

the master had forgotten to give him his instructions how to act. The minister asked the boy to read a chapter in the Old Testament which he pointed out. The boy complied, and in his best accent began to read: "And the Lord spake unto Moses, saying tick, tick, tick, and thus shalt thou say unto them, tick, tick, tick, tick." This unfortunate sally, in his own style, acted like a shower bath on the poor Dominic, whilst the minister and his friends almost died of laughter."

Correction of Errors in Composition.

It must be expected that beginners will make many mistakes in their early productions. If they could write without making errors, it would not be necessary for them to write as a school exercise. The very object for which they write in school is that they may learn how to correct their errors,—learn how to express their thoughts properly. It will be your duty to assist and encourage them. Very much will depend upon the manner in which you perform your part. At the outset, it may not be well to be over-critical: for, if beginners should have all their mistakes arrayed before them at once, they might feel discouraged. In a kindly way point out some of the more prominent ones first,—often uttering words of cheer, so far as you can do so consistently. Many of the first exercises may be written upon slates; but after sufficient practice, let paper be used, and always require a margin of an inch on the left for the designation of errors. It will be most profitable to require pupils to correct their own errors,—you merely indicating the lines in which they exist, and also their nature. A few simple characters may be used as expressive of the nature of the mistake. Perhaps the first four or five figures will answer the purpose. Let it be understood that (1) placed opposite a line denotes an error in spelling; (2) an error in use of capital, or neglect of same; (3) the omission of a word, or the repetition of a word; (4) false syntax; (5) a wrong word. If two or more errors are in the same line, use the figures that indicate all that exist. To illustrate our meaning more clearly, let us suppose the following to be a composition, with the errors designated according to the above method.

VACATION.

1 "It is very pleasant to have vacation
come, for we get tired of studying all the
2, 5 time. If we have studied studiously
during school time we will enjoy our vaca-
3 tion more than if we had idle. I love
1, 2 to go to the country in vacation as I always
3, 1 have a good time at picking berries and in
1 riding with my cousins. When vacation
4 is over we should return at school and
3 studying."

This will be sufficient to explain what we mean. You will readily see that the above will be at once simple and effective. It will prove very beneficial for pupils to search for, and correct, these errors. We would recommend that at first they correct the errors upon the paper which contains them, and that they then be required to rewrite the whole in the right form; and we would also advise that you make the chirography itself a subject for criticism. As an incitement to effort in this department, it is well to have a "paper," into which the best written articles shall be copied, and that, occasionally, extracts be read from this paper to parents and others who may come to listen. In some schools an hour is devoted to this semi-monthly.

As aids to the subject of composition, a few useful treatises have been prepared, and are now before the public. For beginners Brookfield's work, published by S. A. Rollo, New York, will be found an excellent work. For more advanced pupils, Parker's "Aids to Composition," published by R. S. Davis, Boston, and a work by Quackenboss, published by the Messrs. Appleton, New York, will prove very valuable. But we would have you feel that in yourself are the chief aid and moving power. If you are judicious in the selection of subjects and in the general management of the exercise, you will do your pupils great good without any of these aids, but if you have not the right feeling, or if you err in your instruction, all other aids cannot compensate therefor.

In a subsequent number we will perhaps give a list of appropriate subjects for exercise.

GUN COTTON—PYROXYLINE.

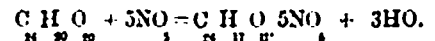
This substance, which is noted for its explosive property, is formed by the action of very strong nitric acid, or better, by a mixture of the most concentrated nitric and sulphuric acids, upon cotton, flax, paper or fine saw-dust.

To prepare it, make a mixture of equal parts (by volume) of the strongest nitric and sulphuric acids, and then press into it as much cotton as can be moistened with it; and, after standing five or ten minutes, press out as much of the acid as possible, and wash thoroughly with a large supply of pure water, and dry carefully without artificial heat. It will be found that two ounces of each of the mixed acids will be sufficient for 75 or 100 grains of cotton.

When thus prepared, the cotton appears much as before the process, but has a harsh feeling, and the fibres are less tenacious than in the original cotton. It also gains considerably in weight during the process, so that from 100 grains of cotton as much as 175 grains of gun-cotton will often be obtained. It takes fire very readily, often at a temperature even below 212°, especially if the heat is suddenly applied; and burns with an immense volume of flame. Placed on a plate of metal and very

gradually heated, it may sometimes be completely decomposed, without igniting, leaving behind a residue of carbon. When properly prepared, it explodes with great violence, and is entirely consumed. Its power to propel balls is much greater than that of the best gunpowder, which is still further increased by soaking it in a solution of chlorate of potash before drying.

The composition of pyroxyline is uncertain; but it is known that, by the action of the acids, oxygen and Hydrogen (in the form of water) are separated from the cotton, and, at the same time nitric acid combines with it. The most probable opinion is that two equivalents of cellulose combine with five equivalents of nitric acid, giving up at the time three equivalents of water. Thus,



Gun-cotton, though insoluble in water or alcohol, is usually found quite soluble in sulphuric ether containing a little alcohol. But this is not always the case; and it is believed there are at least two different compounds formed in the process, one of them being soluble in alcoholic ether, and the other insoluble. The insoluble variety appears also to explode with more violence than the other.

The gelatinous ethereal solution of gun-cotton is used in surgery, as a substitute for sticking plaster, or court plaster, under the names of *collodion* and *liquid cuticle*.

Nyloidine is an explosive compound similar to pyroxyline, produced by the action of strong nitric acid upon starch.

Necessary Rules of Sleep.

There is no fact more clearly established in the physiology of man, than this, that the brain expends its energies and itself during the hours of wakefulness, and that these are recuperated during sleep. If the recuperation does not equal the expenditure, the brain withers—this is insanity. Thus it is that, in early English history, persons who were condemned to death by being prevented from sleeping, always died raving maniacs; thus it is also, that those who are starved to death become insane. The brain is not nourished, and they cannot sleep. The practical inferences are three:—

1st. Those who think most, who do most brain-work, require most sleep.

2d. That time "saved" from necessary sleep is infallibly destructive to mind, body, and estate. Give yourself, your children, your servants—give all that are under you, the fullest amount of sleep they will take, by compelling them to go to bed at some regular hour, and to rise in the morning the moment they wake; and within a fortnight, nature, with almost the regularity of the rising sun, will unloose the bonds of sleep the moment enough repose has been secured, for the wants of the system. This is the only safe and sufficient rule. And as to the question, how much sleep any one requires? each must be a rule for himself. Great nature will never fail, to write it out to the observer under the regulations just given.