

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

THE 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.

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ASTRONOMY-METEOROLOGY

Less Radiation From Sun Forecast For Next Two Years

SUN'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.

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GENETICS

Liability To Cancer Not Inherited, Rat Study Shows

LIABILITY 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

likely are the animals to have cancer, so that they conclude that if a sufficient number of parasites is present and the animal lives long enough, every rat would develop cancer.

"Thus the idea hitherto prevalent that the liability to cancer is carried in the germ cells is not borne out by these experiments. The cancer change is in a body cell and due to some sort of irritant. The technical term is somatic mutation. No matter how inbred these animals were, no cancer of the liver occurred unless the animals were irritated by these parasites.

"This is an extremely hopeful discovery for it means that while long life is one factor in having cancer, as was shown long ago from the life insurance records, the only other is the amount of irritation, so that if irritation can be avoided a person is not likely to develop the disease."

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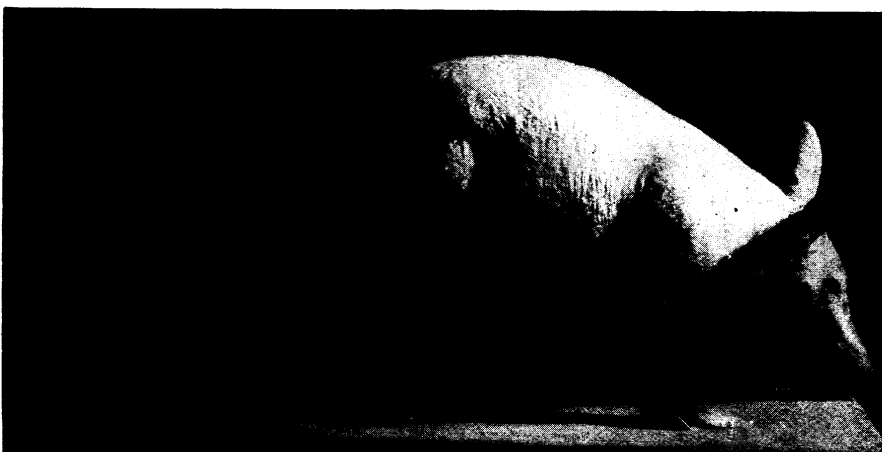
ZOOLOGY

Aardvark Comes To Buffalo Museum

LOOKING LIKE some strange imaginary monster out of a medieval bestiary, as weird to the eye as his Boer-Dutch name is to the ear, the aardvark is enough of a rarity in this country to justify special mention when a new specimen arrives.

The animal pictured here has been added to the collections of the Buffalo Museum of Science. Timid and seclusive by day, the aardvark prowls at night, ripping open ant-heaps with his powerful claws and licking up the enraged swarming insects with a long sticky tongue that flickers through his tubular snout.

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THE INCREDIBLE AARDVARK

MEDICINE

Research Indicates Vitamin C May Contain Cure For Goiter

Iodine Ally Seen as Result of Tests With Rabbits Given Goiter by Cabbage Diet and Cured by Cabbage Extract

A FURTHER means of controlling the still baffling disease, goiter, may be found in vitamin C, it appears from the latest work of a pioneer in goiter research, Dr. David Marine of the Montefiore Hospital in New York.

Working with Drs. E. J. Baumann, B. Webster and A. Cipra, Dr. Marine produced goiters in rabbits by feeding them cabbage. Then he cured the rabbits by giving them an extract made from cabbage. The extract was made by the same method Szent-Györgyi used in preparing hexuronic acid from certain plant tissues and from adrenal gland cortex. It is thought to be vitamin C, just as hexuronic acid itself is now believed to be vitamin C.

Iodine Not Responsible

The cabbage extract is practically free from iodine, which has long been known to reduce the size of simple goiters. So the potency of the cabbage extract in curing the rabbit goiters is believed not to be due to its iodine content.

The work began with the observation of Drs. Alan Chesney and Webster that rabbits fed on an exclusive cabbage diet developed goiter. Drs. Marine and Bauman subsequently noted that steaming the cabbage developed the goiter even more rapidly. The juice

pressed from the steamed cabbage plays no part in producing the goiters, but only the press cake remaining. Washing the cabbage increases its goiter-producing properties, although the amount of iodine removed in washing was believed too small to be active in preventing the goiters.

Odd Cures

Strangely enough, these goiters are cured by lawn grass, fresh alfalfa and even skunk cabbage. The curative power of these materials is found to vary not with their iodine-containing property as hitherto believed, but with their iodine-absorbing power. It is greatest in young growing plants and least in those that have been stored, dried or exposed to air for a time.

These observations led to the belief that hexuronic acid or some substance closely paralleling it found in plant tissues might be the active agent in preventing the goiters. Then followed the demonstration that an extract from cabbage, prepared as for hexuronic acid, does actually reduce the size of the goiters.

In explaining why certain foods may produce goiters and certain plant and animal tissues cure them, Dr. Marine said that the foods that produce goiters contain certain chemicals which prevent the burning of food in the body. This increases the need for thyroid secretion and produces a relative deficiency of iodine. The plant and animal tissues which cure goiter contain substances which absorb iodine and thus spare the thyroid gland from overactivity, perhaps by lessening the need for its iodine-containing secretion. Hexuronic acid, found in both plant and animal tissues, and believed to be vitamin C, is such a compound.

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Engineers report that tractors scarcely bigger than baby carriages and powered with tiny motors can be built for economical operation on small farms of less than twenty acres.