

ASTRONOMY

Sun Is Bound To Explode, Turning Earth to Cloud of Gas

**But Don't Be Alarmed; Several Billions of Years
Will Probably Elapse Before This Catastrophe**

THE SUN is going to explode! This conclusion seems a certainty, says Dr. George Gamow, professor of physics at George Washington University, and one of the scientists who have helped astronomers to understand the alchemical process by which one element is changed into another to keep the sun and other stars fueled.

However, this terrific explosion, which will instantly convert the earth into a cloud of hot gas, is not likely to come soon enough to bring a stop to the present war. No doubt there will be many periods of war and peace before this catastrophe brings the world to an end, for, Dr. Gamow reassures us, it is not likely to happen for several billion years at least.

About twenty times a year astronomers, through their telescopes and occasionally with the naked eye, discover a "nova" or new star. Some of these are "super-novae," many times more brilliant than the common variety. Dr. Gamow thinks that the difference between the two kinds is merely one of the mass of the original star.

"Whereas the explosion of such a giant star as Sirius," he says, in a report of his theory, (*Popular Astronomy*, August) "would lead to a very brilliant supernova comparable with the 'star of Bethlehem,' the explosion of our own sun, which is known to be a middle-weight star, would be probably classed as an ordinary, common nova.

"This will make, however," he adds, "but a very little difference for the population of the earth, since in both cases the increase of solar heat will be quite sufficient to turn our planet instantaneously into a cloud of hot gas!"

With twenty novae a year, and our Milky Way system of stars about two billion years old, he states, some 40 billion stars in this system have already exploded. He estimates that there are between 40 and 80 billion stars in the system, so "the chances of explosion for any individual star are fairly high."

It has been established, "beyond any

doubt," according to Dr. Gamow, that transmutation of elements, for which the ancient alchemists sought in order to transfer base metals into gold, is the source of stellar energy. In the case of the sun, hydrogen is changed to inactive helium. Dr. Gamow's work has shown, paradoxically, that as the supply of hydrogen fuel is used up, the sun gets hotter, and the remaining fuel is burned faster.

"When the solar hydrogen content drops from its present value of 35% down to only 1% the sun will become about 100 times as bright as it is now," he declares.

This will make rocks on the daytime side of the earth as hot as the kitchen stove, the oceans will boil, and human beings, if they have not been able to migrate to a more comfortable planet,

will have to "spend most of their time in air-conditioned underground shelters," suggests Dr. Gamow.

"Fortunately enough," he says comfortingly, "the above described picture corresponds to a very distant future indeed, since the consumption of hydrogen and the increase of solar brightness are going on extremely slowly. It has been estimated, in fact, that the chemical reaction producing the radiation of the sun consumes about 0.00000001 (one-billionth) per cent of solar hydrogen per century, so that it will be several billion years before this amount will be essentially changed, and the sun will become hot enough to set the oceans boiling!"

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MILITARY SCIENCE

Lightness of Ammunition Factor in Choice of Gun

LIGHTNESS of ammunition for the Army's new .30-caliber carbine, enabling the soldier to carry a large number of rounds without overburdening himself, is a decided point in the new weapon's favor. Being of relatively small caliber and of pistol-cartridge length, they are only about half the weight of the .45-caliber cartridges used in present service pistols and "Tommy" guns.



RAID WARNING BY RADIO

David Sarnoff, president of the Radio Corporation of America, and Director of Civilian Defense Fiorello H. La Guardia demonstrate a new RCA alert receiver that turns on automatically when it receives a special inaudible signal from a broadcasting station. If an emergency required it, the people could thus be warned in their homes. The alert attachment, which rings a bell in response to the inaudible signal, can be put on standard broadcast receivers.