

THE FAT SQUIRREL*.

WE have three species of this animal, the fat squirrel, the garden squirrel, and the dormouse, which, like the marmot, sleep during the winter. Of these the fat squirrel is the largest, and the dormouse the least. Several authors have confounded these three species, though they are easily distinguishable. The fat squirrel is about the size of the common squirrel, and has its tail covered with long hair: The garden squirrel is not so large as a rat, has very short hair on its tail, except near the extremity, where it is bushy: The dormouse is not larger than the common mouse; the hair on its tail is longer than that of the garden squirrel, but shorter than that of the fat squirrel, and its tip is bushy.

* Squirrel with thin naked ears; body covered with soft ash-coloured hair; belly whitish; tail full of long hair; from nose to tail, near six inches; tail four and a half; thicker in the body than the squirrel; Pennant's *Synops. of Quad.* p. 289.

In Greek, *μωσκέτις*, according to Gesner; *ENNEC*, according to the Grammarians; in Latin, *Glis*; in Italian, *Galeo*, *Gliero*, *Glires*; in Spanish, *Lirou*; in German, *Scheuss-chläser*, *Graul*; in Polish, *Łęzerek*; in Swiss, *Rel*, *Rel musc*; in French, *Le Lait*, *Lirou*, *Rat-Lirou*, *Rat-oreule*.

Glis; Gesner. *Hist. Quad.* p. 350. *Icn. Quad.* p. 109. *Aldrovand. Quad.* p. 409.

Glis supra obscure cinereus, infra ex albo cinerescens; Brisson. *Regn. Anim.* p. 160.

Sciurus glis, canus, subter albidus; Linn. *Syst.* p. 87.

The garden squirrel differs from the other two, by having black spots near its eyes, and the dormouse by having whitish hair upon its back. All the three are white or whitish on the throat and belly; but the garden squirrel is of a fine white, the fat squirrel only whitish, and the dormouse rather yellowish than white, in all the under parts of the body.

These animals are improperly said to sleep during winter; for it is not a state of natural sleep, but a torpor or numbness of the senses and members, produced by a chillness of the blood. The internal heat of these creatures exceeds not that of the air. When the heat of the air is ten degrees above the freezing point, their temperature is precisely the same. I have plunged the ball of a thermometer into the bodies of several living garden squirrels, and found their internal heat to be always nearly equal to the temperature of the air: I have even seen the thermometer sink a degree or half a degree when applied to the heart, the temperature of the air being at that time only 11° . Now, we know, that the heat of man, and of most quadrupeds, is always more than 30 degrees. It is not, therefore, surprising that these animals, whose heat is so small, should fall into a benumbed state, whenever their internal heat is not augmented by that of the external air; and this always happens when the thermometer exceeds not ten or eleven degrees above the freezing point. This is the true cause of the torpid

torpid state of what are called the sleeping animals; a cause which, though common to all animals that sleep during winter, has hitherto been overlooked. I have discovered it in the three animals under consideration, in the hedge-hogs, and in the bats; and, though I have never had an opportunity of examining the marmot, I am persuaded that its blood, like that of the other sleepers, is cold; because it is subject to torpor during the winter.

This torpid state continues as long as the cause by which it is produced, and ceases with the cold. A few degrees of heat above ten or eleven is sufficient to re-animate them; and, if kept in a warm place during the winter, they are never benumbed, but go about, and eat and sleep from time to time, like other animals. When they feel cold, they roll themselves up in the form of a ball, in order to expose less surface to the air, and to preserve their natural warmth. It is in this form that they are found, during the winter, in hollow trees, and in holes of walls exposed to the south. There they lie, without the smallest motion, upon moss and leaves; and, though tossed about, they neither extend themselves, nor exhibit any signs of life. From this state nothing can rouse them but the application of a gentle and gradual heat; for they die when suddenly brought near a fire. Though, in this state, they have no motion, though their eyes are shut, and they seem to be deprived of every sensation;

