

## ASTRONOMY

# Universe Creation Theory

► THERE IS a new theory of supersonic creation of the universe.

The galaxies of stars in the universe began with turbulent gases moving at supersonic speeds, Dr. George Gamow of George Washington University told members of the American Astronomical Society meeting in Amherst, Mass.

The elemental gas was in such a state of turbulent motion that it was buffeted about with a supersonic Mach number four, which is about 3,000 miles per hour or four times the speed of sound, Dr. Gamow estimates. Such supersonic turbulence must be assumed, he said, to explain how the galaxies of stars were formed in the relatively short time of only 70,000,000 years, as Dr. Gamow calculates.

Up until the time when the heat of the universe dropped from billions of degrees to about room temperature, what little gas

there was had been pushed around more by radiation than anything else. At this period there was very little matter, only about one atom of gas per cubic inch and one particle of dust per several thousand cubic miles.

In time, however, matter became more important than radiation and played a larger part in the formation of the universe. Up to this point the gas had been pretty evenly mixed, but now it began to break up into individual gas clouds, or protogalaxies.

A mass of gas only 50,000,000 times as bulky as the sun was enough to form a galaxy of millions of stars and nebulae, Dr. Gamow estimates. This figure is lower than the observed mean mass of galaxies today, he admits, but the turbulent motion of the gas made creation possible for the galaxies and the individual stars of which they are composed.

Science News Letter, January 17, 1953

## AERONAUTICS

# New "Stopway" Strips

► ECONOMY IN construction, without sacrificing safety, is promised with a new type of take-off strip at international airports. Runways would be shorter than present standard lengths, but each would have an extension called a "stopway" for use in emergencies.

Beyond the end of the stopway would be what is called a "clearway," an area without obstructions which is already regarded as an essential for safety in case a plane fails to achieve a proper altitude. Runway, stopway and clearway, as extensions to each other, would constitute the proposed take-off strip.

This type of take-off strip was proposed by a committee of the International Civil Aviation Organization in Montreal. Findings of the ICAO must be adopted by the individual nations before they go into operation.

Existing ICAO standards call for runways longer than needed for a normal take-off. They call for runways long enough for a pilot to bring his aircraft to a halt in the event of an engine failure before full flying speed is reached. The new specifications permit the use of a shorter runway of heavy pavement, but involve no decrease in safety because the stopway is added as a continuation of the runway. The stopway is of less expensive construction, but with sufficient strength for emergency uses.

The term "clearway" for the extension beyond the stopway may be new, but the idea is not. American aviation authorities have long insisted that all modern airports have a region clear of tall buildings and other obstructions at the ends of their runways. Without such clearways, planes landing and taking off are in danger.

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## MEDICINE

# Stop Profuse Bleeding

► SUCCESSFUL USE of a by-product of whole blood for quick stopping of dangerous bleeding in expectant mothers is announced by Dr. F. W. Tamblin of Lansing, Mich., in a report to the Michigan State Medical Society.

The blood by-product he used is anti-hemophilic globulin. The patients, however, were not suffering from the bleeding disease, hemophilia. In one case a single injection of this blood by-product stopped bleeding in five minutes although other measures, including transfusion of seven pints of whole blood, had not.

One patient, a nurse, had two bouts of bleeding during the nine months she was pregnant. The first time she was put to bed and given blood transfusions. The bleeding gradually subsided over a period of five days. The second time, she was given the anti-hemophilic globulin and the bleeding stopped in less than two hours.

"Why didn't you give me this the first time?" she asked.

She later had a normal baby.

Not all the patients were expecting babies. Some had cancer and one had a small fibroid tumor of the uterus. One patient

continued to hemorrhage even after getting a quart of blood by transfusion and having a pack of the coagulating gel-foam inserted. Two doses of the anti-hemophilic globulin within eight hours stopped the bleeding.

Dr. Tamblin points out that in giving anti-hemophilic globulin three factors are being added to the patient's blood: fibrinogen, accelerator globulin and anti-hemophilic factor. Which of these is effective or whether it is the combination is not definitely known. But Dr. Tamblin thinks the results in his cases are so good that further studies should be made of this blood by-product for stopping some kinds of bleeding.

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