

vein and artery; our food is digested. But when an animal passes into its long winter slumber all these functions cease. It does not breathe; its heart almost entirely ceases to beat and its blood to circulate; the process of digestion is not carried on. To all appearance the animal is dead. It is perfectly motionless; perfectly unconscious. It does nothing, feels nothing, knows nothing. And so it remains until it is roused again to life by the warmth of returning spring.



SWIFT. SWALLOW. MARTIN.

We usually call this strange torpor "hibernation." It is not a good title at all, for "hibernation" simply means "passing the winter," and all animals which do not die pass the winter in one way or another. The Germans have a name for it which may be rendered in English as "winter-sleep"; and this is better, although the torpor is more than sleep. Perhaps the only word that we have that at all describes it is the word "trance."



CUCKOO. GOATSUCKER.

Strangely enough, this torpor is not altogether due to cold. It is quite true that it comes on at the approach of cold weather, and continues, with perhaps a brief occasional break, until the season of frost and snow is at an end. But, on the other hand, severe cold awakens a hibernating animal, and then kills it. At the present time of year moss, haystacks, decaying stumps, even the very ground beneath our feet, are full of torpid insects. If we were to turn those insects out of their retreats upon a frosty day they would be dead in ten minutes. The cold would kill them. So they are very careful, when the first sign of their torpor comes creeping on, to take refuge in some cosy nook where the direct action of the frost cannot reach them. And some hide in hollow trees, some in rubbish heaps, and some in moss, while others bury themselves in the ground.



WHITETHROAT.
CHIFF-CHAFF.

But do these frozen-out creatures take no nourishment at all during their half-year's slumber?



SQUIRREL.
DORMOUSE.
HEDGEHOG.
LIZARD.

As a rule, absolutely none. The squirrel, it is true, on warm, sunny days, will visit its store of nuts, and the bat will hawk for gnats. But the great majority of hibernating animals take no food whatever until they finally leave their retreats at the coming of spring.

Yet with some small amount of nourishment they are nevertheless provided. For they always become exceedingly fat in the autumn; and upon this stored-up fat they live, until food is again forthcoming.

Just in the same way the camel lives upon the fat contained in its own hump during its long journeys across the desert.

Thus is the absence of food compensated for in the numberless creatures which in winter are "frozen out." It is a strange and curious fact. Yet it is stranger still to find that the same mysterious torpor, in tropical countries, is produced in those creatures which during the heat of summer are "baked out."