

THE BERKELEYAN.

"WESTWARD THE COURSE OF EMPIRE TAKES ITS WAY."

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ALMA MATER.

And in her raiment's hem was traced in flame
Wisdom, a name to shake
All evil dreams of power—a sacred name.

—FENNYSON.

Scene of repose, so sweet to hearts
All weary with the cares of life,
And minds disturbed with constant strife,
What bliss the sight of thee imparts!

Here to the sea flow down thy rills
'Midst drooping grass and silent heath;
The tranquil air with scarce a breath
Disturbs the bosom of thy hills.

Upon thy sward the sunshine sleeps,
And smiles upon each sober shade;
And through the leaflets of the glade
Thy hidden blossom gaily peeps.

Within the beauty of thy dells
Lone Solitude doth ever dream
By the still waters, moody gleam,
Or by the fountain's music—swells.

How oft my feet have gladly pressed
The blooming verdure of thy vale
When trembling Luna cold and pale,
Within thy shadowed brook did rest.

And if, perchance, my brooding mind,
O, Alma Mater of my youth!
Hast dwelt upon the soul of truth,
Renewing pleasure there to find.

It were strange; for long days I
Dwelt 'neath the favor of thy care,
Breathing a sweet, refreshing air
And joying 'neath a sunny sky.

Oh! while reclining 'neath the trees,
In pensive thought or lazy mood,
Upon my mind there would intrude
Thoughts like or kindred unto these:

Mother of all that's pure and best
Of aspirations of the soul,
Whose guardian care doth lend control
Unto the feet of those in quest

Of Wisdom's way—whether in strife,
With hurried foot that never stays,
And bustling air, I pass my days
In tiresome cares of busy life,

Or if, in passive solitude,
I live in calm tranquillity—
Still shall I ever bear to thee
My endless love and gratitude.

Gaze proudly on thy broad domain,
The conquest of a peaceful war!
Long shall it be, without a scar,
The heritage of heart and brain!

Within thy classic grounds are laid
The holy seed, with tender care,
Which in the years shall flourish fair
With blossoms nevermore to fade.

And o'er the ashes of the men
Whose lives are consecrated here
Genius shall shed a grateful tear
And ponder o'er the years again;

Years when the tongue of malice rose
In clamor 'gainst the good and wise;
When men saw with distorted eyes,
And answered generous deeds with blows.

When all the gifts thy bounty gave
Were balanced with the weight of gold;
When thou, like heroines of old,
Wast generous as thou wast brave.

Bear proudly up thy mighty head,
And gaze adown the Golden Gate!
From thee, 'gainst malice and 'gainst hate,
The love of truth shall onward spread.

Like giant oak upon a hill,
Which knoweth neither fear nor harm,
Which bears the beating of the storm
Till all the winds have raved their fill,

E'en so thy mighty mind of truth,
Till error faded from the land,
Ever triumphantly shall stand
And flourish in perpetual youth.

And from thy feet the waves shall roll,
Roll onward through the Western gate,
And bear the blessings of thy great
And noble name from pole to pole;

As one of those whose hands and heart
Have ministered to wants of men;
Whose glorious deeds have always been
Their higher aim, their better part.

And mighty ships will come and go,
Sail up and down, pass and repass,
And life will lie before thy face,
Its din, its tumult and its show.

But thou serene shalt always stand,
Peaceful above the boisterous strife;
Thy gifts shall noble many a life,
Thy name be honored through the land.

Lew.

ASTRONOMY AND GEOLOGY.

BY PROFESSOR JOSEPH LE CONTE.

[Introduction to Lecture on Coal.]

Nature is a book in which are revealed the divine character and mind. Science is the human interpretation of this divine book, human attempts to understand the thoughts and plans of Deity. The book being divine, it is evident that all parts are equally sacred. The subjects of all sciences may be said to be equally, because they are all infinitely, noble. To the scientific mind the organization of an insect, a polyp, or an infusorial animalcule is no less dignified a subject of human inquiry than the organization of the solar system. Yet, as in the Sacred Scriptures, while all parts are equally sacred, because all are divine, some are cherished with peculiar reverence, as giving nobler conceptions of divine character, or clearer views of human duty; so also in science there are some branches which, by a certain magnitude in the objects with which they deal, strike the imagination and kindle enthusiasm in a peculiar degree. From a purely abstract or intellectual point of view they may be all equal, but as human studies, as a means of elevating the mind and ennobling the soul, they differ very much among themselves.