yet they feel pain when it is acute. A wound, or a burn, makes them contract, and utter a low cry, which they even repeat several times: Hence their internal sensibility, as well as the action of the heart and lungs, still subsist. It is presumable, however, that these vital motions act not with equal force as when the animal is in its ordinary state. The circulation, it is probable, proceeds in the large vessels only; the respiration is slow and feeble; the secretions are inconsiderable; and no excrements are voided. There must likewise be little or no perspiration, since they pass several months without eating, which could not happen, if they lost as much of their substance by perspiration, as they do at other times, when they have an opportunity of repairing this natural waste by taking nourishment. They still, however, lose some part; because, in long winters, they die in their holes. Perhaps, likewise, it is not the duration, but the rigour of the cold that destroys them; for they soon die when exposed to a strong frost. What induces me to think that they perish not by loss of substance, is, that in autumn they are exceedingly fat, and equally so when they revive in the spring. This quantity of fat serves for an internal nourishment to the animal, and supplies what it loses by respiration.

As cold is the only cause of their torpor, and as they fall not into this state but when the temperature of the air is below ten or eleven degrees, they

they frequently revive during the winter; for, in this season, there are often many days when the liquor in the thermometer stands at 12, 13, 14, and even higher degrees; and, during fine weather of this kind, the dormice come out of their holes in quest of food, or eat what they had collected in autumn. Aristotle, and all the succeeding naturalists, have asserted, that the dormice pass the whole winter without eating; that, in this season of abstinence, they grow very fat, and that they are better nourished by sleep alone, than other animals by food. This notion is both absurd and impossible. The dormouse, which sleeps four or five months, could only fatten by the air it respire. Supposing a part of this air to be converted into nourishment, an augmentation so considerable could never be the result. It would not even be sufficient to repair the continual waste occasioned by perspiration. Aristotle might be led into this error by the mild winters of Greece, where the dormice sleep not perpetually, but often revive, take plenty of food, and are, therefore, extremely fat, though in a torpid state. The truth is, they are fat at all times, and particularly in summer and autumn. Their flesh resembles that of the Guiney-pig. The Romans reckoned dormice among their most delicate dishes, and reared them in great quantities. Varro describes the method of making warrens for them; and we learn from Appian the manner of dressing them in the high taste of his times. In this practice,

practice, whether from a disgust at these animals, because they resemble rats, or from the badness of their flesh, the Romans have not been followed by other nations. I have been informed by peasants who had eat them, that they were not better than water-rats. Besides, the fat squirrel is the only species that is eatable; the flesh of the garden squirrel is bad, and has a disagreeable flavour.

In manners and dispositions, the fat squirrel greatly resembles the common species. It lives in forests, climbs trees, and leaps from branch to branch, with less agility indeed, because the squirrel has longer legs, and a body more light and meagre. They both, however, live upon the same food, namely, filberts, chestnuts, and wild fruits. The fat squirrel likewise eats small birds, which he takes in their nests. He makes not a nest in the tops of trees, like the squirrel; but he makes a bed of moss in the hollows of their trunks, or in the clefts of rocks; but he always chooses a dry place. He abhors moisture, drinks little, and seldom descends on the ground. He differs still more from the squirrel in this circumstance, that the latter is easily tamed, and the former continues always wild. They couple in the end of spring, and the females bring forth in summer, the litter generally consisting of four or five. The young grow quickly; and we are assured that they live six years only. In Italy, where these animals are still eat, the natives dig
pits

pits in the woods, and strew them with straw, moss, and beach-mast. They choose dry places, under the shelter of rocks, and with a south exposure. To these the fat squirrels resort in great numbers, and the people find them there in a torpid state towards the end of autumn, when they are in the best condition for eating. These small animals are bold, and defend their young to the last extremity. They bite violently with their fore-teeth, which are very long, and of great strength. They neither fear the weasel nor small birds of prey. They escape from the fox, because he cannot follow them to the tops of trees. Their most formidable enemies are the martins and wild cats.

The fat squirrels are not generally diffused. They appear not in very cold climates, such as those of Lapland and Sweden; at least, they are not mentioned by the northern naturalists: The species they describe is the dormouse, which is the least of the three. Neither, I imagine, are they to be met with in very warm countries, because our travellers are silent on this article. There are few or none in open countries, like Britain; they require temperate climates abounding with wood. We find them in Spain, in France, in Greece, in Italy, in Germany, and in Switzerland, where they live in the forests upon the hills, and not on the tops of high mountains, like the marmots, which, though subject to torpor from cold, seem to delight in frost and snows.