

## Plenty of Airplane Power Needed

Aviation

Excess horsepower in an airplane has too frequently been considered as a luxury. There can be no doubt that this is not true. It is, instead, the finest safety factor which an airplane can have.

It has been the dream and the desire of many of our designers, for a long time, to provide a design which would fly on an absolute minimum of horsepower, and this has been done very successfully a number of times. However, such aircraft can hardly, in my opinion, be considered airplanes. They may be termed, for want of better designation, "power-gliders," an incongruous term, it is true.

For an airplane a general rule on power might be laid down. Of course, it would be controversial. But a sensible power requirement, which would insure reasonable safety, would be of the order of 30 horsepower per passenger. That seems like a logical minimum for the purpose.

It may be criticized that airplanes can fly on less power than this, and that is true. However, in the inter-

ests of safety, there are many characteristics which would be provided by this order of horsepower which would not be present if it were less. The improved taking-off ability and rate of climb is evident. On the other hand, the ability to throttle the engine during cruising flight is important and desirable.

It is, however, contemplated that this latter class of airplanes very frequently will be in the hands of those who fly for pleasure, and those pilots are, in too frequent cases, of inexpert ability. An airplane which has too little power and is therefore compelled to fly at full throttle continually, does not have the ability to recover from unintentional stalls which one of reserve horsepower would have. In other words, should an unintentional stall occur, the airplane drops its nose abruptly and the assistance of the control provided by opening the throttle can not be made available. If for no other reason, at this time reserve horsepower is desirable and the added safety it provides is apparent.

*Science News-Letter, June 8, 1929*

## Eggs Hatch Early Under Ultraviolet

Biology

It is now well known that ultraviolet rays, whether made by the sun or artificially, are good for animals, whether chickens or men. In spite of such bunkum, some of it harmful, a host of solid facts are being applied wisely by scientists. Dr. Charles Sheard and Dr. G. M. Higgins, experimenters of the Mayo Foundation, have just announced the results of experiments with irradiated hens' eggs.

They found that by the use of a quartz-mercury arc radiant energy can be transmitted through the shell and lining membrane of eggs. With eggs under normal incubation ultraviolet light caused about 20 per cent of them to hatch out twenty-four to forty-eight hours sooner than other eggs of the same hatch.

These investigators also have compared the effects of sun's rays and codliver oil on the production and fertility of eggs.

Recent researches by various investigators have shown that ultraviolet radiation has the property of activating substances containing ergosterol and forming vitamin D. In curing or preventing rickets, for in-

stance, sunlight, an artificial source of ultraviolet rays, codliver oil, or an artificially activated oil are effective.

Drs. Sheard and Higgins have discovered that if chickens are kept behind windows made of a quartz-containing glass enough ultraviolet light comes through to keep production and fertility of eggs at a high level. If they are kept behind ordinary glass fertility and production falls off about half during the winter months. However, the effect of ordinary glass can be offset by adding a little codliver oil to the chicken feed. Chickens which were kept and fed in this last way gave a better record of production and fertility than any of the others.

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An automatic refrigerator recently invented for household use gets its power from a kerosene burner.

An examination of more than 3,000 apparently healthy persons showed that they had on the average two defects or diseases.

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