In this, the noblest function of science, there are two departments which stand out beyond all others, viz: astronomy and geology. We are all accustomed to look upon astronomy as the most magnificent of sciences, as more than all others extending the bounds of human intellectual vision; but I am perfectly confident that when the age

has grasped as firmly and apprehended as clearly the fundamental idea of geology as it has already done that of astronomy, all will agree with me in thinking that the former is not one whit behind the latter in the overwhelming grandeur of its conceptions. Let us, then, compare these two noble sciences. Let us attempt to vindicate the claims of geology to stand beside astronomy in the very first rank of sciences as twin sisters, distinguished from all others by superior beauty and dignity.

There are two conditions of material existence, viz: *space* and *time*. We cannot conceive of material existence except under these two conditions. Now, the peculiar province of astronomy is space, as that of geology is time. Other sciences may have to do with space, limited space, a portion of space, but it belongs to astronomy alone to deal with infinite space. So also there are other sciences which necessarily deal with limited time, but it is the peculiar prerogative of geology to deal with infinite time.* As astronomy is *limited in time* to the present epoch, or, in fact, to about two thousand years, but unlimited in space, so also geology is *limited in space* to the surface of the earth, but *unlimited in time*. As astronomy measures her distances by billions of miles, or by millions of earth radii, so geology her times by millions of years, *i. e.*, earth revolutions. As the astronomer takes the radius of the earth as a *base line* wherewith to measure the dimensions of the solar system, so the geologist takes the present geological epoch, and "causes now in operation," as a *time measuring rod*, with which to estimate the length of the tertiary period. As the astronomer, becoming more bold as he ascends, takes the diameter of the earth's orbit as a line wherewith to calculate the distances of the fixed stars, or even dares to estimate the probable distance of the remotest nebula, so the geologist, no less daring, takes the tertiary period as a rod wherewith to measure approximatively the almost inconceivable lapse of time represented by the secondary rocks, or even dares to cast his telescopic glance back into the dim nebulousity of the paleozoic period. Finally, as the astronomer, when telescopic vision fails, still speculates, though filled with awe, concerning the infinite, unknown abyss of space beyond, so also the geologist, when mile-stones are no longer visible, when fossils and stratified rocks fail, still vainly peers with wondering gaze backward, and strives to pierce the darkness beyond, still believes that all he sees, or can ever hope to see, is but a fragment of the infinite abyss of time beyond. Overwhelmed, appalled, he shrinks back within himself, and remembers that his own mind, so daring, so arrogant, so apparently limitless, is also but a fragment of the infinite intelligence.

*We use the term "*infinite*" with reference to time, as with reference to space, as synonymous with *inconceivably great*, ilimitable by human conception.

A DREAM.

'Tis night by the stars, and the sifted shade
In the citron grove and dew-robed fringe
Of the olive trees thro' the silent glade,
Blots out with inky hands the tinge
Of golden day, asleep 'neath the surge
Of the sea with its strange and plaintive dirge.

The lone wave laps on the sand-lipped rim
With a measured beat, and the dewy feet
Of the winds their footfalls lend to grim
Stern mountain walls in their far retreat,
In a land of dreams and fateful thought,
To strange fantastic visions wrought.

All else is hushed; the jar of strife
The hollow hand of silence chains—
And whirl of wing, and sound of life.
Prophetic loneliness! Thou couldst restrain
The lone lament, and breathe thy mood
O'er souls athirst for solitude.

So dim and wierd on this nightly shore
What turreted battlements are these that rise?
What chambers vast with oaken floor,
And arch and tower 'neath the starlit skies?
What tread of feet, what ghostly train
That glide through the hall and startle the brain?

