And now, my dear 'VARSITY, I must bid you a long adieu. Our Christmas vacation begins this week, and in consequence of the lateness of Easter, it is a long one this year, so I shall not be able to write to you again until the 22nd January, by which time I hope to be back here once more. Allow me in conclusion to wish you a happy vacation yourself and also a Merry Christmas and bright New Year.

Yours as ever, T. C. S. M.

St. John's College, Cambridge, Dec. 5th, 1883.

General College Notes.

PRINCETON.—Tuition has been raised from $75 to $100.

Matthew Arnold lectures before University of Michigan Feb. 1st.

Galesville University was burned down on the 6th inst., the contents being saved. It is to be rebuilt at once.

Cornell University contains among its college portraits one of Prof. Goldwin Smith by the painter Carpenter.

A typographical error in our last number made 'Matthew Arnold lectured at Oberlin,' into 'lectured at Berlin.'

A portion of the engineering class at Ann Arbor University were present at the opening of the cantilever bridge at Niagara Falls.

Our Wallet.

THE 'VARSITY CALENDAR.

January,
Begin,
Scholarship
Win.
February
Comes,
Student
Bums.
March
Blows,
Time
Goes.
April
Cram,
Coming
Exam.
May
Vexation,
Exams
——nation.
June
Remember,
Supplemental
September.

***

When a man has no bills against him he feels as though he belonged to the no-bility,

***

A dude gazed intently at a giraffe for a few moments and turning sadly away, sighed: 'Oh! if I had a neck like that, what a collar I could wear.'

***

A gentleman travelling in Mexico sent one of the small native donkies called *burros* to a friend at home. The freight clerk thought 'burro' was an unsuccessful attempt to spell 'bureau,' and when his way-bills were all in, reported to headquarters, 'One bureau missing and one jackass over."

***

Oh, J. Sullivan! Oh J. L. Sullivan! Oh, John Lycurgus Sullivan, all hail!!
Thou bottomless infinitude! Thou God! Thou you!
Thou Zeus with all compelling hand!
Thou glory of the mighty Occident! Thou Heaven born!
Thou Athens-bred! Thou light of the Acropolis!
Thou son of a gambolier!
Fifty-nine inches art thou round thy ribs; twice twain knuckles hast thou; and again twice twain.
Thou scatterest men's teeth like antelopes at play.
Thou straightenest thine arm, and systems rock, and eyeballs change their hue.
Oh, thou grim granulator! Thou soul remover!
Thou lithsome, coy excoriator!
Thou cooing dove! Thou droll, droll, droll John!
Thou buster!
Oh, you! Oh, me too! Oh, me some more!
Oh, thunder!!! *Walt Whitman in Life.*

ENERGY.

Read by J. M. Clark, B.A., before the Mathematical and Physical Society.
(Continued.)

The next important names in the history of the theory of energy are those of Fourier and Carnot. The calculations and conclusions of these profound mathematicians were expressed, it is true, in terms which, to a certain extent, involved the now exploded corpulcular theories of heat and light, but their reasoning and results were to such an extent independent of any particular theory, that the elements involving the truth of these untenable hypotheses are capable of being almost entirely eliminated, leaving results which have proved of the greatest use in the development of the true theory of energy. To Clausius is principally due the credit of having thus utilized the brilliant investigations of these master minds, and in particular of having so modified the theorem of Carnot as to make it consistent with the doctrine of the equivalence of heat and work. To Joule, the great English Physicist, is undoubtedly due, as has been conclusively shown by Prof. Tait, the credit of having placed the grand law of the Conservation of Energy on a sure experimental foundation. Joule determined by means of some of the most ingenious experiments of modern times that 722 foot-pounds of work, if converted into heat, would raise 1 lb. of water 1 deg. F., or that to produce a quantity of heat sufficient to raise 1 kilogramme of water through 1° C., work must be consumed to the extent of 424 kilogrammetres, and thus placed the truth of the dynamical theory of heat beyond all manner of doubt.

In performing one of the experiments devised by him for the purpose of ascertaining the mechanical equivalent of heat, Joule discovered that current electricity was a form of energy, and subject to the law of conservation. His results were extended by Helmholtz, Mayer, Clausius and Thomson, till the law of conservation has been shown to govern all natural forces. Thomson demonstrated that Faraday's discovery of the rotation of the plane of polarization of a polarized ray of light produced by media under the influence of a powerful magnet, involved the dependence of magnetism on motion in the case of both magnetic and diamagnetic bodies. To Helmholtz and Carpenter is principally due the credit of having extended the principles of the conservation and transformation of energy to physiological phenomena. There can be no doubt that Maxwell's electro magnetic theory of light is destined to play no unimportant part in the development of the true theory of Energy. From data supplied by Weber, Maxwell found that electro magnetic disturbances were propagated with the same velocity as light. The explanation of this he held to be that electricity, like light, was due to the undulatory vibrations of the medium which is beyond question necessary for the propagation of light.

If this hypothesis be found to be a valid one, a very clear insight will be obtained into the real connection between light and electricity. The relation of heat to light is seen by considering the nature of radiant heat, but is best shown by considering certain experiments of Leslie, which prove that bodies are heated by absorbing light. The fact that heat is developed in certain chemical transformations indicates the relation of the forces of chemical affinity to heat. Thus by considering in succession all the so-called natural forces, it will be seen that they are all simply manifestations of an unchangeable amount of indestructible energy. Every form of energy is capable of being transformed by suitable manipulations into all its other forms, without in any case involving any increase or diminution in the total quanity of energy. But while the quantity of energy in the universe is invariable, yet by virtue of laws of which we have a particular case in Clausius' second main principle of the Mechanical Theory of Heat, the amount of what may be termed available energy is being constantly exhausted. The truth of this, together with many important consequences which follow from it, was first