

or five feet high, and its coils are 1,254 feet long. The open jaws are 61 and 56 feet respectively in length, and in their 75-foot gap lies an oval mound of earth like a big egg about to be swallowed. The egg was probably an altar, for on it the Indians left burnt stones.

Mound building Indians of the mid-west built a good many effigies resembling men, birds and beasts. But the Great Serpent is a prehistoric masterpiece.

Ever since 1886, when Harvard University's president was dismayed to find a cornfield waving among the Serpent's coils, the earthen monument has been protected, restored. The Ohio State Archaeological and Historical Society has owned the land since 1900.

Science News Letter, October 1, 1938

PUBLIC HEALTH

Thousands Amid Food Plenty Suffer From Malnutrition

THERE ARE thousands of Americans who live in a land of food plenty and yet suffer from hunger. This is not a story about economics and how badly we distribute our agricultural products. It is a story of hidden hunger, the diseases of malnutrition. It is an ABC story because it is about vitamins.

The best estimates or guesses as to the prevalence of nutrition diseases can not be backed up by figures because, except for pellagra in some southern states, the deficiency diseases are not reportable. Yet people die of them.

Prize medical story in this regard comes from one of the largest of New England cities. A woman was found dead at the bottom of a staircase in a not-too-well-off residence. She was covered with what appeared to be livid bruises. Naturally the husband was taken into custody by the police. He might have been tried for murder, except that a keen-eyed coroner-physician, performing the autopsy, rendered a verdict that set him free. The woman had died of acute scurvy, the symptoms of which made her appear to have been badly beaten. Scurvy is caused by a lack of vitamin C contained typically in citrus fruits.

Lack of vitamin A causes a form of night blindness, sometimes involved in auto accidents. This vitamin is contained in butter. When during the World War, no butter was available and skim milk was used widely in some Scandinavia areas because butter could be sold at such high prices, eyes of some children were permanently injured.

Rickets is widely found in rich and poor children alike, despite all the cod-liver oil and vitamin D extracts sold and administered.

All the pellagrins, those who do not get the P-P factor that prevents pellagra, are not in the southern states. It is found in northern areas and large cities

where lack of money, alcoholism, or idiosyncrasies of diet prevent eating proper protective food.

Beri-beri is occasionally found in America. Its cause, which is lack of vitamin B one, is also blamed for neuritis frequently associated with other diseases in this country.

Science News Letter, October 1, 1938

ASTRONOMY

New Exploding Star Theory Traces Evolution of Growth

Stars Grow Old by Getting Hotter and Brighter Then Contracting; At Turning Point They May Flare

A NEW theory of evolution for "exploding" stars called novae by astronomers, is suggested by Prof. George Gamow, of George Washington University (*Physical Review*, Sept. 15).

Stars grow old, Prof. Gamow's hypothesis suggests, by gradually burning up their hydrogen and getting hotter and brighter. A source of nuclear energy within the star causes this first stage.

Next point in the star's evolution is a progressive contraction in which the star's radiation comes from gravitational energy only. However, at the turning point between hydrogen-burning and the gravitation contraction, the star's mass must redistribute itself.

During this redistribution of mass, gravitational energy is liberated which shows up, suggests Prof. Gamow, as a short-time additional brightness. It is this brightness, he adds, which may well be the cause of the bright flare-up of the so-called "nova" stars.

What happens to the star, after contraction sets in, depends on its mass when the contraction starts. For small stars less than 3.2 times as large as the sun the contraction leads to the well-known type known as the white dwarfs which have "a degenerated electron gas inside and very small energy production."

For the larger stars, however, the contraction creates a central neutron core inside the star which represents "a practically unlimited source of energy." The growth of such a neutron core will bring about an increase in the amount of energy liberated and probably makes the star's atmosphere expand. In this state it may enter the star class known as the giants.

Finally the explosion of such giant

stars will lead to extremely bright novae which might be identified as the supernovae; a class suggested by Prof. Fritz Zwicky of the California Institute of Technology and Dr. Walter Baade of Mt. Wilson Observatory.

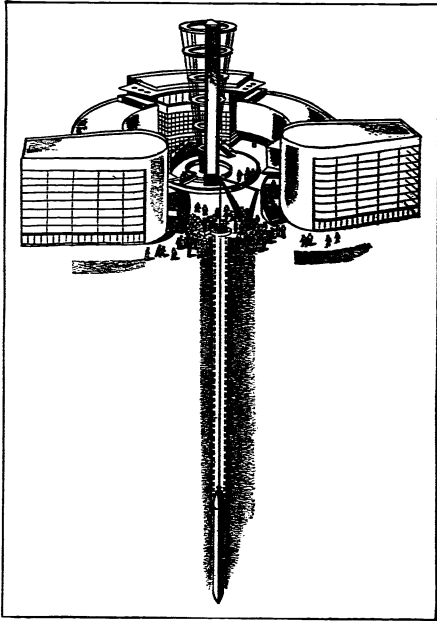
Astronomers could check the new hypothesis, Prof. Gamow suggests, by seeing if the spectrum of the star known as Nova Corona belongs to the M giant class of stars.

