depresses these petals together with the "keel," to which they cling, and so exposes the stamens. (1)

Springs.—In some particular genera, the claws which act as levers partake more truly of the nature of springs;—this is conspicuously the case in the common Genista. When the flower is first open, the stamens and pistil are completely concealed within the keel; but if an insect insert its proboscis, or if a pin be thrust, in imitation of it, down to the base of the calyx, the flower suddenly bursts open, and the four claws, viz., of the two wings and of the two keel petals, curl violently downwards, so that, from having been horizontal, these petals drop vertically. The stamens are thus exposed, while the shock received by the explosion assists in liberating the pollen. The same process occurs, though in this case the action of the spring is limited to the claws of the keel petals only, in the exotic genus Indigofera.

Lever of the first kind.—An instance of a lever of the first kind will be found in the genus Salvia, belonging to the family *Labiatæ* (in which are also the mint, thyme, amd lavender).

Here the petals of the corolla are united into one piece, and the *two* stamens adhere to it. A remarkable modification of them, however exists in this flower. The filament of each stamen is very short, while the anther has its two pollen-cells drawn asunder, and separated by a long stalk-like process called the *connective.* This is attached to the summit of the short filament (somewhat like the letter T), at a point nearer to one anther-cell than the other, and can oscillate in a vertical plane upon that point of attachment. Of the anther cells, one only, the upper, produces pollen. The other and lower, is spoon-shaped, and projects over the orifice leading to the base of the tube of the corolla.

The above contrivance thus constitutes two parallel levers of the first kind; their arms are of unequal length, are semi-circular, and oscillate in a vertical plane. The action is as follows. If an insect alight upon the expanded portion or *lip* of the corolla, which forms an excellent landing-place, it passes its head downwards into the tube, and strikes against the two spoon-shaped empty anther.cells which form the extremities of the two short arms of the levers. By depressing these, the long arms swing through a large arc of a circle, and bring down the anther-cells (charged with pollen), which then strike the insect on the back, and consequently dust it with a shower of pollen. On the insect retiring, the lever recovers its vertical position of equilibrium, and the fertile cells of the anthers retire into the groove of the upper portion of the corolla, which thus protects them.

The forked stigma of the pistil, which projects considerably beyond the flower, will then be seen to be in the exact position for touching the precise spot on the back of the insect where the pollen of a *previous flower* had been deposited.

The Lever and Screw.—In the Scarlet Runner there is a combination of two powers, the lever and the screw. In this flower the keel petals, instead of being straight, have a right-angular bend, and their extremities twisted spirally. The pistil, which is included within them, has its style coiled in a corresponding manner. Just below the stigma is a tuft of hair upon the style. On looking at an expanded flower from the front, it will be noticed that the wing-petal on the left is smaller than the one on the right, and that the orifice of the spirally twisted keel projects over the left or smaller of the two wing-petals.

An insect, *e. g.* the hive bee always alights upon the smaller. These petals have peculiar grooves or depressions upon their inner surface, which catch corresponding elevations on the exterior surface of the keel. The result is, that by acting as the *power* of the lever, the weight of the insect depresses the smaller petal; the force is communicated by the grip-like action of this petal to the spiral keel, which, by being drawn down, causes the spirally twisted style to pass up the hollow coil, so that the stigma now protrudes out of the orifice of the screw-like extremity of the keel. The tuft of hair on the style, above alluded to, sweeps, in its passage outwards, the pollen from the cluster of anther-cells, through the centre of which it passes, and deposits it (the pollen) upon the back of the bee which is there ready to receive it.

(1) It may here be noticed that the hive bee only visits the white clover, its proboscis not being long enough to reach the base of the tube of the red clover.

(*Concluded in next.*)

Suggestions on the Teaching of History.

1. One of the prerequisites of success in teaching history is, that the instructor should have a fuller knowledge of the subject than can be obtained from the text-book only. He ought to be familiar with the story in its completeness, as told by one or more of the best authors.

2. The lesson assigned for the next recitation, should be at once read with as much care as the regular reading lesson, all the proper names being carefully and correctly pronounced.

3. The map showing the location of all the places mentioned, should be drawn by all the pupils of the class, and, when the lesson is about to be recited, one of the scholars ought to draw on the blackboard, with a free hand, an outline of the map, and mark the location of the places mentioned in the lesson.

4. In hearing the lesson, the teacher should stand, not sit, without any book, so that he can look straight into the eyes of those he is questioning, and thus be in full sympathy with them. He should have such knowledge and grasp of the subject as to enable him to put questions without reference to those in the book, which are there to aid the scholar, not the teacher, by pointing out and calling attention to important facts.

5. The lessons of any period should not be considered as completely mastered until they have been reviewed both chronologically and geographically.

6. A few prominent events should be selected as stand-points from which, on the one side, may be seen a train of causes, and on the other, a series of effects or consequences.—*J. J. Anderson.*

Autumn Woods.

Ere in the northern gale,
The summer tresses of the trees are gone
The woods of Autumn, all around our vale,
Have put their glory on.

The mountains that enfold,
In their wide sweep, the coloured landscape round,
Seem groups of giant kings in purple and gold,
That guard the enchanted ground.

I roam the woods that crown
The upland, where the mingled splendours glow,
Where the gay company of trees look down
On the green fields below.

My steps are not alone
In these bright walks; the sweet south-west, at play,
Flies, rustling, where the painted leaves are strewn
Along the winding way.

And far in heaven, the while,
The sun that sends the gale to wander here,
Pours out on the fair earth his quiet smile
The sweetest of the year.

O Autumn! why so soon
Depart the hues that make thy forests glad;
Thy gentle wind and thy fair sunny noon
And leave thee wild and sad.

Ah, 'twere a lot too blest
For ever in thy coloured shades to stray;
Amidst the kisses of the soft south-west
To rove and dream for aye;

And leave the vain low strife
That makes men mad, the tug for wealth and power,
The passions and the cares that wither life,
And waste its little hour.

BRYANT.