

entire apex of the Muckle Flugga rock, and its massive boundary walls are flush with the precipices on either side. The interior of the lighthouse needs little description. It has the usual arrangement of floors, connected with each other by ladder staircases—ground floor, with its huge store of oil barrels, a thousand gallons for a year's supply; comfortable kitchen, living room on the floor above; the sleeping bunks of the men on the next stage, and at the top of one more flight of steps the lantern—just now a cool, crystalline chamber with its beautiful laminated glass reflectors made glorious in the afternoon daylight with the colors of the prism, but after nightfall all aglow and ablaze with heat and light intolerable, so that, standing in it, you seem to be in the centre of a globe of living fire. From the lantern you pass on to the balcony outside and survey the boundless waste of waters ahead and on either hand. On the east there is nothing nearer than the coast of Norway; nor on the west than the shores of the American continent; nor on the north than the ice fields of the pole. Even at this tranquil hour, and with the three seas sleeping placidly sixty fathoms beneath, you cannot but feel a thrill of pride in that which so impressed the Greek poet of two thousand years ago—the sublime hardihood of man. How much more powerfully would it affect you if you could see, as these men so often see, the slumbering enemy awakened and giving battle; if, like them, you could watch the huge Atlantic rollers breaking sheer over yonder rock, which now shows above the waters to the height of one hundred feet in the clear; or if you could listen, for days together, to the roar of winds which drown their voices, even in the inmost recesses of the lighthouse; which sweep the platform outside with such terrific fury that no man could stand erect on it for a moment, or move a yard from the door except by crawling on his hands and knees; and which smite the tower itself with such tremendous violence that its solid masonry shudders like a living thing beneath the blows. It would be worth a good deal to the lover of new experiences to pass but one night on the rock under such conditions as these. But, if he did not care to fall too far behind the march of events among the world of men, he might pay too dearly for his new experience. Six weeks is the regulation term of duty in the lighthouse; followed by a fortnight "off" on shore, but again and again has it happened during the winter season that nearer three months have passed before the men could be relieved. To "spend a night" in the lighthouse at this late season of the year might mean remaining there until the whole aspect of English politics had undergone transformation—until, perhaps, a couple of brand-new French ministries had been formed and fallen, and possibly until China had become a dependency of Japan.

### THE HOUSE FLY.

Most of us accept the house fly as a fact which has little relation to other facts. Where it comes from in the spring or where it goes to in the fall are questions which are seldom asked and still more seldom answered.

If we meet with a reasonable degree of success in keeping them out of our

houses, we are content, and our attention is given to matters which we deem of more practical value. If we are led to devote a little time to really thinking about flies, the result usually is that we conclude they are unavoidable evils, which we will have to endure because we have no means of exterminating them. More thought, coupled with intelligent observation, would lead to a modification of this view.

Modern research has demonstrated that most of the diseases which afflict us are caused by germs of minute animals or plants which have been taken into our bodies. These germs may be inhaled with the air we breathe or they may be in the food and water which we use.

In almost every case the germs develop and multiply in filth, especially in filth resulting from the rapid decay of animal and vegetable matter. It is a universally admitted fact that persons and communities where little attention is given to cleanliness are especially subject to disease, and especially those diseases which are usually called contagious and epidemic. This filth, which is so dangerous because of its furnishing a breeding place for the germs before mentioned, forms the natural food of flies, and of course in eating it, they destroy all of its dangerous properties. In thus eating and destroying filth wherever they find it, flies act as benefactors of man. If flies are especially numerous it means that they find a plentiful supply of food, and however disagreeable they may be, we may comfort ourselves with the thought that the disease germs which they are starving to death would do us much more harm than the flies possibly can. A better plan however, than simply indulging in that reflection, would be to join the flies in their self-imposed duties as scavengers, and clean up the premises, and thus at one stroke get rid of the dangers of disease and of the flies. It is not only in their mature state that flies act as our friends, but they begin their good work as soon as they are hatched from the egg. Flies lay their eggs around stables. Single flies sometimes lay between one and two hundred eggs in a day. The eggs hatch in about one day, and the young fly begins its life as a smooth, footless, round white worm. It has a voracious appetite and by the time it is one day old it has become too large for its skin, which bursts and peels off. At the end of the second day it sheds its skin again. Three or four days later the little worm begins to contract in length and to assume a barrel-like shape. Its skin now becomes dry and hard, and most of the functions of life are suspended. Naturalists call this condition its *pupa* state. It remains in this quiescent state for about a week. By that time a wonderful change has taken place. The mouth has undergone a complete transformation, the digestive system has been changed, the body has been separated into three well defined parts, and legs and wings have been developed and in short a worm has been metamorphosed or transformed into an insect. As a perfect insect the fly may live for several weeks, and a few always manage to live all winter, and lay eggs in the spring for the next generation.

The student will be interested in a close examination of the fly; although it has but one pair of wings which are

fully developed, it has a back pair which are rudimentary. Various explanations have been given of the fly's ability to walk on vertical polished surfaces. The truth seems to be that the hairs which are found on the cushions of its feet are hollow and that through these hollow hairs a fluid is allowed to escape on to the smooth surface and that this fluid by means of capillary attraction enables he fly to adhere, whatever its position may be.

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### TEACHING OF ELEMENTARY LATIN.

The mastery of a foreign language is never easy. Whether the natural or the analytic method of study is used, there is entailed a vast deal of work on the teacher and much careful study on the pupil. This is especially the case with a dead language, because here, for two reasons the natural method, generally considered the easier for the pupil, though perhaps not so efficient as the analytic, is out of the question. But few teachers are themselves fluent speakers of the language; its vocabulary and grammatical structure do not adapt it for every-day conversations, such as interest and amuse the students of a living language. Hence the grammatical method must be made the basis of the work. This is necessarily the case with the Latin, the most generally studied of all the dead languages.

The Latin is a language of inflections. Everything in it depends upon these. The meaning of a sentence may be *intensified* by the position of its words; it must be *determined* entirely by their form. For example, the simple sentence "The boy loves his sister" may be expressed with equal correctness in any of the following forms: *Puer sororem amat; Puer amat sororem; Sororem amat puer;* or *Sororem puer amat.* Since *puer* is always in the nominative and *sororem* in the accusative, the meaning of the sentence cannot be mistaken, and a decided advantage is gained by placing words in that part of the sentence where they will receive their proper emphasis. It will be observed from this that essential rules of grammatical structure must be understood before even the simplest sentence can be thoroughly mastered.

This fact naturally leads to the following general method of teaching the language—a method to which, in the abstract, all teachers must conform; First, the laws of grammatical form and structure are given, including declension, conjugation, syntax, etc.; secondly, these laws are illustrated by numerous Latin sentences, which must be turned into English; thirdly, English sentences are translated into Latin; and lastly, to fix more thoroughly his knowledge of the language, the student is required to compose Latin sentences of his own. The first, third and fourth processes will, so far as now appears, be practically the same with all teachers. But the second is most important, because the student is preparing to read Latin much more than to write it.

In this process, many teachers have been led into a wooden, unnatural way of conducting Latin translations, a method which gives no room for enthusiasm and interest, but depends entirely upon dogged determination and plodding work. While these qualities are expressly essential in the study of Latin, it must be admitted that they are assisted by a