In a chamber dim of these castle walls
A gray haired man by the wainscott stands.
And lists to the sounds of the strange footfalls.
'Tis Death! Toward the stars he lifts his hands,
And speaks these words to the phantoms there
With velvet hands and loosened hair:

Ye phantom forms of dreamy mood,
I seek not here your solitude
For a peopled realm of shades. Before,
I've trod the sands of this desolate shore.
Yon prostrate fane and the grass grown tall,
Each crumbling stone and forsaken hall,
The storied urn with its scattered dust,
The fallen shaft and forgotten bust,
Do these not speak of a fame that's gone,
And my stealthy tread by the lintel stone?

My records are, where memories told
Thro' league-long aeons scarce unfold—
In rocky wastes, and columns thrown
On the slant sands; in deserts grown
From Empires lading the foam-clad sea
With argosies white-winged and free;
Vast cities bowed in dust and gloom;
Broad pyramids; the chiseled tomb.
These mark Ambition's fall, the dreams
Of conquest wrecked on bloody streams.

In Araby's land, by the plantain tree
Where soft aromas breathe thro' the free
And pendant boughs, and dreamers sleep
In the lotos shade till the sunbeams creep
To the ocean isles—by the icy shore
Engulphed in long loud thunder's roar.
And bruised by the lightning's rapid wings,
Trace thou my desolate path, till it rings
The round world in. Behold when sweeps
The dread Simoom, and the hurricane creeps
O'er the waste, my red banners arise
Where the pilgrim falls with mournful cries.
In the shifting sands no sculptured stone
With his name engraved, I rear. Alone
For a care to me he soundly sleeps
And the desert wild its mystery keeps.

Go view where Ilissus lonely weeps
By Athen's walls, and Marathon sleeps
In the clear starlight—where Carthage stood,
E'en grand amid its solitude!
Sit thou on the shattered fane, or pause
By Coliseum, where wild applause
The victor won! Why cast in gloom,
Why gone, O lovely Greece, thy bloom
And fame? Why hushed the gifted tone
That Genius breathed in years ago,
When Freedom laid her hand in thine,
Late fled across the Ægean brine,
And sought repose? Enough, O land
Of poesy and song! The hand
Of Death has sealed thy mournful fate
And left thee here disconsolate.

In storms that ride the wintry surge
With winged steeds, and fiercely urge
On hidden rocks the shattered keel;
In deadly plagues that noiseless steal
O'er land and sea; in flames that leap
With forked tongues, and madly sweep
To earth proud cities reared with toil,
Behold my messengers! The spoil
Of age on age I win by these—
Man's deadly scourge, his fearful enemies.

O world that homage pays to him
Who empires wastes with fiercely grim
And groaning war, for me whose fame
Outshines by far the victor's name,
Why not full oft appeared as well
Triumphal arch and lofty swell
Of wild applause that victors win,
When late arrived from wreck and din
Of war, with trophies crowned? Alas,
O phantom forms, where'er I pass,
The wail and tear arise! And thus afar,
Unhonored and unsung, by star
Of dewy eve and early morn
I roam; and thus shall roam forlorn,
Till Life unfolds his stubborn gate,
And Death will gain his high estate
Of king o'er Time and darkness hurled
On Chaos wild and wasted world.

The land of the fateful thought and dreams
Is gone. The land of the citron grove
And gurgling laugh of limpid streams—
Of castles dim and spirits that rove
In aimless mood. My spell I break
And glad to morn and joy awake.

LITERARY EDUCATION.

