

MEDICINE

Better Protection From Flu Foreseen in New Discovery

Find That Two Different Viruses Act To Cause Epidemics in Independently Recurring Cycles

BETTER protection against influenza, predicted by many authorities to occur in a widespread epidemic this winter, seems possible because of a discovery announced by Dr. Thomas Francis, Jr., of New York University College of Medicine. (*Science*, Nov. 1.)

Dr. Francis has discovered a second virus that causes influenza. This second virus, to be known as Influenza B virus, was the cause of the flu epidemic in North Carolina early this year. It also caused the extensive flu epidemic of early 1936. It was not the cause of the epidemic of late 1936 and 1937, nor of the 1938-1939 epidemic. The latter epidemics were caused by Influenza A virus.

The two different viruses seem to cause epidemics in independent cycles. For protection against Influenza A, a promising vaccine has been made by Dr. Frank L. Horsfall, Jr., and Dr. Edwin H. Lennette, of the Rockefeller Foundation. If this vaccine lives up to its prom-

ise when tried in the fire of an Influenza A epidemic, and if another vaccine can be made for Influenza B, as seems likely, protection against many if not all influenza epidemics will be possible.

Large-scale production of Influenza A vaccine is now under way and it is being given as rapidly as possible to many thousands of persons in carefully controlled situations to provide a crucial test of the vaccine's protective power if an epidemic of this influenza comes this winter. Large quantities of the vaccine, it is understood, are also being produced for use in England, where war conditions make an outbreak even more probable.

The new B virus was discovered in the throat washings of children convalescing from rheumatic heart disease at Irvington House near New York City. Last February and March an epidemic of what appeared to be influenza broke out there. Tests of the material from

these children's throats showed that the cause of the epidemic was not the A virus previously identified as a cause of influenza in some epidemics.

The Irvington House epidemic occurred at the same time as the influenza epidemic in North Carolina. Material from throats or blood of North Carolina flu patients turned out to contain the same virus as caused the Irvington House epidemic. Stored away in his laboratory, Dr. Francis had some blood serum from two patients who had flu during the early season 1936 epidemic. He got this out, tested it and found that these patients, like the Irvington House and North Carolina patients in 1940, had influenza B, but not Influenza A.

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ZOOLOGY

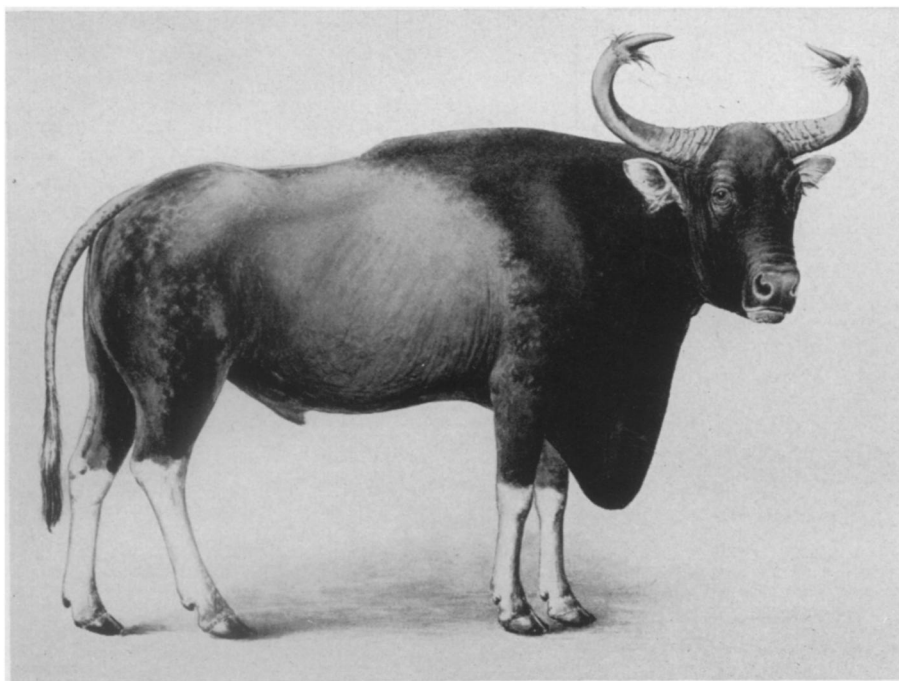
War Stops Study of Kouprey, Newly Discovered Wild Ox

WAR, cutting off both France and the French colonies from world contacts, has put zoologists interested in certain of the larger wild animal species into a most tantalizing position. Just when details of one of the most astonishing discoveries of the present generation become generally available, the war clouds shut the animal off from further study—and may even threaten its very survival as a species.

The animal pictured at left is the kouprey, or wild forest ox of Indo-China, the first really large mammal to be discovered since the sensational finding of the okapi in Africa early in the present century. In a world considered fairly thoroughly explored, the presence of an animal as big as an ox, escaping all notice until now, is something really to be exclaimed about.

Although white men have known of the existence of the kouprey for about ten years, and a French zoologist, Dr. Achille Urbain, first briefly described it in 1937, it is only recently that the skeleton has been studied and a full scientific description has become available, with the publication of a monograph on the animal by Harold J. Coolidge, Jr., of the Harvard Museum of Comparative Zoology.

