

BIOLOGY

Sex Control Accomplished

Breeding experiments at Iowa State College have resulted in offspring of a strain of fruit flies all of which are males.

► PRENATAL CONTROL of the sex of animals, most elusive of all goals of experimental biology, has now been accomplished in the case of fruit-flies, those favorite insect "guinea pigs" of genetical research. Results of breeding experiments at Iowa State College, in which all offspring of a strain of the flies are males, are announced (*Science*, Dec. 18) by Dr. John W. Gowen and Dr. Ronald H. Nelson. Previous work by another researcher had already succeeded in producing a nearly all-female progeny in the same insects.

The method used was entirely that of the modern Mendelian geneticist, and did not involve the use of chemicals, X-rays or any of the other drastic means

resorted to in attempts to predetermine the sex of larger animals and human beings. It consisted in selecting strains of fruit-flies in which the sex-determining chromosomes also carried a lethal gene, or genetic factor that would kill the individual bearing it before it reached maturity. Thus a lethal gene attached to the chromosome setup for femaleness would eliminate all females, leaving only male offspring to grow up.

Since this method involves the absolute control of mating for a number of generations it is obviously not applicable to human beings. It may eventually become useful in livestock breeding; but this has not yet been done.

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NUTRITION

Horse Meat Won't Hurt

If it is passed by Federal inspectors, it is safe and nourishing. But even if you want it, you probably can't get much. It's scarce.

► A TEMPEST in the frying pan, if not the teapot, seems to have been stirred up over the use of horse meat as a substitute for now scarce beef. Reports are that the use of horse meat is being urged in some places, while in at least one state its sale for human consumption is banned.

Actually, the supply of horse meat is so small that whether you like to eat it or not, you probably will not be able to get much if any, nor is there enough to help reduce the meat scarcity situation.

Latest figures from the U. S. Bureau of Animal Industry show that in the last year, when more than 50,000,000 swine were slaughtered under federal meat inspection, more than 18,500,000 sheep and lambs, and about 17,000,000 cattle and calves, only 30,000 horses were slaughtered.

If federally inspected horse meat is for sale at your butcher's, you can buy and eat it with confidence that it is safe just as is the other federally in-

spected meat you have been used to eating. Look for a green hexagonal (six-sided) stamp on federally inspected horse meat. The round purple federal inspection stamp is not used for horse meat.

The nourishing quality of horse meat is probably about the same as that of other meats. Few studies have been made on this subject, but one authority states that horse meat does not differ materially in composition from beef except that it contains a relatively high amount of glycogen, the carbohydrate stored in animal tissues.

Horse meat is said to have a sweetish flavor and to be rather tough. The toughness is due to the fact that the supply comes chiefly from wild horses on western ranges, slaughtered to prevent their using up valuable cattle and sheep pasturage, and from worn-out work horses. Beef from old draught cattle, it is known, is not nearly so tender and good as that from young steers raised specially for food.

Horse meat is no novelty on the dinner tables of European countries, but in the United States its chief use has been for feeding animals in zoos, menageries, silver fox farms and in dog food. Some American horse meat formerly was shipped to France where the people are accustomed to eating this kind of meat.

Reluctance on the part of most Americans to eat horse meat, despite shortage in other kinds of meat, may be basically a religious prejudice, stemming from an old, nearly-forgotten need on the part of recently converted Christians in north European lands to distinguish themselves from their still-heathen neighbors.

In pre-Christian days the horse was a sacred animal in northern European countries. The legendary heroes or demigods of the pagan Saxons, Hengist and Horsa, were anthropomorphized horses. (The meaning of "Horsa" is obvious enough, and "Hengst" is still the modern German word for stallion.) The two names have persisted in isolated seaboard parts of Germany near the re-



FOR TEST—A rivet, a screw and an extruded part are prepared for microscope inspection by being embedded in bakelite, polished to mirror finish and etched with acid to bring out the grain. A faulty grain structure, as revealed in this way, will betray low-grade material or faulty processing methods so important to reject in airplane manufacture. This is an official photograph of the Office of War Information.

gions whence the Angles and Saxons came to England: The carved horse heads on the beam-ends of some of the old farmhouses are still called Hengist and Horsa by the peasants, who have no idea of their origin.

Eating horse flesh in those early days therefore was equivalent to partaking of a heathen sacrament—something that no

good Christian could do, especially if he had only recently been converted from paganism and had to be careful about backsliding.

It is worth noting, as supporting evidence for this hypothesis, that in the south of Europe, where there is no prejudice against eating horse meat, the horse never was a sacred animal.

