

case, the whole body of the creature was entombed in theropolis.

This same substance is used to exclude every enemy of the insect tribe, as well as moisture and draft. The bees know very well that currents of air are desirable and drafts treacherous. While they cut off every avenue for the entrance of air where it would make them liable to disease, they supply a steady ventilation where it is needed. Lines of workers station themselves radially from the door to every portion of the hive; by a constant and well timed motion of their wings, steady currents of air are generated, which keep the hive pure and sweet. The force of the current is sufficient to turn small anemometers.

A guard is always stationed at the door of the hive to exclude enemies. The insects inside assume that the guards have done their work properly; for after robber bees or any other intruders have found their way in, it is generally long before any notice is taken of them. Occasionally a large moth, the *sphinx atropos*, or death's head moth, effects an entrance (Figs. 12 and 13) in spite of the vigilance of the guard. Once inside, the ravages of this creature are terrible. On dissecting one, a tablespoonful of honey was found in its stomach. A very curious instance of transmitted intelligence is recovered of a swarm of bees, in connection with this foe of theirs. One of these moths had committed a serious raid upon the winter store of the swarm before it was discovered: several years afterward another member of the same family of moths entered the same hive; the bees at once took measures to secure themselves; the moth was excluded; barriers of wax were erected so that the door would not admit it, though the opening was still large enough for the bees themselves. The tradition of this Goth had evidently been handed down: they knew all about him the second time he came. Several generations of workers had been born and had died in the meantime, for the workers live only from five to seven months at the furthest. The ordinary bee moth is a terrible enemy to the hive, and does much greater damage than the sphinx, because its attacks are so much more insidious, and because it not only devours the honey, but the brood as well.

Bees are pugnacious little creatures, if roused by any fancied wrong or by the very human vice of cupidity. They are not disposed to sting if let alone, but are sure to revenge any hurt or indignity. Whole swarms often engage in pitched battles; this is almost always for the possession of territory. One piece of carelessness on the part of a bee keeper, and a whole swarm is sometimes demoralized; if they once gain access to honey, and can steal it, they are very apt to abandon all pretense of honesty, and give themselves up to a predatory life. Some of them, as has been before said, are professional sneak thieves; others are highwaymen. Huber and other apiarists mention the shameless behavior of some of these highway robbers. One of them will arrest a luckless humble bee on its way home laden with honey, and force it to disgorge its treasure. Violence will not do here, for the humble bee's honey pocket is far beyond the reach of our little thief. He does not kill his victim, but only calls "stand and deliver at the peril of your life," and generally succeeds in exacting that for which he asks. When the humble bee yields and gives up its honey, the bee allows it to depart in peace, and licks up the sweets with great gusto.

Our little honey bees, with all their wisdom and virtue, have their faults; and robbery, wholesale and otherwise, is not the only one. They sometimes make themselves thoroughly drunk on the juices of ripe fruits, and may be seen lying on the ground in a state of intoxication.

There are some things in the history of the honey bee which show a fidelity and devotion that is really touching. There is something also human in their loyalty towards their sovereigns. Several instances are upon record where bees watched over and guarded the remains of their queen for days, licking and caressing her as though they were trying to restore her to life. Though food was supplied they refused to eat, and at the end of four days every bee was dead.

When a queen makes a royal progress through the hive; she is always attended by a body guard; not a particular number of bees which are devoted to her person, but a body guard which forms itself at her approach out of the subjects through whom she is about to pass, but who fall back into their regular work when she has gone by. She never lacks the most dutiful and devoted attention; those about her, whenever she moves, caress her, offer her honey, and cluster around her to keep her warm if she is chill.

When a swarm loses a queen, they are at first in deep and violent grief; if a new queen is immediately given to them, they

refuse to accept her. If, however, twenty-four hours is allowed to elapse, they reconcile themselves to the idea of her loss, and receive a substitute with royal honors.

The instinct of the bee denies all our traditions of instinct; it adapts itself to circumstances, overcomes new and unexpected obstacles, benefits by experience, employs temporary expedients, and then casts them aside when the occasion for their use is gone, in a way which is marvellously like reason. It is, indeed, difficult to draw any line between the two qualities when looked at in minute detail: it is only in its cumulative power, which produces such different effects, that we can dare to make the distinction, and then we are still at a loss for a definition. It is strange to find in the insect world, among an order of beings so low in the scale of the naturalist, a faculty so nearly akin to the divine gift of reason which is man's crowning glory. But it is just here, among the bees and among the ants, that it is most marvellous and most perfect.

IRON WELL-COVERING.

(See page 340.)

BRUCK, ON THE RIVER MUR.

BRUCK, on the river Mur, is one of the oldest and most interesting places in Upper Styria. It appears to have existed 861, when, as it is related, King Louis, the German, sent a proclamation to the city of Salzburg "Bruck on the Mur."

Rudolph of Hapsburg raised Bruck to the dignity of a town in 1277. Many of the historical details concerning Bruck have been lost, from the ill-fate of the town, which has been so often destroyed that its chronicles have perished also. In the course of years this city has survived twenty wars and ten fires. Its position is extremely beautiful, being situated on the confines of the two rivers Mur and Mürz. Independently of its natural beauties, it possesses many interesting objects worthy of notice. Amongst the latter is the great iron well, the age of which is given in an inscription on it, which may be thus Englished:—

"In the year 1620
By my good town
Was I formed."

On the south side of the well can be read in German:—

"I, Hans Prasser,
Drink rather wine than water.
Did I drink water so gladly as wine,
So should I a richer Prasser be."

And then in another place:—

"Therefore have I been dug,
That all a big draught can have,
And may drink freely of me."

Looking beyond the Iron Well is seen on the horizon the historical "Rennfeld." From Rennfeld we have a surpassingly lovely view of the river Mürz and the peaks of the Upper Styrian range of mountains.

History relates that the Knights of Stubenberg and Kneuring, with their followers, went up to the Rennfeld, 4,800 ft. high, in order to throw themselves down between the highest points of the mount to break their necks, out of desperation, through unrequited love for Agnes of Bernegg, beloved by both of them.

Near the well stands the old palace of the Archduke, now a private dwelling-house. It was built in the year 1390. Archduke Ernest, styled the Iron Duke, was its builder. Inside the palace are shown the remains of a small chapel of the same period. A large hall, in which the state councils used to be held, still remains. Added to the well and the Duke's palace, a third object worth noticing is the iron door of the sacristy of the town church. This must be as old as the well. At the Exhibition of Vienna, in 1873, this held a prominent place in the "Pavilion of Amateurs," and excited great attention and admiration.—*Builder.*

AN IMPROVEMENT NEEDED IN SLEEPING CARS.—A writer to the *Railroad Gazette* says: "The recent accident on the St. Louis, Kansas City & Northern railway, at which the treasurer of that road and some other passengers lost their lives by reason of the 'shutting up' upon them of the upper berth in which they were sleeping, should induce the Pullman Palace Car Company to take at once the necessary steps, by some efficient appliance, to prevent the possibility of such a horrid fate to any passenger. Surely some simple means can be devised to insure the rigidity of the berths, even after the spring gets loose, at some point where the passengers can get out; and every one of the hundreds of the Pullman coaches should have the upper berths secured in that manner without delay."