

GENETICS

History-Making "Churk"

U. S. Department of Agriculture scientists have crossed chicken and turkey to produce a "churk," the first known hybrid of two families of birds.

See Front Cover

➤ A CHICKEN and a turkey have been crossed to make the "churk," a bird as rare as hen's teeth.

This hybrid, the first of its kind, is not for the Thanksgiving table—only three are now alive. The father is a dark Cornish chicken, the mother, a white Beltsville turkey.

The history-making cross of two families of birds was achieved by Dr. Marlow W. Olsen of the poultry research branch of the U. S. Department of Agriculture in Beltsville, Md.

A bare-necked chicken, or Transylvania fowl, has sometimes been called a turken and claimed to be a cross between a chicken and a turkey. It is not, said Dr. Olsen; it is a true chicken.

Dr. Olsen said the chicken-turkey cross, seen on the cover of this week's SCIENCE NEWS LETTER, has the long neck and the white skin of its turkey mother, and the general size and dark coloring of the feathers of its chicken father. Its long neck is feathered but without wattles. Its legs are like those of a young turkey.

Dr. Olsen said it would not be practical to produce the hybrids commercially since they are very difficult to bring through the hatching stage and keep alive. Some 2,900 eggs were processed to produce the live birds.

All the "churks" have some defects, such as crooked legs or beaks. Another abnor-

mality, Dr. Olsen said, is that the hybrid birds' feathers grow in a twist, probably because of unequal growth in the cells.

The hybrids, which are now between seven and eight months old, are weak individuals, Dr. Olsen said. They have only about half the intelligence of the parent stock. They are kept in a separate pen by themselves because they would be pecked to death if mixed with other fowl, either chicken or turkey.

The "churk" is a silent bird. It has neither the "gobble, gobble" of the turkey parent nor the crowing of the rooster father. Dr. Olsen said it lets out a chirp something like a chicken, but only when it is disturbed.

The hybrids are all male birds and unable to reproduce. The reason for this is the different number of chromosomes in chickens (six pairs) and turkeys (nine pairs). The hybrids get a single set of chromosomes from each parent (six from the chicken, nine from the turkey). Thus, they end up with 15 chromosomes that cannot pair up and produce offspring. This means that a turkey and a chicken would have to be cross-bred every time a hybrid is to be produced.

The "churk" was produced completely by accident, Dr. Olsen said. Geneticists have tried unsuccessfully to produce this cross-breed at Beltsville and elsewhere. Drs. V. S. Asmundson and F. W. Lorenz reported experiments in Poultry Science, 36:1323, 1957, with hybrids of ring-necked

pheasants, turkeys and domestic fowl, none of which ever hatched.

Dr. Olsen's chicken-turkeys showed up in a batch of turkey eggs he had fertilized artificially from dark Cornish chicken stock in trying to produce parthenogenetic, or fatherless, turkeys.

The fatherless turkey was originally bred by Dr. Olsen at Beltsville. These turkeys, the offspring of virgin turkeys, are always male.

In the experiment that led to the "churk," Dr. Olsen was hoping to encourage parthenogenesis in the turkeys by inseminating them with the dark Cornish chicken stock. The hybrids resulted, however.

Dr. Olsen said that cross-breeding would not be successful if ordinary turkeys and dark Cornish fowl were used to produce the hybrid. He selected stock that showed particular tendency toward parthenogenesis for his experiment.

• Science News Letter, 78:291 November 5, 1960

MEDICINE

Bacterial Mutant Helps Faulty Transport Study

➤ A BACTERIAL MUTANT that lives very well with an impaired ability to transport potassium across cell membranes is helping scientists find out how substances are transported through cell boundaries.

At present, transport is believed due to the operation of energy-dependent pumps in the cell membrane, but the exact chemical nature of the pumps and their link to metabolic energy sources are not known.

Produced by irradiation of normal *Escherichia coli* and isolated by Drs. Stanley G. Schultz and Arthur K. Solomon of Harvard Medical School, the mutant will lend itself to studies of faulty transport, believed to be an important factor in congestive heart failure, hypertension and kidney disease.

• Science News Letter, 78:291 November 5, 1960

MEDICAL TECHNOLOGY

Measure Blood Pressure With New Instruments

➤ TWO BLOOD PRESSURE instruments, one for man, the other for laboratory animals, were demonstrated at the 13th annual conference on Electrical Techniques in Medicine and Biology in Washington, D. C.

The Thorner Pulsensor, for the ophthalmic artery, the only branch of the brain circulation to leave the inside of the skull, measures the blood pressure of the human brain. It was conceived by Dr. Melvin Thorner, University of Pennsylvania.

The Pulsensor is fitted into both eye pieces of a pair of goggles which form an air-tight compartment around each eye socket.

The instrument to determine the blood pressure of animals is the Caudal Plethysmograph, which uses a glass tube molded tightly to enclose the animal's tail. Air is introduced into a cuff around the tail, and the air pressure is recorded by an electrical manometer.

Both instruments were developed by The Decker Corporation, Bala-Cynwyd, Pa.

• Science News Letter, 78:291 November 5, 1960



BLOOD PRESSURE TAKEN ON A RAT'S TAIL—using air pressure.