of the shell is called the orifice, and sometimes bears upon its side one or more tooth-like processes, as in the species *Helix monodon* of our woods. From the base containing the orifice the shell winds upward like a gradually lessening tube, describing in its course a greater or less number of turns or whorls, forming the "spire," at the top of which is the apex. This, however, is not the last but the first part of the shell to form. The latter gradually enlarges downwards as the animal grows and needs a more commodious home. The spire may be narrow and thin, like a church spire, or broad and open, the angle between the sides of the spire being constant in each species. In one species of snail the whorls are striated with small lines, and it gets the name of *Helix striatella*. By the forms, color, etc., of the shell we have a means of identifying species. Snails belong to the mollusca, one of the branches of the animal kingdom. This is divided again into groups, namely (1) the Cephalopods, including those forms usually without a shell, as the squids, cuttles, etc.; (2) the Gasteropods (as stated above), and (3) the Bivalves, or those molluscs having the shell composed of two pieces, as in the oyster, clam, etc. The snail then is in the gasteropod group. This again is divided into orders, the snail being in the order pulmonata, or lung breathing molluscs. They are also divided into families, genera and species. Our snails are mostly comprised in the family Helicidæ, but there are various genera and species, the species being determined largely from external markings. Thus we classify a snail as in the following table:

Branch—Mollusca.
Class—Gasteropoda.
Order—Pulmonifera.
Family—Helicidæ.
Genus—Helix
Species—Striatella, monodon, etc.

Fredericton, N. B. G. BAILEY.

For the REVIEW.]

The Backward and Forward Motions of the Planets.

An article in the last number of the REVIEW intimates that some of its readers wish to be enlightened upon the backward and forward motions of the planets. In connection with this intimation there seems to be a request that I should furnish the light. What amount of light is wanted —whether a flood or a mere flicker—is not stated, nor am I told what are the specially dark nooks that need lighting up. As to the latter I shall have to risk a guess; as to the former it will be best, I think, not to try to supply any readymade light, but just to scatter about a few splinters of flint and a few scraps of tinder, from which the reader may peradventure manage to strike a light for himself if he will take the trouble to apply the steel of his own thought to them.

As the observer watches the planets from hour to hour on a clear night he sees that they—in common with the sun, the moon, and the stars—mount up from the eastern horizon to their highest point in the sky, and then drop down to their setting in the west. This is not the motion that concerns us at present, and the reader will do well to dismiss it for the time being from his thoughts.

As the observer watches the planets from night to night, and compares their positions with those of the stars near them, he sees that the planets are moving among the stars. During this present month of May 1894, Saturn and Uranus may be seen moving in this way from left to right, Venus and Mars from right to left. Three months ago Venus was moving the other way, and Mars will be doing so five months hence. Saturn's left-to-right motion will continue until near the end of June, and will then be reversed; and Uranus will follow suit a month later.

These are the planetary motions that concern us here. They have puzzled the brains of observing and thinking people for thousands of years. In the olden time it was the learned in astronomy who were puzzled, now it is the learners. The old problem was given the motions as we see them, with all their seemingly lawless turning and twisting and toing and froing and zigzagging and looping, to find what are the real motions corresponding to these apparent ones, and what the laws that govern them. This problem has been solved, and now every one knows—or think he knows—that all the planets are moving around the sun in nearly circular orbits, and always in one direction. With this much of book-learned knowledge on the subject many people are quite satisfied. But there are others who actually take the trouble to look at the planets with their own eyes and watch their motions. After a while it begins to dawn upon them that what their eyes tell them about these motions is—or seems to be—inconsistent with what they read in the books about them. This is what I suppose to be the case with those REVIEW readers who are looking for light on the subject.

The ancient and now obsolete puzzle to the learned in astronomy was to work their way from the observed facts of the apparent motions to the theory of the real motions. The modern and ever new puzzle to the learners in the science is the converse of this. They wish to be able to feel their way from the theory of the real motions as delivered to them in the books to the apparent motions as they see them in the heavens. What they want to know is—if the real motions are what theory says they are, how comes it that the apparent motions are what our eyes tell us they are? But this question covers a great deal more than is asked for in the present case. Only one of the many puzzling facts in connection with the apparent motion is mentioned, and so the particular puzzle at present is only this: If the planets are really moving always in one direction, how comes it that we see them sometimes moving one way and sometimes the opposite way?

It looks as if Theory and Fact were at loggerheads. And as

> "Facts are chiels that wunna ding,
> And downa be disputed,"