THE FLYING SQUIRREL.

BY R. W. SEISS.

The flying squirrel—*Sciuropterus volans* (L.), Coues—may be distinguished by the following characters: Head short and rounded; nose blunt; eyes large and prominent; a membrane extending from fore to hind limb on both sides of the body; tail flat and rounded at the tip; general color ashy gray; beneath, cream color; length ten inches.

The favorite home of this species is a woodpecker's hole in some tall tree, not always a deserted one, however, for during the past summer, while walking through some woodlands, in Western Maryland, I noticed a large sycamore tree with several holes of the red-headed woodpecker (*Melanerpes erythrocephalus*) in one of its branches, and upon my companion striking the trunk with a stone, several "red headers" flew out followed by four flying squirrels, which floated out one after the other. It also sometimes shares its abode with screech-owls and bats. But not only does the flying squirrel live in trees; I have observed numerous instances of their having taken possession of marten boxes, crannies in rocks, the eaves of houses, etc.

Some time ago, while staying at a friend's house in Hunterdon county, N. J., I discovered a nest of this species built between the closed Venetian shutter and window of an unused room, the mother gaining admission through the slats. She was quite tame, allowing you to advance within a few feet of the window before making her escape. We made several efforts to capture her without success, and finally, becoming tired of being molested, she decamped with her whole family during the night. The nest contained five young only a few days old.

This squirrel has two litters in a season, and from three to six at a birth; they are blind for about three weeks after their *entrée* into the world. The female carries the young by doubling it up with her fore feet and mouth until she can grasp the thigh and neck. She shows great affection for her offspring, preferring captivity to deserting them.

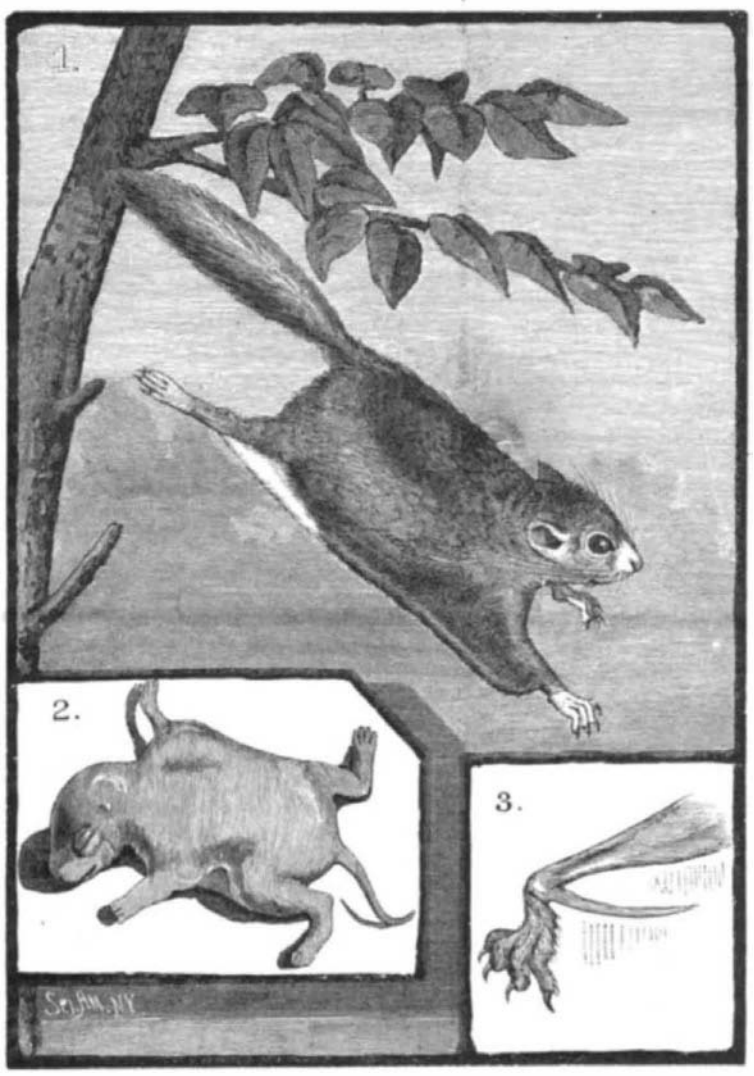
The usual food of the flying squirrel consists of various kinds of seeds, nuts, and tree buds, but Audubon gives several instances which came under his observation, where it was caught in traps baited with meat, and also an account of several tame ones which devoured a fine grossbeak (*Corythus enucleator*) in a single night.