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MEDICINE

Ask Aid for Alcoholics

Editors of Military Surgeon appeal to company officers to help in making reliable soldiers of chronic drunkards. Give four rules.

► **HELP THE alcoholic** to stop drinking, is the appeal addressed to company officers and non-commissioned officers by editors of the *Military Surgeon* (December), official journal of the Association of Military Surgeons of the United States.

To make reliable soldiers of the chronic alcoholic or periodical drunkard, the editors say, officers' cooperation is vitally necessary. They recommend the following simple rules formulated by Lieutenant Colonel S. Alan Challman and Major Merrill Moore of the Army Medical Corps.

1. Remember that the heavy drinker lacks self-confidence, no matter how cleverly he hides his feelings of inferiority. He needs encouragement, with criticism presented in as friendly a way as possible. Show confidence in him and make him feel part of a team.

2. Explain to him that alcohol is poison to him, as strawberries or lobster may be poison to somebody else. The alcoholic should never take even one drink. Substitutes should be encouraged and there is no reason for his friends riding him if he orders milk.

3. Gain the cooperation of non-commissioned officers. A junior officer should get these ideas across to the sergeant. Even one heavy drinker in a company can cause a lot of damage.

4. Encourage other personal satisfactions. The alcoholic has never learned how to relax without liquor. Encourage some sport or hobby at which he can at least hold his own, or let him feel there is one thing he can do better than somebody else, whether it is doing the manual of arms, playing checkers, or pitching horseshoes. Remember that he has probably always been poor at games and a poor mixer, with men or women, due,

probably, to his basic sense of inferiority.

If all these measures fail and the soldier drinks anyway—well, his officer can at least give him some advice. Eat before drinking, sip long drinks instead of gulping concentrated cocktails, never drink straight or from a bottle.

The medical officers making these suggestions do not expect any miracles but they say the above principles are the best way for junior officers to handle these administrative problems.

"The proper management of these problems," they conclude, "will reflect the junior officer's efficiency and aid in the conservation of trained manpower."

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BIOLOGY

Clams Keep Shut Against Pull Lasting for Days

► **JUST HOW** tightly do clams and oysters "clam up" when they are disturbed? Experiments reported in *Science* (Dec. 4) by Prof. A. M. Reese of West Virginia University indicate that these bivalves are able to keep their shells shut against pulls amounting to scores of times their own weight, and to endure these pulls for days on end.

Prof. Reese was interested particularly in the problem of how a starfish is able to get oysters and clams to open their shells wide enough to let the starfish thrust its stomach into the shell (a messy habit the starfish has) and digest the poor mollusks right in their own strongholds. He did not solve this problem, but he obtained some highly interesting data on the "shutting-up" strength of the bivalves' shell muscles.

He made small notches in the shells

of oysters and clams with a carborundum wheel. Into these notches he inserted small hooks, and applied traction by means of weights on lines passed over pulleys, meanwhile keeping the shellfish alive in a salt solution approximating sea water.

He used weights ranging from about two pounds to more than eight pounds (900 to 4,000 grams), and kept the mollusks under tension for as much as five days on end. Some of them opened their shells slightly, others not at all, even after this long pull. One oyster, after being under a pull of more than three pounds for 48 hours, was suddenly subjected to greatly increased pull, but resisted until the tension went up to 22 pounds, yielding only when its shell-closing muscle was torn apart.

Prof. Reese points out that his experiments were performed under far from favorable conditions for the oysters and clams. They had been out of their natural environment for some time. He suggests that it would be "interesting to test the strength of perfectly fresh specimens under normal, sea conditions."

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ASTRONOMY

Nova Puppis Is In Our Own Galaxy

► **EVIDENCE** that Nova Puppis was expanding at the rate of 620 miles per second on Nov. 11 was obtained by Milton L. Humason and Dr. Roscoe F. Sanford from measurements on spectrograms taken with the 100-inch reflector of the Mount Wilson Observatory. The photographs showed broad bright spectrum lines of hydrogen, presumably in the expanding shell surrounding the nova, together with dark absorption lines of ionized iron and silicon.

On the following morning the spectrum of the nova was photographed at the coudé focus of the 100-inch telescope by Dr. Walter S. Adams. This is the first time the spectrum of a nova has ever been photographed on so large a scale. These plates showed the spectrum lines fainter than on the previous day.

From the intensity of dark lines in the spectrum of the nova produced not in the atmosphere of the star but by interstellar gases, Dr. Sanford has been able to make an estimate of its distance. He believes that Nova Puppis is a bright galactic nova and not a "sub-normal super-nova" as was first supposed.

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