Mr. Coolidge's description is based principally on the hide and skull and skeleton of a full-grown bull kouprey, shot in 1939 at Samrong in Cambodia, about 150 miles north of Saigon, capital of French Indo-China, by a member of a Franco-American scientific expedition. There is (or was, at the beginning of



THE KOUPREY

Newest find in Asia's forests as painted by Eugene N. Fischer.

last summer's *Blitzkrieg*) a living specimen in the Vincennes Zoo, near Paris. The fate of this animal is at present unknown. It is considered the "holotype," or original specimen, to which all others are referred for scientific comparison, so that its disappearance would constitute a real zoological misfortune.

Fear Hunting for Meat

What may happen to all koupreys would become a matter of some concern if the Japanese should occupy all of French Indo-China: soldiers, of whatever nation, are not too meticulous about the source of fresh meat on the hoof. Furthermore, distress among the natives might intensify hunting, even in the absence of foreign soldiers. Zoologists will therefore be anxious about their new animal until peace and effective conservation laws bring them reassurance of its welfare.

The kouprey specimen at the Harvard Museum, as described by Mr. Coolidge, might be termed a living fossil. More primitive than many fossil cattle dug up in the Siwalik hills of India, this animal combines certain features of the bison, yak, gaur, bantian, and zebu. The body-hide is mainly grayish black. The conspicuously white stockings have a dark stripe on the front legs. Its tail is longer than that of any other known wild cattle of the region.

With Fringed Horns

The tips of the horns are surrounded by a frayed collar of shredded horn which seems characteristic of the male kouprey. The horns are large and crescent shaped, with the ends curved inward like those of the wild yak. The horns' sheaths are heavily wrinkled at the bases, which come close together as in some of the buffalo rather than the cattle.

Comparison of bones, especially of skulls, with those found in earlier excavations and ancient pictures of cattle from monuments, seals and vases in Egypt, the Near East, and Greece, have led Mr. Coolidge to the opinion that this newly discovered wild ox of tropical Asia may be close to the ancient ancestral line that has given the world its domestic cattle. This, however, remains an undecided point.

Mr. Coolidge has given the animal the new generic name of *Novibos*, making its full scientific name *Novibos sauveli*.

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Young leaves are often pink or lavender tinted, which protects the green chlorophyll from the sun's rays.

PHYSIOLOGY—AERONAUTICS

Bailing Out at High Altitudes Requires Immediate Oxygen

Pilot Making Test "Jump" from Low Pressure Chamber Loses Consciousness When He Delays for 30 Seconds

A PILOT forced to abandon ship and bail out at 30,000 feet altitude has no time to lose and must start his emergency oxygen supply immediately, Milo G. Burcham, well-known test pilot of the Lockheed Aircraft Corporation, discovered when he passed out from oxygen lack and was only rescued in the nick of time in a test conducted by Dr. Walter M. Boothby, Dr. W. Randolph Lovelace II and Dr. Howard Burchell, of the Mayo Clinic.

The results of the test for which Mr. Burcham volunteered were reported to the Aero Medical Association meeting at Memphis, Tenn.

Mr. Burcham was in excellent physical condition at the time of the test, and has proved that he is less susceptible to oxygen lack than the average normal person. But he was out for 15 seconds, had stopped breathing and turned blue, without knowing it until he was told afterwards what an exciting experience he gave his companion.

The test was not made in the air in an actual parachute jump. It was made in the low-pressure chamber at the Mayo Clinic. Mr. Burcham and his observer entered the chamber wearing regular oxygen masks and ascended, by atmospheric pressure change in the chamber, to 35,000 feet in just over six minutes.

He then proceeded to "bail out," using the wrong method, as the test dramatically showed. Instead of adjusting his emergency oxygen mouthpiece immediately after removing the regular oxygen mask, he first went through the motions of trying to open a jammed cockpit cover, releasing the safety belt, and standing up as though to jump out. When at this point, only 30 seconds after removing the regular oxygen mask, he started to adjust the emergency oxygen mouthpiece, he was already "fast losing consciousness."

The emergency mouthpiece fell out of his mouth, he became completely unconscious, and fell over on his side. Prompt action by the observer in supplying him with 100% oxygen rescued him. But in actual flight conditions, there

would be no such chance for rescue and the pilot would probably not live to pull the cord on his parachute, if he remained conscious long enough to start the jump.

"All other procedures for bailing out must be deferred until after oxygen is started," the Mayo Clinic physicians conclude, in which Mr. Burcham undoubtedly joins after his experience.

"The emergency parachute oxygen apparatus," pilots are warned, "must therefore be in place for instant use whenever a high altitude flight is undertaken."

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PHYSIOLOGY—AERONAUTICS

Brain Suffers from Repeated Oxygen Starvation

REPEATED periods of oxygen starvation of the brain will sooner or later damage that vital organ if no symptoms or brain damage appear after the first time or two, warned Captain Melvin W. Thorner, reserve medical officer, U. S. Army, and Dr. F. H. Lewy, of the University of Pennsylvania.

The absence of symptoms "should not delude one into failing to assure an adequate oxygen supply in aviation or in other situations in which anoxia (oxygen lack) may be present," they declared.

A reserve of nerve cells in the brain may prevent the appearance of symptoms of brain damage after the first time or two when a pilot flying at high altitudes without oxygen, or a patient under anesthetic for a surgical operation, temporarily is deprived of a full supply of oxygen to his brain. Destruction of the reserve nerve cells in the brain probably occurs, animal studies showed. Because these are reserve cells, however, the brain goes on functioning without apparent damage.

"However," the doctors stated, "a time must inevitably come when the cerebral reserve can no longer compensate for the damage done."

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Euclid's geometry, 2,200 years old, is the oldest school book in use.