The so-called "flying" of this little animal is performed in the following manner: first ascending to a height, it springs out into the air, at the same moment extending the fore legs forward and outward and the hind legs outward and backward, thus stretching the membrane to its fullest extent. In this way it *floats* from tree to tree without any motion of its "wings." The impetus gained enables it to ascend a short distance in a curved line and alight on the object aimed at head up. These flights often measure fifty yards or even more.

Flying squirrels are easily captured in almost any kind of trap baited with hickory or hazel nuts; the trap, however, must be allowed to set over night.

It would be hard to find a more gentle or amusing pet. I have never known it to bite when caught, and it becomes tame in a few hours.

A friend of mine once kept two females for several months; in the evenings they were allowed perfect liberty, and presented a most pleasing sight as they gamboled round the room. A favorite trick of one of them was to bury nuts among the wavy tresses of her mistress, returning the next day to find them, and appearing much surprised when they were not to be found. Fig. 1 represents an adult *Sciuropterus;* Fig. 2 a young one about four days old; Fig. 3 is a dissection of the fore leg (natural size), showing the peculiar cartilage which is articulated to the ulnar side of the carpus; it assists to extend the flying membrane.



THE FLYING SQUIRREL.

THE TAPE WORM.

Most of my readers know that the domestic pig is subject to a disease known as "measles," in which the muscles are more or less filled with *cysts,* which render the pork unfit for food; but I think few are acquainted with its cause.

Man, it is well known, is occasionally infested by a parasite—the so-called "tape worm" (*Tænia solium*)—which may be described as having a tape-like body of varying length, with a differentiated "head" or *scolex* at one extremity.

This apparently single animal is in reality a colony of mothers and daughters, the scolex being the parent of all.

This "head" is provided with a *rostellum,* or, as it might be called, proboscis, encircled by a crown of hooks, below which are the suckers; each segment added to the scolex is a complete individual containing a complicated and perfect reproductive system.

The last segment—*proglottides*—which are filled with eggs, break off at intervals, and either the eggs are set free within the intestine of their host, when they are passed out with the fæces, or the segments themselves are evacuated.

The tape worm feeds on the juices of the bowel by absorbing the nutriment through its skin, and does not appear to seriously inconvenience its host in any way. In Abyssinia *tænia helminthosis* is constant and general; indeed the animal is there regarded as a sort of hygienic agent and cultivated rather than discouraged, yet the people are healthy; certain it is also that wild animals, almost without exception, harbor at least one species of tape worm as a natural condition.

But what has this to do with "measles?" Now to the point. Let us suppose one of the before-mentioned eggs taken into the stomach of a pig, either by its eating the excrement of a person affected or through the water or air; here it hatches, not into a tape worm, but into an animal of oval form, transparent, contractile, in the middle of which are six stylets arranged in pairs; with these it cuts its way through the tissues until the muscles are reached, when, having arrived at its destination, it stops burrowing and surrounds itself with a sheath.

Here the stylets atrophy, a new and quite different crown of hooks is produced, and the parasite becomes a *cysticercus* or vesicular worm, the cyst being about the size of a hazel nut. This constitutes "measles;" the exhaustion or even death attendant on the disease is caused by the scores, hundreds, or even thousands of animals boring through the tissues; once encysted there is no further suffering or danger.

The cysticercus remains encysted for months or years, or until the piece of flesh enveloping it *is introduced into the stomach of man,* in which case it instantly quits its torpid condition, leaves its sheath, makes its way to the intestine, where, attaching itself by its suckers and hooks, it grows—or rather reproduces—so rapidly that in a few weeks a tape worm of several yards in length is formed, which reproduces eggs, and so *ad infinitum*—from pig to man, from man to pig.

Should the eggs be introduced into man himself or animal other than the hog, the cysticercus penetrates the tissues in the same manner, but it is "not at home," and instead of resting in the muscles it makes its way to other organs, such as the brain, heart, or eye, where its presence has caused in man several instances of insanity and death. Should a piece of meat containing a vesicular worm be eaten by a pig or animal other than man a *tænia* is developed, but it also is "not at home," and does not attain its full development.

Both eggs and cysticerci are killed by a temperature of 200° Fah., so there is no danger in eating well-cooked pork, even if it contains cysticerci.

To prevent hogs contracting "measles" it is only necessary to prevent them having access, either through their food or water, to the secretions of man, and they will not suffer.

Throughout the genus *Tænia* we find this dual life: for instance, the cat has a tape worm, the cysticercus of which she gets from the mouse, and the dog one which he obtains from the sheep.

Philadelphia, Pa.

Intoxicated Bees.

