of these scars, the effect of light, heat and moisture on plants, the life-history and habits of many of our common birds, insects and fish could easily be taught in the lower school. With these and other topics of like nature omitted from biology it would be possible to do more advanced and better work in the high school. Nature study ought not only to prepare the student better for the high school and the college, but it ought also to bring him into his life with a greater capacity for enjoying the natural, healthy pleasures in the life about him.

SOMETHING NEW IN CHEMICAL LABORATORIES.

BY HARRY N. WHEATON.

Instructor in West High School, Cleveland, Ohio.

Few, if any, of the secondary schools of the country are so well equipped in the line of chemical laboratories as is the West High School at Cleveland.

A radical departure from the old-time chemical desk with its many disadvantages, has been made and each pupil is provided with an individual desk. These desks are thirty inches high, forty-two inches wide and twenty-two inches deep, giving the student a working space, including sink, forty-two inches by twenty-two inches, nearly twice that allotted to each at the ordinary desk.

During a school day of five work periods the laboratory with its twenty-five desks easily accommodates 125 pupils.

Each of the five pupils who use the same desk during the day has a drawer with lock for his individual apparatus, such as A_1 , A_2 , A_3 , A_4 , A_5 , while all five use the middle drawer, which contains apparatus of a general character. The drawers have partitions so that each piece of apparatus has its particular place.

The desk is equipped with a sink, a water faucet, a hood, a double gas cock, a detachable ring stand, and one detachable and five stationary test tube racks.

In the rear of the sink is a grooved shelf, so that with the overflow provided, the sink serves as a pneumatic trough for the collection of gases.

The hood for carrying off fumes is detachable and adjustable. By means of a taper ring of rubber slipped over the tube of the hood, the latter can be set at any convenient height and direction, the rubber ring serving this purpose as well as making an air-tight connection between the hood and the rest of the desk. The fact that each pupil has a hood on his own desk does away with the confusion always caused by pupils going to the general hood while generating fumes. Usually the latter are allowed to escape into the room, as but few can work at the general hood at a time.

For the support of apparatus at three commanding places on the top of the desk are placed sockets for receiving the upright

rod of the ring stand. Detachable test tube racks for general use are provided and may be readily attached to this rod.

Revolving stools with skeleton backs are placed before the desks, making it possible for each pupil to remain seated while at work.

The desk tops are made of rough-glass while the sinks are of enameled cast iron.

This laboratory has been in use but little over a year and has paid for itself many times over with its great advantages over the old system. The pupils work seated and isolated from each other, and all face the teacher's demonstration desk, so that teacher and pupils can see each other's work simultaneously, for there is nothing above the desks to hinder the view.

The room as it is arranged combines laboratory, recitation room, and lecture room at one time, and can be changed from one to the other, instantly, without the students moving from their seats.

The laboratory was designed and planned by Mr. L. B. Altaffer, instructor in chemistry at West High School.

SOME EXPERIENCES WITH NEW EXPERIMENTS.

BY R. SPRAGUE,

Lompoc, California.

In what follows are given accounts of modifications of some experiments which have been described in SCHOOL SCIENCE. The modifications are not necessarily improvements in every case, but have arisen from the nature of the material I had at my disposal. The experiments themselves are so satisfactory that too much emphasis can not be paid them.

In Vol. III, page 408, appeared a description, by Mr. A. R. Hagar, of an apparatus for illustrating liquid pressure. As the principle involved had been causing difficulty to some of the