It is, to my mind, a very unfortunate thing that the comparatively few persons who favor a liberal culture for its own sake should find themselves so widely divided as to what that liberal culture consisted of. The number of those who think that a theoretical education is worth a great deal of sacrifice to us, although we may make little application of the theory in practice, is, in this practical country, lamentably small. We do find the pleasures and advantages of well disciplined minds meeting with very common appreciation. For this reason, I say, it seems to me to be regretted that among those few who do give this appreciation, a serious conflict should have arisen on the comparative merits of literary and scientific pursuits. Literary students are constantly proclaiming the time-honored advantages of classical discipline, scientific students forever remind us that science is the leader of progress, and, as often, express their certainty of the inutility of remaining long in the consideration of the musty records of departed nations. Now, without any desire to go over the field that has so often been trampled and torn up, and that so many have failed to smooth over, I nevertheless wish to call attention to one or two points of interest that have been brought to the notice of the students by the article signed "Albion" in the last *BERKELEYAN*.

This writer proposes to discuss the merits of a scientific education as well as the capacities of Science itself. In the course of his argument, he, of course, finds it necessary to refer to literary studies. His position on this point is laid open to us without reserve. He weighs Science and Literature in his philosophic scales, with the apparent belief that they are two irreconcilable influences in education, and he finds literature immensely wanting. Discipline, he thinks, and cites authorities for his belief, is only to be given to the mind in a proper degree through the medium of Science. In illustration of his views he then considers comparatively the attainments of Mill and Spencer, following the views expressed some months since in the

Popular Science Monthly, by the editor, Professor Youmans.

I have an objection to make to the conclusion which "Albion" draws from the comparison of these two branches, which I have indicated above. It seems to me of little use to decide whether Literature alone or Science alone is the more useful to the mind at the present day, when, as I believe, no one is complete unless he has been disciplined by both, and that not superficially. These are not antagonistic influences, to one or the other of which one must give himself up altogether, if he would receive a full education, they are on the contrary, just now, so harmonious in their characters, that I believe that I can show, on "Albion's" own ground, that the thoughtful, earnest, scientific man who aims to be abreast of his age, must be also a literary man. Let us look into this matter.

"Albion" is evidently desirous that his ideal scientist should not be narrow-minded. He does not want him to get his discipline from one branch only of scientific research. He desires that this ideal man should be imbued with the spirit of every member of that which is called a Family. I need not say that I agree with him in all this. What Auguste Comte made as a simple proposal, that there should be formed a class of students whose duty it should be to gain a general acquaintance with all sciences, and who fully entering into the spirit of the class, should unite all into a philosophic whole, this idea has become the aim of every man of science. No scientist feels his duty done when he is skilled in a single speciality, to the exclusion of a proper acquaintance with other specialties. Division of labor is indeed necessary; only a few men do original work in more than one branch; but to have culled ideas from every bough of the great Tree of Science, to have gathered discipline by working in every pathway of the route to Truth, to be able in fine to appreciate the value of every new conquest made by any division of the Army of Progress, these are things that each one of the great men whom "Albion" has mentioned has esteemed it one of the great ends of his life to accomplish.

But another fact would serve to show this, if it needed proof. As Mr. Spencer himself has been at great pains to maintain, the different branches of Science are so inextricably woven together, that it is impossible to draw such lines of division as shall clearly distinguish them. If one were to set out to study one special branch apart from the others, he would find it impossible to learn the facts that are contained in that branch without encroaching upon a half a dozen of the remainder.

Now what must be the conclusion from all this. Let us see. A person sets out to gain this philosophic knowledge and extended discipline that will fit him to be an advanced scientist. But he is, we will suppose, fully determined to waste no time on the acquirement of dead languages. Human life is, he thinks, too short to be spent in digging into the rubbish of defunct centuries. Literature, except as an amusement he rejects. Science however he will follow in all her ways with unswerving enthusiasm. So following inorganic science he comes to organic. Following these he reaches the sciences of life, going still further he reaches the last and greatest of all the number, the Science of Sociology. Here he has come to where the boldest, the most magnificent claim of Science is made. Here she proposes to show that man himself is subject to law. She determines to find the causes of every great and small change in society. Here the most advanced intellects are working in her train. Here per-

haps some of the greatest steps will be made in future, as they have been in the past. Our student certainly will never rest until he has acquired a full application of the spirit of this department, and as every one must admit, in order to do this, his study, if brief, must not be superficial.

