courses in genetics. Prof. J. A. Detlefsen, University of Illinois. (3) Laboratory courses in genetics. Prof. A. C. Fraser, Cornell University. (4) Genetics preparation for research in other fields. Dr. E. D. Ball, U. S. Department of Agriculture. Invitation to attend and to participate in the discussions is extended to all who may be interested, whether or not they are connected with agricultural institutions, since the topic really comprehends the general subject of genetics teaching. It is hoped to have a good attendance of those concerned with the teaching of applied courses in plant and animal breeding.

SCIENTIFIC NOTES AND NEWS

Henry Turner Eddy, professor emeritus of mathematics and mechanics in the University of Minnesota and dean emeritus of the graduate school, died on December 18 at the age of seventy-seven years.

Dr. Ernest Fox Nichols, who recently resigned the presidency of the Massachusetts Institute of Technology, is to return to Cleveland to resume the directorship of pure science in the Nela Research Laboratory, maintained by the National Lamp Works of the General Electric Company.

Stevens Institute of Technology held a fiftieth anniversary banquet at the Hotel Astor, New York City, on December 15. A silver loving cup was presented to Professor Charles Kroeh, secretary of the faculty, who has been professor of modern languages at Stevens ever since it was founded. The speakers were Dr. Alexander Humphreys, president, Dr. John H. Finley and Mr. Job E. Hedges.

The Howard N. Potts gold medal and diploma of the Franklin Institute have been conferred upon Alfred Q. Tate for inventions which have created the new art of electrolytic waterproofing of textile fabrics.

Philip L. Gile, formerly connected with the American Agricultural Chemical Company and for eleven years previously chemist of the Porto Rico Agricultural Experiment Station, has been placed in charge of the division of soil chemical investigations of the Bureau of Soils, U. S. Department of Agriculture.

Ralph Stone, member of the staff of the United States Geological Survey, has left the federal service to become assistant state geologist of Pennsylvania.

Mr. James E. Ives has resigned as research associate and lecturer in physics at Clark University to become physicist in the office of industrial hygiene and sanitation of the Public Health Service in Washington.

Dr. C. G. Abbot of the Astrophysical Observatory is at present in Antofagasta, Chile, at the solar radiation station on Mt. Montezuma. He expects to return in January.

C. H. Birdseye, chief geographer for the U. S. Geological Survey, left Washington on November 30, to inspect the map-making activities of the Survey in the West and in Hawaii.

J. W. Gilmore, professor of agronomy, College of Agriculture of the University of California, has returned from the University of Chile, Santiago, Chile. Professor Gilmore has been exchange professor with this university for the past six months. While in Chile he was in consultation with the Chilean authorities with a view toward improving the agriculture of the western coast of South America.