and as warnings from danger, when guiding their vessels in a fog or in darkness; and sail-echoes of sounds from their own vessels are always to them warnings of possible danger of collision. The cases which I have mentioned, however, are all of a special and accidental character. That is, they are special because they are connected only with fog signals, and accidental because they depend upon the fortuitous movements of sail vessels.

Cases of the projection of sail-echoes of the sounds of fog signals into pseudumbral areas, like those suggested for montumbral areas, will probably not be numerous, but both kinds of cases are worthy of careful investigation, not only because of the inherent importance of the subject to which they relate, but because they are incidental sources of danger which have been introduced by the establishment of fog signals.

THE ENEMIES OF LEPIDOPTEROUS PUPÆ ENCLOSED IN BARK-FORMED COCOONS.

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THE beautiful and perfect concealment of the cocoons constructed out of bark by many species of Lepidoptera has often attracted attention and admiration. In some species, such as the British *Acronycta leporina*, the larva tunnels deeply into the bark, constructing a chamber at some distance beneath the surface, and carefully removing the bark-dust formed by its building operations. The mouth of the tunnel is closed by fragments of bark spun together so as to form a covering exactly flush with the surrounding surface, which it also resembles in texture and color. In other species a natural crack or furrow in the bark is selected by the larva and is similarly covered in level with the bark around. In the genus *Cerura* (*Dicranura*) the larvæ excavate an oval area which is covered in by a more or less domed roof, similarly built of pieces of bark so well fitted and woven together that the appearance is exactly that of some rounded, flattened or irregular projection on the trunk of the tree. Furthermore, in the choice of situation it is usually found that increased aid to concealment is afforded ; the apparent projection being formed on an appropriate part of the trunk, and with due regard to the existence, arrangement and direction of the irregularities of its surface, such as furrows, etc. Those who believe in the efficiency of Natural Selection in evolution will probably regard this interesting method of concealment as the outcome of countless generations during which the attacks of enemies have been, on the whole, more successful against the products of less perfected instincts, and less so against those of the more perfected. Furthermore, we must suppose that the increasing perfection in instincts has acted selectively on enemies, sharpening their faculties, until, by action and reaction, the present high level of constructive skill has been reached, and is maintained.

How far is it possible to gain evidence of such a relationship between enemies and prey ? At first sight, one of the cocoons I have described appears to be so perfectly concealed as to defy the sharpness of any enemy, however acute. But observation, especially directed to this end, will show that such an inference is incorrect.

On April 12 of the present year I was examining the bark of a black poplar (*Populus nigra*) near Yoxford, in Suffolk, and found a cocoon of the "Poplar Kitten" (*Cerura bifida*) which had evidently been recently opened by some enemy, almost certainly a bird, and the chrysalis extracted. The edges of the opening were still brown and fresh, as was the interior of the cocoon ; and the larval skin remained fresh and untouched inside. The opening was in the middle of the exposed surface and not at one end, as it is when the moth emerges. Besides, the cocoon had been opened and cracked by a blow from some hard object such as a bird's beak, and the sharp irregular margins were quite different from those of the natural opening made by the moth, doubtless by means of a corrosive fluid, as in the allied species, *Cerura Vinula*, which Mr. I. H. Latter has recently shown to secrete caustic potash for this purpose. Furthermore, the moth emerges far later in the year, and, had it emerged at an exceptional time, the empty pupal skin would have been left behind in the cocoon. We may therefore safely assume that the opening was the work of an enemy, and, as the cocoon was five feet from the ground, it was probably due to some tree-creeping, bark-exploring species of bird.

After the hint supplied by this observation I found that such instances are quite common and that a considerable proportion of these cocoons are thus opened and their contents abstracted. It is probable that the attention of the enemy is directed to any cocoon-like object by the sense of sight and that the object is then tapped, and, if found to be hollow, opened and the pupa devoured. If I am right in supposing that the pupa has to run the gauntlet of such dangers as these, it follows that any carelessness in construction or in the selection of a site would tend to be eliminated, and we are able to picture to ourselves, with a considerable degree of probability, the kind of conditions under which this wonderful form of protective concealment has been developed and is now maintained.

These conclusions are perhaps capable of being brought to a crucial test, and, as this involves much time and much observation, it is to be hoped that several naturalists may attack the question. During the winter and spring a large number of such examples should be collected and noted, with special reference to the degree of concealment exibited by the opened cocoons as compared with those which are found to have escaped attack. The subjective element would require to be checked by calling in the aid of others who are ignorant of the point under consideration but possess the requisite accuracy of eye. Attention should only be paid to fresh cocoons which have been opened in the season of the observation ; for the old battered cocoons of past seasons will be commonly found on the trunks. It may be that the problem demands too large a number of examples to be capable of solution in this way ; but on the other hand it is possible that positive evidence may be forthcoming.

AN OBSERVATION ON THE TERMINAL VERB IN INFANT SPEECH.

BY E. W. SCRIPTURE, NEW HAVEN, CONN.

IT has sometimes been asserted that the most natural position for the verb is not at the end of the sentence, and that children would not of themselves separate the participle or infinitive from the auxiliary or main verb, as is done in German syntax. I wish to record a personal observation to the contrary.

The child, W.S., twenty-nine months old, has not learned any language but English, and has not heard any sentences constructed otherwise than according to correct grammatical rules. W. S. was told to ask for some money to buy shoes, but in doing so said, "I want some money for my shoes to buy." Upon the question "What ?" the sentence was repeated without change. On other occasions W. S. uses the words in the customary order, *e. g.*, "I'm going buy new shoes." The observation seems to prove that the terminal position of the infinitive is at least not unnatural