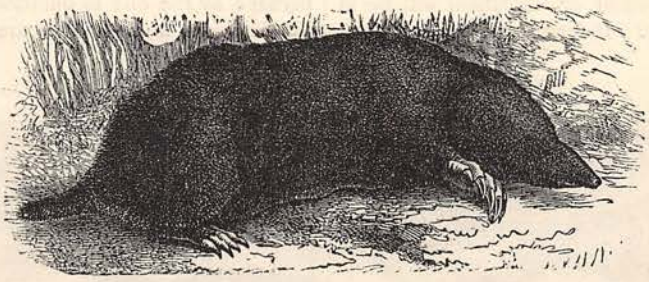
days away, and they were very glad to return to the *Véga*.

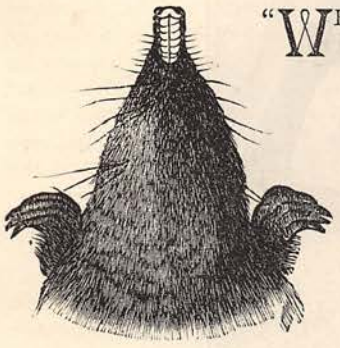
When the ice broke up, and the vessel steamed down Behring's Straits, her great task was accomplished; and it adds not a little to the pride and gratification of Sweden that it has been done under her banner.

Professor Nordenskjöld is now about forty-seven years old, broad-shouldered, of medium height, with thick brown hair, blonde whiskers and moustache, blue, short-sighted eyes, and a somewhat disdainful expression of countenance. The disdain is, however, for difficulties, and not for persons; and, popular as he has become in Europe, he is already contemplating another Arctic voyage. He thinks that the one he has just completed ought to be accomplished in favourable seasons in about two months by vessels intent upon carrying a cargo throughout, instead of stopping to make discoveries on the way.

E. C.



A SAPPER AND MINER.



"WELL said, old mole! Canst work i' the earth so fast? A worthy pioneer!"

So says Hamlet to his father's ghost—a remark which points to the fact that Shakespeare was no mean observer of Nature. As to the rapid working of the little animal he named, if any enthusiast will take a spade and start fairly against a mole to try and dig it out, he will throw down the implement at the end of five minutes and confess himself thoroughly beaten; for, almost in a twinkling, the little fellow will have buried himself, and the effort to dig him out will be a vain one, so rapidly can he bore and tunnel through ordinary, moderately soft soil.

It may be taken for granted that there are many hundreds of thousands of people who never have seen, and never may see, this little animated subsoil plough and drainer, who, if allowed to follow the bent of his inclinations, will completely undermine a field, running through it a series of veins and arteries, opening the one into the other—making, in fact, hundreds upon hundreds of yards of subterranean passages, just large enough to admit his body, and depositing the soil taken out of the tunnels in the neatest of little, soft, crumbly heaps on the surface of the grass.

Fields or gardens so treated are generally beside a wood, and out of this the mole—or, as the learned call it, *Talpa Europæa*—starts on his hunting trips, his hunting grounds being subterranean.

Here is the little fellow just caught in a noose by an ingenious arrangement placed in his burrow, and the first feeling is one of amazement that such a little, round, soft, shapeless creature could perform so much work. For we have here what looks to be a little round, sausage-shaped bag some five or six inches long, made of the most delicate black silk velvet, the pile, which lies smooth in any direction, being so soft and fine that beside it velvet plush is a coarse and barbarous production. Our little defunct nuisance seems to have no shape beyond being round and long. One end comes to a point, and on examination you find that it is flattened at the extremity, being, in fact, an exact pig-like snout; and at the other rounded end there is a tail like an elongated camel's-hair pencil. There is no shape of head, no trace of shoulder or hip. Even the eyes are invisible, being completely covered by the velvety pile; and but for the legs it would be hard to tell that it is an animal at all. The legs! It should be the feet, for the legs are almost entirely within the skin, while the feet are wonderfully developed, especially those in the anterior part of the body. The ordinary illustrations of our natural histories give a very inaccurate idea of the fore-foot or hand of the mole, which is almost circular, and of enormous strength. It is covered with a very tough skin, and its claws are solidity itself.

On examining these implements—for such they really are—the surprise at the mole's power of locomotion, and sapping and mining process, ceases at once, for they are wonders of construction and models of perfection. Set in motion by exceedingly powerful muscles, it is seen that they are not placed like the

fore-legs of an ordinary animal with the palm flat upon the earth for walking, but edgewise and somewhat like the foremost fins of a fish, and they play on the earth in a similar manner, making, of course, some allowance for the denser medium. With these claw-armed hands the mole tears through the soil, and casts it back to where its hind-feet — which are about a third of the size and strength—continue the task, and kick the loosened earth up to the surface.

Here, in this orchard, is a favourable place for watching the working of the mole—at least, so much as you are likely to see. Take your stand with me here, and be perfectly silent, or our labour will be in vain. You see nothing? Indeed! Watch that spot

THE MOLE'S HOME.

a couple of yards away. Can you not see about a table-spoonful of earth lying on the surface like so much exceedingly coarse brown sugar? Yes, you can see that; and now, on watching it carefully, you see that it is in motion—that it is growing, in fact, for there might be a volcanic disturbance going on below there upon a miniature scale, and this might be an eruption of fine disintegrated earth.

See how it comes to the surface, more and more welling up, so to speak, like water out of a spring. We know what is doing it—a mole; but no sign of the little sapper is manifested to our sight.

