

They attribute this gratifying reduction in automobile accident deaths of children to the safety campaigns that have been waged by schools, police departments, insurance companies and women's organizations.

Until recently nearly one-fourth of all those killed by automobiles were children. Now less than one-fifth of automobile fatalities are those of children. Along with the marked reduction in the number of child victims, there has been a decline in the total number of automobile deaths during 1932. But the reduction in the child death-rate from this cause was marked in 1930 and 1931 in spite of the large increase in the number of cars on the roads in those years.

*Science News Letter, April 15, 1933*

#### ARCHAEOLOGY

### Stone Age Men Used Wooden Tools

**T**HE OLD STONE AGE may not have been so "stony" as it is often pictured. A French prehistorian has discovered that crude stone weapons of one of the early European cultures were probably turned out by blows of wooden instruments.

Reporting the latest views of French archaeologists on the Old Stone Age, before the central section of the American Anthropological Association at Chicago, Robert F. Greenlee said that the French prehistorian Coutier has demonstrated that a wooden instrument may effectively flake flint. In the Acheulian culture, which flourished in Europe over 100,000 years ago, hunters and fighters used improved weapons, compared to the still earlier Chellean men. The French archaeologist believes that these finer, flatter, and longer implements were the result of learning to shape stone with wood.

Mr. Greenlee, who recently assisted the noted French archaeologist, Abbé Breuil, in the task of reproducing Stone Age art on cavern walls, described a new chronology of the Old Stone Age.

Stone tools are about the only "standard" relics left of early periods of Old Stone Age life. These have been sorted into type cultures and named. By studying the tools in relation to geology, the Abbé Breuil has proposed some revisions in the present line-up of early Old Stone Age cultures.

*Science News Letter, April 15, 1933*

#### ASTRONOMY-METEOROLOGY

## Less Radiation From Sun Forecast For Next Two Years

**S**UN'S weather forecast: Colder for the next two years.

The long-range forecast of the variations of the sun's radiation, announced by Dr. C. G. Abbot, secretary of the Smithsonian Institution, is "solar radiation generally below normal."

This is not a forecast of earthly weather. Dr. Abbot emphatically stated that weather is much more complex than variation of solar radiation "owing to circumstances of mountains, deserts, vegetation, oceans, ocean currents, snow, clouds, humidity, wind, which affect localities differently."

"Yet I am firmly persuaded that the main part of the departures from normal monthly mean temperatures at many localities" he writes in a bulletin of supporting data, "are produced by the seven periodic variations of the sun."

These are intricately woven periodicities of 7, 8, 11, 21, 25, 45, and 68 month periods which he has discovered as the result of observations and calculations extended over many years.

In making his two-year prediction Dr. Abbot combined the expected curves of each of these periods into one general curve. Two years ago he made a similar prediction with less accurate data, which in general has been fulfilled. The sun, as he predicted, has given off considerably more heat than normal.

Dr. Abbot and his colleagues are working on the problem of applying the solar radiation results to the prediction of temperatures at various inland points in this country.

*Science News Letter, April 15, 1933*

#### GENETICS

## Liability To Cancer Not Inherited, Rat Study Shows

**L**IABILITY to cancer as such is not inherited, results of a twelve-year investigation with rats has shown. The studies were made by Drs. M. R. Curtis, W. F. Dunning and F. D. Bullock of Columbia University and are reported in the *American Journal of Cancer*.

The investigations are said to answer the question whether you are more likely to have cancer because one of your ancestors had it.

Chance is an important factor, the Columbia investigators said. Liability to cancer is not carried in the germ cells that carry hereditary traits, such as hair and eye color, it appears from their studies. The only way in which heredity can affect the development of cancer is insofar as it determines whether or not you will have a long life, and whether you will or will not be susceptible to a given irritant. This is because, in the opinion of the Columbia investigators, length of life and

irritation are the only two factors responsible for development of cancer.

Dr. Francis Carter Wood, director of Columbia University's Institute of Cancer Research where the work was done, described the experiments and their significance as follows:

"For twelve years these investigators have been breeding white and colored rats and infesting them with a parasitic worm which causes cancer of the liver. Over 26,000 have been so treated and the total number of animals studied is more than 52,000. Of the 26,000 only 3,300 developed cancer.

"The studies of the condition underlying the appearance of this cancer have shown that the only factors in the appearance of the cancer have been the length of the life of the animal and the amount of irritation produced by the worm. If only a few worms grow in the liver, the animal may live a long time without having cancer, but the more worms that develop, the more