in the hills around Glyon. The walnut tree does well in Swiss lowlands; the largest I have seen are in the public walk at Interlaken, and there was lately one at Bex that three men could just encircle with outstretched arms. A poplar, nine feet in circumference, stands sentinel over the high perched church of Cloet, and the largest of four enormous poplars, in the Ile de Rousseau at Geneva, measures fifteen feet in circumference. I have never seen so fine a row of plane-trees as at Annecy, nor larger pollard plane-trees than at Geneva. One of those in the Place Bellaire is nearly twelve feet in girth. It was there, I was told, that Calvin burnt Servetus. The only historic tree I have heard of in Switzerland is the lime-tree of Fribourg. The men of Fribourg, at the battle of Morat, put branches of lime in their hats, and one of the victors hastened to tell the victory to his townsmen, and, before dying, he had only strength to raise aloft the lime branch, which was planted on the 22nd of June, 1476.

In 1880 I spent the last fortnight of August at Rosenlaui and Grindelwald, and I was struck by the absence of animal life, particularly in the former place. Fir woods are known to be silent woods, but I saw neither birds, nor rabbits, nor game of any kind; and artists could sit out all day without being bothered with the plague of midges, gnats, or flies.

EARTHWORMS AND THE GROWTH OF SOIL.

By G. H. KINAHAN, M.R.S.I.

AMONG the readers of SCIENCE-GOSSIP there are evidently a large number of observers, and I may suggest that some of them should turn their attention to the growth of soil.

I have been studying the growth of soil for years, and already have published some of the facts that I have collected (Geol. Mag., vol. vi. 1869, pp. 263 and 348, "Valleys and their Relations to Fissures," &c. appendix p. 223, "Geology of Ireland," chap. vii. page 287) which give results very different from those put forward by Dr. Darwin in his recently published work, "Vegetable Mould and Earthworms."

In Ireland undoubtedly vegetable growth and decay aids far more in the growth of soil than the worms; while worms and ants will not work together in the same place; and I strongly suspect that if survey were made of the Irish lands where a portion of the soil is due to the work of worms, and of the Irish lands where a portion of the soil is due to ants, the area of the latter would be equal to, if it did not exceed, that of the former.

It appears to me remarkable that such a painstaking and acute observer as Doctor Darwin should have so entirely overlooked "ant work" when their work is so conspicuous. Look at the mound they will build up, or the spaces they will cover over with soil during one season! or how rapidly large stones on the surface are buried! Darwin, indeed, has called attention to this burying of surface stones, but gives all the credit to worms, although under some of the stones that were more deeply buried he only found ants. My experience, however, is that, if you turn over the large stones on the surface of grass-land, nearly invariably all the more deeply-buried stones are those that have ants alongside or under them, while many of the stones still loose have a network of worm burrows under them.

Darwin lays great stress on the size of the worm casts in India, but what are they compared with the ant-hills of England, Ireland, or Scotland?—a mere bagatelle—while they are mere flea-bites when compared with the ant-hills of Asia, &c.

Points of interest in reference to worms, to be examined into, are,

1. Do worms in growing grass (that is, grass from four to twelve inches or more high) burrow at all? To me it would appear that the major portions are in the roots of the grass, close to the surface of the ground.

2. After rain in summer do not the worms come out to feed as freely in the day as at night? Ducks appear to believe in this, as they would just as soon go looking for worms after a shower of rain as in the morning.

3. How do worms travel? and is it due to their mode of travelling that on certain mornings so many of them are found dead in certain places?

4. If you dig a deep trench or pit, how is it that often after a shower or a wet night you will find worm casts at the bottom of it?

5. How is it that if a callow or meadow is flooded all the winter, in the spring, when the water is taken off, and the grass begins to grow, worms appear? They can scarcely have remained in the ground, because if you open drains across the callow when you take the water off it, you will not find worms.

Other more or less interesting and undecided questions in regard to worms, will suggest themselves to any one who takes up their study.

PARROTS.—I heard a queer tale of a parrot lately. He belonged to a medical dispenser at a London institution, and lived in the infirmary. His master had, alas! a sad failing, one that eventually cost him his appointment. He drank. Parrots, some say, never do drink even water, but this is a mistake. My parrot enjoyed water greatly. However, this especial doctor's parrot after a time invariably saluted his master in the following way: "Here's the doctor drunk again; drunk again—the doctor." The bird had heard some of the officials or patients express themselves in the above forcible, if not refined language.—*Helen E. Watney.*