Look! there he goes—or rather, there goes his work—just beneath the surface, and so close that the soil is slightly raised, though held together by the strands of grass and fibres of the filbert-trees. It is so close to the surface because a little lower down the alluvial soil ceases and hard gravelly stone begins, such as would wear out the tough strong claws of even a mole. To avoid this, then, and its harsh, jagged stones, the mole keeps at times so close to the surface that he can almost be seen to work.

We trace him, then, and see that at every few yards hillocks are thrown up, which keep on increasing in size as the little animal toils on.

Now just stamp with your foot. The earth carries the concussion to where the busy little creature is at work, and the loose soil ceases to rise. He has gone.

You ask where? Oh! down one or other of the old channels that have been made at former times, perhaps by the one in question, perhaps by some of his relatives; and while we are looking at the traces of the new workings, the little sapper may have retreated back into the wood, or gone forward right across the garden and into the field forty or fifty yards away, which you can see is dotted over with mole-hills.

It must not be supposed, however, that the mole lives in these passages; for somewhere or another—probably in a place where one would not like to dig, for fear of destroying a choice filbert or young apple—we should find the home of the busy worker, a circular chamber, carefully smoothed, and safe from caving-in earth by the support given to the soil by the root-fibres of the tree above. Connected with this are a couple of circular passages, one above the other, joined by other passages; and from these in turn road after road radiates, like the crooked spokes of a cart-wheel from the nave, which represents the mole's home.

Here was one, down here at the bottom of the garden, beneath that great standard rose—a choice *Devoniensis*—which, though well planted and furnished with such soil and surroundings as would have satisfied the most *exigeant* of rose cultivators, began to flag and fade in the most peculiar way. Blight? Not a sign. Want of water? too much water? Neither. It had received the most perfect treatment, and yet it was dying. A spade revealed what was wrong. One mole had found the place suitable, and made a circular chamber just beneath the roots, effectually depriving the tree of its nutriment; and it would have killed it had we not decreed that the mole must die instead, and die it did.

Your mole is a thirsty soul, and for proof look here by the bank of this watercress-bed, which is tunnelled and in places half filled up by the tiny animal's borings. Tapping a running stream like this, it might be supposed that the mole would flood his works; but he is too good an engineer, for the tunnels run upwards, and he can descend for water and then resume his hunting in the passages close at hand. For, in addition to loving water, the mole affects these damp spots, not from choice, but because they are the chosen homes of the dainty worms which form his chief support, though the small boring slugs, grubs, and soft white larvæ of insects are largely devoured as they are found when digging, or afterwards in travelling through the convenient highways into which they have fallen as into a trap.

The good a mole will effect in this way in a garden is incalculable, besides that which he does in keeping the soil so fresh by draining it, the rain percolating through into his many passages. Unfortunately, though the good he does is incalculable, the harm can be calculated, and it is great. In this garden, for instance, close by a wood, and liberally invaded by Talpa with his subsoil apparatus, the mischief was constant, and such as no garden would bear. The under-draining is good, but the filling up of the neatly made beds containing the choice dark-leaved watercress, glistening with the pure waters from the spring one day, coated with moist mud the next from Talpa's borings; the range of heaps of soil for a dozen yards along the asparagus-bed; the ploughing up of the neat paths between the seed-beds, and the channelling of those tidily squared and drilled parallelograms devoted to the growth of onions; neatly raked borders one day turned into an earthen model of a volcanic region, with its mountains and ridges and craters, the next; and above all, the short, crisp turf of the meadow, harrowed and rolled for a crop of hay, suddenly disfigured by heaps of soil that would be renewed night after night when levelled down—these and many more calculable pieces of damage necessitate the calling in of that rustic professional, the mole-catcher, who with a few sticks, one of which is bent down to form a bow or spring, some whip-cord nooses, and a cylinder of wood, turned hollow, exactly the diameter of the mole's tunnel, and smeared inside with moist earth for his better deception, sets to work. The cylinders are planted in the tunnels, the bow bent and attached to a trigger which the mole himself starts, and he is instantly caught.

One mole will do a great deal of mischief, but in this case ten or a dozen were trapped within a month —not *moles* in Sussex, but "mouldy-warps" in the southern dialect.

Wonderfully beautiful are they when examined, and perfect. Taken from the trap fresh from a long journey through the damp earth, their velvet coats are spotless, and as dry and smooth as if from a drawing-room fireside. The fur seems to have some property which prevents the soil from sullying it, just as the dressing given by a duck to its plumage results in the water being rejected in tiny globules. On examining the little creature, it might well be declared to be blind, for only the most careful examination reveals the fact that it possesses an eye—an organ, however, for which it can have but little use, as its habits are almost exclusively subterranean. That it does come to the surface however, occasionally, is shown by the fact that now and then the owls here, of which there is a colony—the white-breasted or barn owl—occasionally add one to their larder, which they generally store with mice and small birds, the robin and the hedge-sparrow being often sufferers.

It has never fallen to our lot to discover the nursery of a mole's domains, for unless accident revealed one, it would mean the digging, perhaps, of acres to reach the right spot. Naturalists, however, tell us that Madame Talpa has as many as eight or nine little ones in the course of a year—that is, in spring and autumn. Quaintly curious and shapeless as are the elders, the young must be curious indeed; and doubtless the parents must have, like other creatures, a great love for their offspring. There is a curious point in this case, however, for the probability is that the lady mole never sees her children; and therefore she must love them, not from admiration conveyed to her brain by the eye, but through the sense of touch. "Soft as a mole" would be a far better saying than "Soft as silk;" while the former, intensified to the finest pitch, would hardly express the exquisite fineness of the fur of the juvenile mole.

Geo. Manville Fenn.