Science News Letter, October 1, 1938



FOR FUTURE EYES

This lady's hat in the mode of 1938 is designed to excite comment fifty centuries from now when the time capsule is excavated by archaeologists of that day. It is one of a number of articles in common use included in this "cross-section of civilization" which also contained more than 10,000,000 words and a thousand pictures on microfilm.



BURIED TREASURE

Books deposited in libraries will guide archaeologists to this spot—latitude 40 degrees, 44 minutes, 34.089 seconds north; longitude 73 degrees, 50 minutes, 43.842 seconds west—where lies buried a glimpse of 1938 civilization.

GENERAL SCIENCE

Condemns "Despotism" In "Time Capsule" Message

FUTURE citizens of the world, 5,000 years from now, even though they may not know despots of the twentieth century variety in the flesh, will have at least a denunciation of them from the lips of one famous American, Dr. Robert Andrews Millikan, Nobel prize-winning physicist of the California Institute of Technology.

"If the reactionary principles of despotism triumph now and in the future, the future history of mankind will repeat the sad story of war and oppression as in the past," Dr. Millikan declared in a message prepared for inclusion in the "time capsule" the Westinghouse Electric and Manufacturing Company buried (Sept. 23) beneath its exhibit site at the New York World Fair.

Accompanied by messages written by Prof. Albert Einstein and Dr. Thomas Mann, widely-known German novelist now in exile in the United States from his native Germany, Dr. Millikan's message was included in the "time capsule" with objects and photographs depicting life today. Books scattered in libraries throughout the world will in-

struct archaeologists to dig it up in the year 6939.

"At this moment, August 22, 1938, the principles of representative ballot government . . . are in deadly conflict with

the principles of despotism," Dr. Millikan wrote.

Hope for a more cheerful future was expressed by Prof. Einstein and Dr. Mann.

Science News Letter, October 1, 1938

ARCHAEOLOGY

Foresees Our Civilization Rated Barbaric by Future

Archaeologist Believes Clay Records of Babylonians Will Give Later Scientists More Favorable Picture

MODERN civilization has been trembling on the brink of world-shattering war, but we scarcely think of ourselves as wiped out of history, while the story of Babylonia goes on forever.

Yet, this possibility is foreseen in a book just published, "They Wrote on Clay," which Prof. Edward Chiera, University of Chicago Assyriologist, left unfinished at death and which has been completed by his associate, George G. Cameron.

Scholars of the future will probably decide, the book concludes, "that the 'golden age' of mankind was in the second and third millenniums B.C., after which barbarians took command and messed things up so thoroughly with their machines and mechanical inventions that they finally brought civilization to crash on their own heads."

The Babylonians will outlast us in history, the book foresees, because they wrote everything on durable clay, whereas our literature, history and vaunted progress are entrusted mostly to flimsy paper.

Archaeologists believe 99 per cent. of Babylonian writings are still buried in the Near East. But thousands of documents have been found and read, revealing a civilization which has been forgotten, but not lost.

Assyrians and Babylonians were never defeated, to hear them tell it on clay—exactly like modern dictators who can twist defeats to sound like victories. History writing has not changed in thousands of years, says Prof. Chiera.

Babylonian law in 2000 B.C. required every business deal put in writing, signed and witnessed. It is only in recent centuries that we have required certain contracts to be in writing to prevent fraud.

Babylonians and even Sumerians before them anticipated Darwin's theory of evolution. They had no scientific way of investigating man's past, but in a

myth they traced life back to a time when man ate grass, wore no clothes and apparently walked on all fours.

Babylonians could not "raise checks" or forge changes in documents. Their clay "papers" were enclosed in clay envelopes, on which the data were copied, and the cleverest crook could not open the envelope without breaking it. Modern archaeologists have tried opening those envelopes.

Babylonians had office files, and even had office girls, but the latter were not much of a success.

Babylonian literature is making the Bible understandable. Prof. Chiera's book says that the Bible tells too little about life and customs of its time to give us a complete picture. Many of our interpretations of obscure passages are handed to us by theologians of the Middle Ages, who knew nothing about oriental ideas and little about the languages. Prof. Chiera says closer study of cuneiform literature will play havoc with some of these interpretations, and the Bible will again give the message its writers intended to convey.

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MEDICINE

Four-At-Time Iron Lung Saves Expense; Now in Use

See Front Cover

MASS production hasn't come to the healing profession, but doctors have found that a single pressure and breathing rate will do for a wide range of persons. So they fixed up a four-at-a-time respirator, now in use at the Children's Hospital in Boston. Naturally, it costs less per patient than the expensive single iron lung and the patients also have company.

This multiple treating device is shown on the front cover.

Science News Letter, October 1, 1938