

lime height of Mr. Lowell's moral idealism. I know of no other poet who has written like this,—

'To change and change is life, to move and never rest;
Not what we are but what we hope is best.'

And,

*The thing we long for, that we are
For one transcendent moment.*

But would we learn that heart's full scope,
Which we are hourly wronging,
Our hearts must climb from hope to hope
And realize our longing.

And, regretting the disheartening experiences which come with age to all moral reformers, he referred to the earnestness and hope of their earlier years, and urges their continuance.

'We trusted then, aspired, believed
That earth could be re-made to-morrow;—
Ah! why be ever undeceived?
Why give up faith for sorrow?
'O thou, whose days are yet all spring,
Faith, blighted once, is past retrieving,
Experience is a dead, dumb thing;
The victory's in believing.'

A. STEVENSON.

PROF. TAIT ON MECHANICS.

To Vol. XV. of the Encyclopædia Britannica, recently issued, Prof. Tait contributes an article on Mechanics. From one who has given so much attention as Prof. Tait to this subject, we should expect something valuable and original. We are inclined to think the intelligent reader of this article would not be disappointed in such an expectation.

Its arrangement differs little from that which obtains in Thomson and Tait's *Natural Philosophy*. Like that work it is ostensibly and in reality a treatment of the subject based upon Newtonian enunciations and definitions. The author's aim is to elaborate and extend to their widest limit of application the mechanical notions and ideas found in the *Principia*. Thus the laws of motion are very appropriately enunciated at the outset, and declared to be the groundwork of the article.

After commenting briefly upon these laws, the writer takes up the kinematical branch of his subject. Here we find little that is new. What there is, though, is of considerable importance. At the outset a new term is introduced into the subject, and the definition of another term is extended. The new term adopted is *speed*, which is used in the sense of *rate of motion*. The term, *velocity*, is then defined as involving not only magnitude but also direction. We cannot but be pleased to see this notion of *velocity* thus prominently advanced by Prof. Tait, for it is in this view that it has for many years been presented in University College. The definition of *change of velocity*, and the propositions respecting the composition and resolution of velocity, all demand this extended definition of the term.

In the part of the article devoted to Dynamics, we are given the Newtonian definition of *force*. This, indeed, the author could not avoid. It is not necessary, however, to read his own intimation to that effect, which appears in the concluding sections, to see that he is not comfortable in presence of such a definition. He passes rapidly to the consideration of *work* and *energy* and gives many valuable and novel applications of the law of the conservation of energy.

Because of the wide extent of Dynamics, and by reason of the great variety of topics presented for consideration in that subject, the writer could not, within the limits of an article, give anything like an exhaustive treatment of its different themes. However, where such is not given, there are valuable references, which could not but be of great service to any one wishing to see the latest developments in any department of Mechanics.

To those who have given the subject any considerable amount of thought, the latter part of the article will no doubt be of the greatest interest. Under the heading *General Considerations*, he enters upon an inquiry into the merits of the laws of motion, as the ground work of a mechanical system. While he

asserts that no superior system has as yet been developed, he decides that the true laws of motion are those of the conservation, and transformations of energy. These, with the deductions from kinematics, he declares to be sufficient, and the best available foundation for a system of Mechanics. Force he considers a rate of transference of energy, without any objective reality—in short, nothing more than a rate, at which a motion phenomena changes. The adoption of such a definition of *force* would make the first two laws of motion, as at present enunciated, quite unnecessary, for they contain nothing more than the definition, while the third is directly deducible by differentiation from the law of the conservation of energy. These sections of the article in question, have already led to considerable controversy, and probably will lead to more.

A brief but very useful bibliography of the subject is appended to the article.

T. G. C.

THE BOATSWAIN IN 'THE TEMPEST.'

WRITTEN FOR 'VARSITY BY O. A. N.

The *Times*, thundering, tells of 'the puppy criticism of the unfledged Bachelor of Arts who proves his smartness by writing down Tennyson.' It seems unnecessary for me to confess that I am not one of the demi-godly creatures, the graduates; and although I have found it delicious to 'quaff with purpled lips the nectar of ~~love~~, I gravely doubt that I shall ever 'arrive at the starry citadel of a degree;—at least not probably till the University Senate makes LL.D. altogether honorary. Nor would I attempt to 'write down' anybody; especially not Tennyson,—that might seem superfluous. Yet let me offer a few crude comments on the suggestive worthy whose name ornaments the heading of this paper.

BOATS.—'Blow, till thou burst thy wind, if room enough!'

Poetic: he talks to the storm, fancying it alive; likely it seemed rather lively. Sailors always, when the billows rage, would rather have the ship in the middle of the sea than within sight of the shore, even of fatherland: we would rather continue very sick, for a long while, than have our illness quickly terminate in death.

ALON.—'Good boatswain, have a care.'

Many people are nervous about accidents, when travelling. Pshaw! you pay your fare, then it's the carrying company's business to take you through safe; if they let you drown, or break your neck, or anything, it behooves them to pay for it. They assume the risk; why need you worry? So the old Boatswain is properly disgusted at the tears and unmannerly interference with other people's duties, manifested by Alonzo and the other alarmed aristocratic land-lubbers.

BOATS.—'Keep your cabins: you do assist the storm.'

GON.—'Nay, good, be patient.'

BOATS.—'When the sea is. Hence! What care these roarers for the name of king?'

The tempest had excited the boatswain to a symphony of passion, so he talked poesy. Passion may be not always identical with poetry, yet, without passion and tenderest sympathy with surroundings, but little legitimate poetry can be called into being.

Nihilists, Socialists, Communists, Internationalists, Radicals,—'What care these roarers for the name of king?'

GON.—'Remember whom thou hast aboard.'

BOATS.—'None that I more love than myself.'—Frank, true, and sensible.

'In the character of *Ben*, Congreve gave the first humorous and natural representation of the English sailor, afterwards so fertile and amusing a subject of delineation with Smollett and other novelists and dramatists.' This Boatswain antedates *Ben* by about a century. Perhaps you say the Boatswain is Italian; he speaks excellent English for a foreigner.

BOATS.—'Give thanks you have lived so long.'—Most profound piety:—one wonders if the Boatswain was orthodox?

'Cheerley, my hearts!' reminds one of the 'Ye ho! lads, ye ho!' in *Nancy Lee*.

GON.—'If he be not born to be hanged, our case is miserable.' Geo. Farquhar (circa. 1700) 'did not remain his full time at the University. Having had a college exercise given him upon the subject of Christ's walking on the water, he was very late with it; and making an offer, which was accepted, of contributing something on the spur of the moment, he either produced an audacious epigram, or made a remark before he sat down to