

vide, extend, move, or draw them. There they are, as far as we are concerned, forever. Straight lines between any three points not in the same straight line bound a triangle. Triangles, therefore, of every shape and size, exist everywhere, and we cannot help it. The same may be said of every geometric figure.

In geometrical reasoning we consider lines, circles, etc., which already exist; and to assist our weak conceptions we make rude material pictures of the figures under consideration. We need not and can not construct geometric figures. In practical life it is sometimes useful to be able to construct rapidly and accurately material pictures of such figures, but this has no connection with the proof of geometrical theorems. Euclid has failed to make this distinction, and the result is confusion. His theorems are proved, but by devious methods in many cases, and with unnecessary complications in nearly all. His problems as they stand are ab—but wait till you hear the evidence.

Euclid's confusion begins when he says, "Let it be granted that a straight line may be drawn from any one point to any other point." We may grant what we think true or even possible, but we cannot grant what we know to be false; and we know—taking Euclid's own definition—(1) that a straight line can not be drawn, and (2) if it could be drawn it would be utterly useless since there are already straight lines from any one point to every other point. This postulate is therefore absurd and useless; and the same may be said of the other two. Beginning with his postulates Euclid proceeds to construct various triangles, lines, circles, etc.,—for what purpose? To enable him to prove his theorems? No; for, as already stated, these proofs depend upon the existence of the figures and not on our constructive skill. The fact is, again, that these geometric figures already exist, but cannot be constructed, so that the problems, as given and applied, are impossible and useless.

If the problems were simply useless they might be left as a setting for the theorems, but they become a serious hindrance to many students by introducing confusion in the use of terms. A student reads the definition of a line, and thinks he understands. Then he reads the postulates and the first, second, and third propositions, and by this time begins to have a hazy idea that geometric circles, triangles, etc., can be constructed. And every succeeding problem or construction helps to confound his idea of a geometric with that of a material line. The bright student is not confused, but the lame and the blind stumble and fall.

Then why not discard the problems, and with them the clumsy proofs of many of Euclid's theorems? Why not simplify elementary geometry as far as possible and smooth the rugged path to Knowledge, instead of heaping up rubbish for the learner to climb over? Begin, for example, with Euc. I. 5. *Let ABC represent a triangle having the equal sides AB, AC; and let AD represent the line bisecting the angle BAC and meeting the base in D.*—"?!!!" Well, what if it is not Euclid's plan? There is such a line there. I could not draw it if I were to try a hundred years, so I neither try nor make believe nor assume it done. I simply make a mark somewhere near it to help you to remember what line I am talking about. *Then the triangle ABD is equal to the triangle ACD in all respects (Euc. I. 4), therefore the angle ABC is equal to the angle ACB, etc.*

It will be said that Euclid's problems furnish a good mental drill. Yes; good and bad, for they train the student to take roundabout methods, make useless assumptions, and mix things generally.

Euclid's Elements are a monument of the logical ingenuity of a master mind. But to ask us to follow him exactly in Geometry is as unreasonable as to require that every sea captain who sets out for America should take a similar ship and run over the same course taken by Columbus. A rational course in Geometry should consist of a progressive series of theorems in pure Geometry, unmixed with either mechanical drawing, landscape painting, or expeditions to the north pole. A parallel set of problems in mechan-

ical drawing, using at first only rule and compass, would be valuable to the student but would not be Geometry.

T. P. HALL.

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BION, IDYLL III.

Fair Aphrodite, while I slept,
Before me stood; her infant Love,
In slumber nodding, safe she kept
In soft embrace; and there above
My couch, these words the goddess spake:
"Take Love and teach him song, dear swain."
So saying, she was gone; and I,
Poor fool, my simple lays would try
To teach the boy (as he were fain
To learn), would tell what gods on high
Have wrought that men might music make,—
The pipes of Pan, Athene's flute,
The shell of Hermes, Phoebus' lute,—
All this I tried to teach; but he
Was ever heedless of my words,
Would sing his own love songs to me,
And teach me all those fond desires
His winsome mother's will inspires
In men and their immortal lords.
Thus quickly I forgot the lore
Wherein Love's teacher I should be;
And now my heart sings evermore
The songs of love he taught to me.

R.

University and College News.

PROFESSOR HUTTON'S LECTURE.

On Saturday afternoon Professor Hutton delivered at Trinity College, an able lecture on "Pagan Virtues and Pagan Theories of Life," before a large and intelligent audience. That the address carried with it the speaker's breadth of culture, and was with all its learning lucid and attractive, we scarcely need assure those of our readers who have had the pleasure of hearing Professor Hutton give expression to his thought, *in forma oratoris*. Those who have not had this pleasure will be glad to hear that, at the request of a large number of students, he has expressed his willingness to deliver the same lecture a week from Saturday next, in University College.

Y. M. C. A.

A very important era was marked in the history of the University College Young Men's Christian Association by the opening of their new building on Tuesday last. The Association, inaugurated thirteen years ago in a college lecture-room, and of late years holding weekly meetings in Moss Hall, has for some time been greatly hampered by the lack of suitable rooms and conveniences for their work. A little over a year ago, after much prayerful consideration, a project was set on foot by the members which has resulted in the handsome structure that now graces our College grounds. The building, which is the design of Messrs. Gordon & Helliwell, comprises an entrance hall, with a large lecture room and library on the right and on the left, a secretary's room, committee room and parlor. In the basement are furnace room and lavatory. The whole building has been elegantly furnished by the