era, which showed number and direction of spins and tumbles, as it alternately photographed clouds and earth.

A small voice radio set within his helmet.

Military advantages of a delayed-opening drop from high altitude, Mr. Starnes points out, include (first of all) getting away from the enemy fighter quickly, rapid descent into air levels where temperature and oxygen supply are not too low for consciousness and hence life, and lowered risk of being struck by one's own wrecked plane or its parts. If aviators can be convinced that long drops make for greater safety, he feels, combat tactics may be materially affected.

Science News Letter, November 8, 1941

VETERINARY MEDICINE

New One-Dose Vaccine Frees Hogs From Cholera

Discovery Expected To Do as Much for Hog Health As Smallpox Vaccine Has Done for Human Welfare

A DISCOVERY that will do as much for hog-health as smallpox vaccine did for humans has just received the final OK of practical farmers. For over a hundred years hog cholera has been causing greater losses in the United States than have all the other live stock diseases combined. The best answer to the problem was the serum-virus treatments, but that preventive sometimes proved worse than the disease.

Prof. William T. Boynton, professor of veterinary science at the University of California, has been working on this problem since 1917, and has finally developed a vaccine which not only gives wider, longer-lasting immunization from hog cholera but eliminates the serious drawbacks of the former serum-virus treatment.

The serum formerly used was so susceptible to deterioration from a number of causes that it was sometimes impotent when administered. Dr. Boynton's vaccine, subjected to rigid exposure tests, remained stable and effective under all circumstances.

Serum-virus inoculations were often fatal to under-condition animals, and sometimes led to a flare-up of enteritis, pneumonia, and verminous infection. The new vaccine has no adverse effects on health.

During the serum-virus inoculations growing animals were "off their feed" and had general vitality lowered so that growth was stunted temporarily. The new vaccine does not diminish the young animal's voracious appetite and hogs immunized with vaccine are ready for market two to six weeks ahead of those immunized with serum and virus.

There is no danger of spreading the very infection which it aims to control by re-seeding the premises with the virus as the old treatment sometimes did, for the vaccine is not made from the blood of once-infected animals, but from a finely ground glandular tissue which, treated with eucalyptol, has lost its disease producing properties and yet keeps its immunizing ability.

Proved not only in the laboratory but in actual farm tests, where over 100,000 pigs have been successfully immunized on hundreds of Western and Corn Belt farms, the vaccine is well established now. Treated animals transferred to untreated farms remain healthy in the midst of a hog cholera epidemic.

It was believed at first that two injections of the vaccine were necessary to keep pigs cholera-free between weaning and maturity. It has just been announced, however, that recent tests have shown a single inoculation sufficient for immunization until pigs reach marketing age.

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ASTRONOMY

Volunteer Star Watchers Record Changing Starlight

SOME 850,000 observations of about 600 stars have been made in the past 30 years by members of American Association of Variable Star Observers, Leon Campbell, recorder, reported in his annual summary of the researches of this band of volunteer astronomers scattered all over the world.

Veteran watcher of the fluctuating light of these stars is Rev. T. C. H. Bouton, who has observed during the whole 30 years of the existence of the association, first from Hudson, N. H., and now from St. Petersburg, Fla. At the age of 85, he is still adding to his grand total of 25,000 observations.

L. C. Peltier of Delphos, Ohio, known for his comet discoveries, has been observing steadily since 1918 and has nearly 60,000 observations to his credit.

E. H. Jones of Goffstown, N. H., has been keeping track of variables since 1923 and has a total of 40,000. J. M. Baldwin of Melbourne, Australia, has made nearly 35,000 observations since 1920 and R. G. Chandra, of Bagchar, India, follows with 29,000 estimates made during the past 21 years.

The volunteer astronomers banded together in the A.A.V.S.O., sponsored by Harvard Observatory, spend most of their effort keeping an estimating eye upon the fickle stars that are inconstant in their light. Small telescopes are used for this purpose and there is plenty of room in the sky for additional observers who will have special stars assigned to them as they prove their competency.

The amateurs also watch and compute occultations of the moon and search for bright, suddenly appearing novae or "new stars."

In the past year 38,043 observations of variable stars were made, with Cyrus F. Fernald of Wilton, Me., first with 3,133 observations.

Science News Letter, November 8, 1941

PHYSICS

Ozone Odor Detected During Auroral Display

THE ODOR of ozone was reported by several persons in the vicinity of Radburn, N. J., during the great auroral display of Sept. 18.

This unmistakable odor was noted by Prof. Malcolm E. Little, anatomist of New York University's School of Education, who has transmitted his observations to scientists specializing in such phenomena. The sensation was strongest when the auroral display was at its height, entering at the zenith with coronal light and spreading toward the horizon in sheets. Odors have been reported occasionally from earlier displays.

Some of his neighbors also detected the ozone, asking him:

"Can you tell me what the peculiar odor is?"

"Is it my imagination, or is there a sharp odor in the air?"

"Both my wife and I detect the same odor that one gets near a dynamo. Do you know the explanation?"

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