In SCIENTIFIC AMERICAN of October 29, 1881, on page 280, "Botanical Notes," "Milkweed as an Intoxicant" explains what I saw in the summer of 1881. In my garden were several milkweed plants. Bees were very numerous on them: some very lively, others very stupid. I looked for the cause. Saw the longer the bee stayed on the milkweed blossom the more stupid it became. I cultivate the milkweed for greens. When boiled as such they are first rate.

Colebrook, Conn. JAMES B. DUNWELL.

MISCELLANEOUS INVENTIONS.

A cattle car, of decidedly novel and useful construction, has been patented by Mr. Walter I. Tinkham, of Taunton, Mass. The object of this invention is to facilitate the loading, unloading, feeding, and watering of cattle and other animals while being transported. The roof of the car is perforated, preferably by constructing it with a central longitudinal slot, and is made inclining downwardly toward said opening, and beneath the roof a tank is arranged. This construction provides for receiving and carrying a supply of water for the cattle. The water may be drawn from the tank into troughs made capable of being raised and lowered, and, if necessary, provided with upper boxes for holding feed. The door of the car, which is somewhat longer than the height of the car body, has cross cleats on its outer surface, and is fitted to freely slide up and down on rods in such manner that, when lowered, it may be inclined and made to serve as a gang plank.

Mr. Benjamin C. Smith, of Searsport, Me., has patented an improved apparatus for transferring wood-graining; also applicable to transferring any desired design formed by engraving or otherwise upon a plate or block of wood or other material. By this invention the natural graining of wood may be transferred to any desired surface, without applying the color by which the transfer is made to the pattern, so that the depressions of said pattern can never become filled, and the pattern can be used an indefinite number of times. The pattern, which should be a distinctly grained piece of wood, is fixedly supported upon a block or carrier having at its opposite ends rollers, one of which is pressed outward by a spring for the purpose of keeping a band, arranged to pass round said rollers, taut. This endless band may be of rubber-coated cloth, and it is made to travel over the pattern, so that on color being applied by a brush to the outer surface of the band, and a rubber presser being made to bear the latter down on the pattern, the color will be removed from the raised surfaces of the band, and a copy of the graining of the pattern in color will be left on the band. The device at one of its roller ends is then placed against the surface to which the graining is to be transferred, and the block or carrier moved over said surface.

Mr. Charles C. Schill, of Richmond, Ind., has patented an improved flour mill. In this improved mill the grain is placed in a funnel provided with a device for adjusting the discharge, and is delivered on to a revolving plate, from which it is taken by a scraper and passed into a chute that conducts it to a rotating conveyor having wings attached to a vertical shaft. These wings throw the grain with great force between a vertical runner and a vertical fixed stone, which latter is of half-moon shape, with a large semicircular eye at the center, and is fitted in a sliding frame so as to be adjustable toward or from the runner. These stones last much longer and perform their work more perfectly than do vertical stones of the ordinary construction. The runner keeps cooler, as, by reason of the shape of the fixed stone, only one-half of it is in operation at a time, and the stones do not grind upward, which is very injurious to the stones and quality of flour. The conveyor, too, drives in air to cool the stones, and throws off flour dust.

An improved oil-press mat, in which outer wooden leaves lined with wire cloth, and connected by a flexible joint, are combined with one or more middle leaves of wire cloth, secured to said joint, has been patented by Mr. George O. Baker, of Selma, Ala. In using this mat the meal or seed bags are placed between the leaves or aprons in the usual manner. As soon as pressure is applied the wire cloth takes hold by its meshes on the bags, thus effectually holding the bags in place and insuring the even distribution of the seed or meal. The wire cloth also allows free escape of the oil from the bags and out of the mats. This mat can be readily and cheaply manufactured, and possesses great strength and elasticity.

Mr. Isaac B. Potts, of Columbus, Ohio, has patented an improved pipe wrench, consisting of a handle provided with the inclined and serrated stationary jaw at its outer end and the notches on its under side, in combination with a yoke or saddle and movable jaw secured at each end to the said yoke or saddle, and provided with a lip, and the serrated face inclined in an opposite direction to that of the jaw.

Mr. William H. Bryan, of Warm Springs, Va., has patented an improved packet for transporting eggs. In this packet the eggs are carried in boxes mounted one upon another within compartments of a wooden case which is fitted with a spring-supported false bottom. Each of these boxes is constructed with elastic upright partitions formed by doubling a strip of metal upon itself and springing the two walls of the partition apart at the center. These partitions are secured in the box at right angles to each other, and have their ends passed over to the outer surface of the box. They are arranged so that the eggs are kept from contact one with another, and the top and bottom of the box are cushioned. This construction is very simple and secure against breakage of the eggs.