But if he inquires upon what system of study our knowledge of the original, and all of the early history of the most prominent institutions of society is founded, the answer is, almost altogether on Philology. By Comparative Philology was laid the only possible foundation of Comparative Mythology, and on these is based the whole study of three-fourths of the political and social institutions, of the customs, ancient and modern, of the migrations, the affinities, in a word, of the majority of the links in the chain of causes from which present society has sprung. Now, while as a matter of course, our student can gain no such acquaintance with the facts of Philology, as to enable him to do original thinking in that branch, unless he takes it for a speciality, yet, on the other hand, he must acquire more than a superficial idea of its generalizations in order either to be able to study patiently its results, or to follow its progress. Now, as it seems to me, just that amount of knowledge of philological method as will avoid both superficiality and useless labor is gained by the careful study of one or more languages, as distinct as possible from his native tongue. After doing this, and after reading a few general works on the subject, our student may feel somewhat prepared to understand the Science of Philology, to follow the methods by which, from it so much light has been thrown on the early History of Mankind, to read the resulting conclusions on the origin of customs, and of law, to be enlightened in his views of the value of his own social surroundings, and finally to find his views of the powers and the utility of Science more widened than they ever were before. Without this preliminary training in this kind of investigation, I think that none with ordinary powers will find himself possessed of sufficient memory or of the requisite patience to grasp the principles of those profoundly Literary Sciences that form the basis to so much of Sociology.

But leaving all this out of consideration, our proposed scholar wishes of course a knowledge of the history of science. I think that this is a branch of study too much neglected by some of us students, but which is absolutely necessary to the true man of Science. No error could be greater than to forget that the progress of our age is but one step in the long road that the race has traversed, and this error, the man who is only acquainted with the doings of his own time is constantly falling into. I need not point out how great an aid literary training is, in following out these pursuits. There is no doubt that very few men who have no literary training are at the same time well versed in the history of Science. Not many are there who, without any previous knowledge of classics are prepared to follow the intricate maze of scientific thought from its origin in early Greek philosophy, through Aristotle and the Peripatetics, through the Epicureans, and the Neo-Platonists and the Alexandrians, through the Schoolmen up to the revival of letters, in the successive writings of Des Cartes, of the English philosophers, into the complicated arena of Modern research. Yet those who persistently neglect every study of this kind, how can they prevent that superficial habit of complacently surveying the accomplishments of our century, and pityingly referring to the benighted ignorance of all former centuries, which habit is so characteristic of a one-sided man? It is not enough to give a general assent to the propo-

sition that progress is continuous, and that we owe most of our knowledge to the stores that our fathers have left us, but it is necessary to be made to feel this fact by a real, practical acquaintance with the Annals of Civilization.

It seems to me then, that, as I before stated, the true, complete, scientist of the present day, must be a literary student. I might add other reasons for my belief. I might dwell upon the importance of those higher moral, social, yes religious questions with which our age is being shaken, in whose solution science must play so great a part, and which yet demand so much literary training to be fully grasped. But space is lacking. Let me say, then, in concluding, that I have not yet been persuaded that Literature and Science are deadly foes, or even merely cold acquaintances, I believe them fast friends, working for the one end of Human Advancement, twin sisters, who jointly rule as queens the Empire of Mind.

J. R., '75.

OUR JUMPERS.

Foot-ball having gone out of fashion and base-ball having been deferred until next term, our muscular students have discovered, it would seem from their constant exertions; that jumping is a first class substitute.

All over the grounds near the buildings, during the entire day, they may be seen gathered in small bands, those of like powers getting together, with coats and hats off and hair flying wildly about, each bent upon surpassing the rest and trying if he cannot go half an inch further than his fellows. Short parallel lines, uprooted ground, and foot-marks that often closely resemble those left by cattle in muddy places, are the signs by which the scientific investigator can discover where the energies of the maturing minds have been employed in this exhilarating but stiffening exercise.

The jumpers have all kinds of styles, some jump far and others don't, and, strange as it may seem, some do it gracefully while others manage to get themselves into postures that no real artist would, for a moment, take to be graceful; some land evenly and lightly while others need a couple of acres to come down upon. Among the many, however, there are some few whose styler and abilities are so conspicuous that they arrest the attention of all, and might need some special mention.

