giving the quantity of water in the vessel at any time t.

We are asked for the solution of the following :

A contractor was to receive a certain price for a piece of work. If he employed a certain company of boys he would have to give them $\frac{1}{2}$ of the contract price; but if he employed a certain company of men he would have to give them $\frac{3}{4}$ of the contract price. To facilitate the work he employed both companies, and he received $\frac{22,000}{2}$ less than he would have received had he employed the boys only. Find the contract price.

The question is somewhat ambiguous, and it will readily be seen that under certain interpretations the solution becomes indeterminate. We shall, however, take the following, we think, reasonable view of the problem. The term "contract" implies that the work done is to be of a certain standard of excellence, whoever does it, and that it is to be done in a certain time. We infer, consequently, that work done by the company of boys is equally good and as quickly done as that performed by the men, and that the difference in price of the labor arises from the not unusual cause that boy labor is cheaper than man labor. With this interpretation the solution is extremely simple. The companies working together do equal quantities of the work, for which, however, the men receive twice az much as the boys.

Hence $\frac{1}{3}$ of contract price = price charged by boys. $\frac{1}{2}$ of $\frac{1}{3}$ of contract price + $\frac{1}{4}$ of $\frac{2}{3}$ of contract price = price charged by both. $\therefore \frac{1}{2}$ of contract price = \$2,000, or contract price = \$12,000.

Practical Department.

THE VALUE OF PICTORIAL ILLUSTRATIONS IN SCHOOL INSTRUCTION.

BT H. C. CREED, A.M., INSTRUCTOR IN THE NEW BRUNSWICK NORMAL SCHOOL.

The representation of the forms of things is one of the earliest performances of juvenile humanity. This holds true of collective humanity as well as of individuals. Rude, uncivilized races record their deeds and communicate their messages in the natural language of pictures, of which the sculptured hieroglyphics of Egypt and Syria and the birch-bark drawings of the North American Indians are familiar examples. So, also, children very early manifest a disposition to imitate, with a pencil, the outlines of objects about them, and also a great fondness for looking at pictures. It is obvious, therefore, that pictures must afford a natural means of reaching the intellect and the sympathies of the child, and if of the child then also of the porson of any age whose faculties have had a true and natural development.

One of the earliest attempts to use pictures as a direct and systematic means of instructing children was that made by Comenius in his work entitled "Orbis Sensualium Pictus" (The World of Visible Objects Portrayed), published in 1657. Both the quality of the pictures available for the purpose, and the event of their use, have progressed very greatly since that time, but have by no means reached their limit as yet.

The usefulness of pictures in a general way is seen by comparing the keenness of observation, the general intelligence, the accuracy of knowledge oxhibited by children brought up in the midst of an abundance of wholsesome illustrated literature, with the comparative dullness of vision and narrowness of information shown by those who have not been so privileged. But, to come to the par-

ticular subject of this paper, I remark that the pictorial art may be made exceedingly helpful to teachers in a variety of ways.

I. Pictures are of service as an auxiliary means of imparting information, and as an aid in explanation. If correctly made, they usually give a better idea of the form and appearance of an object or the aspect of a place than any unsided description could do. Whether as forming the basis of lessons on particular objects, persons or places, or as illustrating incidental references made in the course of lessons, they are invaluable. Their usefulness is much wider than the use actually made of them in our schools would indicate; and, indeed, its only necessary limitations are these two: first, the fact that the objectitself is always better than a picture of it; and, second, the fact that pictures are not always so drawn as to convey a true conception of that which they represent.

We all know how extensively pictorial illustrations are employed in the best works of the various branches of natural science. Treatises on botany or zoology, geology or astronomy, animal physiology, chemistry or physiography, would be not only unattractive, but comparatively unserviceable without the diagrams, etc., by which they are commonly elucidated. In mineralogy, anthropology and meteorology, m mechanics, hydrostatics and hydraulics, in the scientific treatment of sound, light, heat, electricity, etc., the aid of pictures is almost indispensable. But it is not only in the prosecution of these advanced studies that we can take advantage of the pictorial art: it is equally applicable to a wide range of elementary school work, especially in geography, in history, and in lessons on common things, when the animal or the plant, the costume or the person, the product or other article, cannot conveniently be, itself, exhibited in the school-room.

Illustrated manuals of certain subjects have been provided by the Board of Education for use in the schools of New Brunswick, and many teachers, no doubt, fully appreciate the benefit thus con. ferred, and take every possible advantage of it in their daily work-Some of us, however, seem to ignore the excellent woodcuts with which our reading books and geographies are embellished, or, at any rate, act as though these were intended merely for adornment or for the filling up of space. Few of us, perhaps, have really sought to get out of these illustrations all the good there is in them. What better introduction can we make to many a reading lesson than a study of the accompanying illustration, or of a suitable picture taken from our portfolio, or skilfully sketched upon the blackboard? How much more intimate a knowledge of a country, its people, its products, may be gained if we introduce a number of well-selected pictures to supplement the printed text. Suppose we are conducting a class through the geography of India, for example. We may exhibit sketches of Bombay and Benares, of the Ganges and the jungle, of Brahmins and Banyaus, of Sikhs and Cingalese, of crocodiles and cocoa-nut palms. And who will deny that the trouble or even expense incurred will be more than repaid by the lively interest awakened in the lesson and the vivid conceptions imparted ? Lessons in history, also, will be rendered doubly interesting and valuable by such illustrations as may readily be obtained. The painstaking teacher may gradually accumulate a stock of views of historic localities, battle scenes, portraits of celebrities, representations of ancient costumes and modes of life, with other matters of historic interest, which will be of incalculable service in the class.

I have said that pictures are often of great assistance in explanation as well as description. In both these connections their usefulness consists partly in the fact that they save words. Teachers are obliged to use the voice a great deal; so that whatever will serve to accomplish the desired result without expenditure of breath (as we express it), is valuable as a conservator of energy.