

of the Aeronautical Sciences was told by Jackson R. Stalder and David Jukoff of the National Advisory Committee for Aeronautics. The reason is atmospheric friction.

At 75 miles altitude, they said, the heat of the sun has little effect as contrasted with its potency at customary flight levels. At altitudes of 150 miles, solar radiation is the predominating factor that determines the temperature of a body in flight. Within the earth's atmosphere friction alone melts meteorites that wander into it.

"At the extreme altitude encountered during flight of sounding rockets or missiles," they stated, "the atmosphere can no longer be considered as a continuous medium, and account must be taken of the motions of the molecules comprising the atmosphere." They submitted calculations of the temperatures of bodies travelling at altitudes from 75 to 150 miles, at speeds up to 13,000 miles per hour.

Wing Design for Speed

Power for supersonic flights has forced designers to consider relatively unconventional wings, most of them very thin, with a short span relative to their size, and a high degree of backward or forward sweep, the meeting was told by Victor I. Stevens, Jr., of the same government aviation laboratories.

The exhaustive study of wing shapes became urgent, he said, with the development of power plants capable of driving aircraft at supersonic speeds. Heretofore the primary limit on airplane speed was the available power. A wide range of wing designs were shown on charts, and their expected performance as determined by wind tunnel and other tests was indicated.

Science News Letter, February 7, 1948

VETERINARY MEDICINE

Vaccine Protects Poultry From Newcastle Disease

➤ A NEW vaccine to protect poultry against Newcastle disease, one of the most destructive of poultry maladies, has been developed by scientists at the Massachusetts Agricultural Experiment Station. It is prepared from a low-potency virus, and inoculated by the thrust of a small needle into the wing-web—the so-called "stick method."

Success with some 12,000 chicks is reported. Immunity was tested with a

potent virus from one to three months after vaccination, and all the young chickens survived.

It has been found possible to combine

this vaccine with another, against fowl pox, and thus give the birds double protection with a single vaccination.

Science News Letter, February 7, 1948

TECHNOLOGY

New Type of Bed Proposed

➤ CONCRETE blocks will replace metal beds in hospitals of the future, if a French architect has his way. But the bed would feel no harder to the patient.

Jean Walter, a French hospital designer, explains his novel concrete bed in a report on hospital building in the journal, *Lancet*, (Jan. 3).

Patients would sleep on the usual mattress and springs. Instead of the metal frame support, the bed would be on a hollow concrete block covered with earthenware.

"This would save considerable trouble in cleaning," M. Walter points out.

Each block would have drawers for the patient's property and medical equipment, and the concrete bed could be wired for diagnostic instruments.

The new type of bed is only one of several suggestions the French architect has for modern hospitals. Hospitals, he believes, should be designed like industrial plants to prevent waste effort. And many hospitals use too much space.

The New York Hospital, built in 1930, has 576 cubic meters of space for each bed. M. Walter has designed hospitals with as little as 90 cubic meters per bed.

"I have discarded the dogma that all wards should face south," he declares.

Acute surgical patients average only 12 days in the hospital, while medical patients average 20. He argues that sunshine is not of great importance in this short time and that modern heating makes the sunlight unnecessary for warmth.

M. Walter's basic design for a large hospital consists of a central core, five to eight stories tall, with several wings extending out from the center. Through the central tower run elevators for patients, staff and visitors and other communication lines.

The wings on succeeding stories are graduated so that each floor has a balcony. This permits recuperating patients to get outside without using the elevator or leaving the building.

Top floor of the Frenchman's hospitals always is for the kitchen, so that the smell of cooking will not spread through the building.

And where is the architect's ideal

medical center? M. Walter answers: "It will be found that each center has something to offer: Munich has a model linen-room, Budapest the perfect kitchen, Alexandria (Egypt) the best infectious diseases department, and Chicago an excellent sound-proofing system."

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