L. J. L. L., &c., of '74, is the acknowledged champion, but that is nature and not his fault. He jumps with weights, out of respect to the feelings of his abdomen, and generally leaves all competitors a couple of inches. He is a first class jumper, but a little proud of it and therefore seldom deigns to show to common mortals how great his power is. Side whiskers and Granger hat comes next. He is the most graceful jumper of all, and manages to keep up the reputation of his brother, who, since his entrance into the holy bond, has become too dignified to vault. Of course he can't jump with that hat on, so he has to place it aside and invariably in the way of passers by, so that they must needs take a long walk around it, which is neither "morality nor felosephy." John may be found whenever he is around, contending for the mastery with the great representative Freshman from whom, to use his own classical yet terse expression, he can get away. Meantime the gentle zephyrs have wafted the tale of conflict to the laboratory and Fweddy immediately drops his bottles and tubes, puts on his hat and meanders to the scene. His eyes become filled with tears of joy while his lips apprehensively bubble, "Who has pretensions?" When the answer comes he divests himself of his garments and toes the mark. They say that his

leaps are something wonderful. He first tries to sit on his heels, making a kind of a squeaking hinge of his knee joints, rolls his eyes about till nothing but white is seen, thinks he won't sit down, so stands up again; does the same thing over three or four times and then he goes. He keeps on going till he comes down, which he does as if he were trying to send the ground through into China. His single hop don't mean much, but when he takes two hops and a jump, small boys scatter. He does well but he is a web-foot and that accounts for it.

These make up the first class jumpers, and to protect themselves from encroachment they keep in constant practice. After them comes a whole army of lesser lights, who, if they live long enough and jump continually, may, in course of time, be able to jump their own length.

The P. G. has been seen to jump. His forte is a running spring. He first lays out a base line between two big stones which he keeps for that special purpose. He then gets off about a quarter of a mile and starts on his run; after going about six feet over his line the chances are about even whether he will light upon his feet or on about half of his body. He can on an average, if he is in trim and it is a good day for jumping, go as far at two running jumps as most men can in a single standing jump.

The Major jumps occasionally. He waits till late in the afternoon, when all the Sephs and Freshies have gone and then he doffs his professional coat and shows his power. He jumps pretty well and should not endeavor to conceal the fact.

Aleck was awed in the saltitating line. He thought that he could beat somebody, a small Freshie, I believe, but he eventually found out his mistake. He gently removed the covering that prevents the caloric of his majestic frame from escaping, girded on his loins, allowed his tongue to protrude, and *capacitated in unison* with his legs, then made his leap. The *markers* called the distance 4ft. 1½ in., but that was his last boot. The other one was off towards Alcatraz, no one knows where. He ought to have been given another jump, but the jumpers, we suppose, had laugh enough at that single attempt.

WALK.

EXPLANATION WANTED.

The other morning in Astronomy, a Senior arose and said—"Professor, can you tell me what bright star that was in the East last night?" Professor: "Jupiter, of course." Senior: "Oh, no sir, Jupiter was 200 higher, and just about as bright." Professor: "I don't know, then, but perhaps, Mr. R., there might have been something the matter with your eyes at the time." 2nd Senior: "Oh, yes, Professor, he saw two Jupiters." 1st Senior: "Not much, I was not in so peculiarly interesting a state at that time."

The remarkable part is that the night after, two more Seniors saw this same star in the East, not only as bright as Jupiter, but cutting all sorts of antics, changing color, turning into two or more stars, reuniting, and various other things that no respectable star would do. We await an explanation.

THE body of Evans, the murderer, was sold to Dartmouth College for dissection. At the general assembly for prayers in the chapel, the morning after its arrival, it was found sitting in one of the pews, where some of the frisky pupils had slyly put it. The President omitted the customary services, and the corpse was taken back to the dissecting-room.

OUR spring vacation is now over. Alas!