

"Libraries for the people are wanted," exclaims Lamartine, the humane statesman of France. "These libraries must be in the people's hands—in the hands of the women, the girls, the children, by each fireside. In their evening hours, in rain, in winter, when out of work, and on Sunday, they must find at home that centre of affection and virtue, the beneficial, high-toned, poetical, historical, political, philosophical, religious, interesting, exciting, and pleasing communion with the minds which, in all ages, have best understood, felt, written, or sung, the human heart and the human intellect; these books must be the host, the visitors, the guests and the friends of the workman's home. They must take up little room; they must cost little; they must adapt themselves to the manners, the fortune, and the simplicity of the family in which they are admitted. They must even enter it gratuitously, like the air, the sunlight, or the sweet perfume of the garden."

2. CIRCULATING LIBRARIES IN ENGLAND.

The high price of new books in England puts it out of the power of the great middle classes to purchase them, and the Circulating Library system has consequently grown up to gigantic proportions. One establishment of the kind, that of Mr. Mudie, has come to be a power in the Commonwealth of Literature, and on the number of copies purchased by him depends the success of many a new book. This will be apparent when we state that he announces that 2,500 copies of "Adam Bede" are in circulation among his customers. He gives the following statistics of his operations during the year from January, 1858: Volumes circulated—History and Biography, 56,742; Travels and Adventures, 25,552; Fiction, 87,780; Miscellaneous, including Science, Religion, Reviews, &c., 46,150; making a grand total of 316,044 volumes. The machinery by which this is accomplished is all systematically arranged.—(See page 30.)

3. NECESSITY OF APPARATUS AND LIBRARIES IN THE PUBLIC SCHOOLS.

Extract from the Report of the Committee on Apparatus and District School Libraries, to the Iowa State Teachers' Association.

Your committee, to which was referred the subject of Apparatus and District School Libraries, reports as follows:

Both subjects have been carefully considered, and the conclusion arrived at is, that it is high time that the people awake to their own interest on these subjects. The cry of hard times has been heard throughout the State—and very justly, too—and, surely, the people should make good use of every fragment of their own, and their children's time; and should learn to practice proper economy. Two hundred and thirty thousand youths, already, look to the State for an education. Six thousand teachers are annually employed; many thousands of dollars are being expended in paying these teachers, in building school-houses, and in furnishing fuel, &c., to support these schools. A work that requires so much money, and employs so much precious time, is fraught with great responsibilities; and it is the opinion of your Committee, that three things should be strictly observed: First. To do the greatest good to these two hundred and thirty thousand youths. Secondly. To economize their time; And, Thirdly. To save their money. Your Committee hold, that the *best economy* is to use just what money and time is needed, and no more.

There can be no doubt but that conducting schools without any kind of school apparatus, is an expenditure of time, and money, that the people are unable to afford. And, it is the opinion of your committee, that if no other means can be devised to procure necessary apparatus for our public schools, that it would be an *advantage* to the children, and to all concerned, to suspend them for six months, or even a year, and to use the money required to support them, for purchasing suitable school apparatus.

Every school should have the necessary maps (up to the times), globes, mathematical blocks, a numeral frame, charts of different kinds, and at least, a small philosophical and chemical apparatus; thus furnishing teachers the means of illustrating intelligently to their pupils the various branches taught. Until such apparatus is supplied, very many things must pass unexplained, and the youth pass through our common schools, and probably through life, with only a smattering knowledge of many of the subjects they should best understand.

In regard to school libraries, your committee believe that the people can better afford to purchase a small library for each school section and add a few good books to each, annually, and thus give youths, and also the adults of our State, an opportunity to employ their leisure hours at home, in reading useful books, and acquiring useful knowledge, than they can to have them spend their idle hours in *useless sleep*, or in loafers' retreats and other places of abomination, gotten up, it is claimed, "to while away the lonesome hours," but

in fact are calculated to induce all, and especially the young, who attend them to learn bad habits, and to make profligates, and often *outlaws*, of them.

Your committee concludes by adding, that, in its opinion, it is the duty of every *true teacher and friend of education* to use all honorable means to induce school officers, and especially the people at the regular school meetings, to avail themselves of the benefit of the provisions made in the School Law for the purchase of apparatus and school libraries.

II. THE MAGIC LANTERN AN AUXILIARY IN TEACHING.

There is scarce any thing that can be called a scientific instrument that has so extensively played the part of a humbug as the one mentioned in the heading of this article. It is, however, when properly constructed and used,—taken together with such pictures as can now be produced,—a means of illustrating *science, art, topography*, and even *history*, that has few if any equals.

Passing by all those which are mere toys,—the *best* instruments, as commonly constructed, are not such as can be used to exhibit satisfactorily paintings of the highest finish. It may, however, be well to say in this connection, that for coarse pictures of ordinary execution, these lanterns answer *better* than a more perfect instrument, as they soften the outlines by their very want of defining power.

The best lanterns, as usually made, are constructed as follows: First a large tin box with a chimney, and holes in the bottom to admit air, and a good solar lamp to which a concave reflector is added. In front of the lamp are the condensers, which consist of two convex lenses, the use of which is to render the divergent rays from the lamp parallel. In front of the condensers is placed the picture, and still farther in the same direction are the magnifiers contained in the tube or nozzle of the lantern. These magnifiers are usually double convex, or better plane convex lenses; and here lies the great defect in the instrument. These magnifiers *should* be *achromatic*, i. e., such a combination of lenses as to correct both the chromatic and especially the spherical aberration. Without this arrangement, when the picture consists of simple lines, they appear when seen from a short distance as fringed with prismatic colors; this, however, is the least defect, the other arising from spherical aberration, being very serious, and is as follows: When a series of parallel lines are ruled on the glass and thrown on the screen, those lines and parts of lines nearest the circumference appear curved, and also when the centre of the picture is distinct, the circumference is undefined and *hazy*.

To correct these defects, it is usual to place a diaphragm in the tube; this is, however, to sacrifice about one half the light, and consequently, the picture can be shown with equal illumination of only one half the size as with an achromatic magnifier of the same diameter and focus.

It is true, if the Drummond light be used, this is of less consequence; but even then the achromatic lenses are much better, as the diaphragm corrects only in part.

The Drummond light is expensive, and troublesome to manage, and always requires time for preparation.

With a good solar lamp, and the best sperm oil, a picture three and a half inches in diameter can be thrown on the screen, with a suitable achromatic magnifier from six to ten feet in diameter, according to the subject and transparency of the picture, and be brilliantly illuminated,—as much so as with the common magnifier, if made from three to five feet in diameter. Moreover, with the achromatic, *every part* of the picture will be *distinct* and *sharply defined*.

I am aware that I have stated these diameters of pictures on the screen, far below what is said of them in catalogues of philosophical instruments; but a picture to be satisfactory, must be *illuminated*.

The best substance for a screen is white cartoon paper; the picture is seen, of course, by the light reflected from the surface, and not by light transmitted through the screen. If pictures are to be shown by the latter method, fine, bleached cotton (wet) is the best material.

If it is desirable not to place the lantern very far from the screen, (say about fifteen to twenty feet,) a good "half plate" size camera tube, such as is used for photographic purposes, can be attached to the lantern instead of the ordinary nozzle, and this has the advantage of a rack and pinion motion.

If it is desirable to place the lantern thirty or forty feet from the screen, and a six to ten feet picture is desired, a longer nozzle must be made and an achromatic lens be specially prepared.

With a good lantern and suitable paintings, a teacher can illustrate to a whole school at once *any* subject that is within the limits of Painting, Drawing, or Photography.

For examples: Astronomy can be illustrated to a class even with