I meet you again fellow-townsmen! with renewed satisfaction. I have cast about to discover whence this satisfaction arose; for sometimes we feel a pleasure without being concious of its source: and I have discovered that my pleasure has arisen from contrasting the present state of things here with what it was in times that are past;—I mean of sociability—agreeable society—good neighborhood—kind & respectful feelings one towards another.

When I first came among you 40 years ago, I was surprised on noticing the discord that reigned among you. The two wings of the Town—Brighton & West Cambridge were—when they met in this House in Town-meeting, in a state of almost open hostility— But what excited more than surprise—my astonishment was, the same sort of estrangement existed towards the College and the Inhabitants—a jealousy—a sort of suspicion—a fear of dictation, or apprehension of being over reached—or something, they knew not what—but sufficient to generate a repellent atmosphere around the individual.

This seemed strange to me when I considered that the College was established here before this Town of Cambridge existed; and was the rallying point—or nest-egg around which this ancient town grew up and prospered, in different pursuits—manipulation—and cogetation, and one reflecting credit on the other.— My secret satisfaction, therefore arose from perceiving the change of things. There is now no longer that repellent atmosphere w.c 40 years ago surrounded the individuals of the town, and of the College— We see here parents with their children—the mechanic & the man of letters—the Pastor & his flock—the Rector & Teachers of the University meet together in this House, once the scene of contention, altercation and wrangling—to listen to the maxims of truth & Science carefully collected by an unassuming class of learned men, who have devoted their time and

and attention to the information of those whose lot in life is the labor of their hands. — This happy change — this intercourse of good humor — good fellowship — reciprocal defference, forbearance and personal respect between those of the University & the Town, must altogether, have been the secret cause of the satisfaction I now feel in addrefsing this United family — affording a fresh instance of "how good, and how pleasant a thing it is for brethren to dwell together in unity".

Advantage of Lectures

The subject of my addrefs, this time 12-month was upon the indispensable virtue of Industry & Prudence; — or the science of rising to distinction in life in whatever station you were in — or the art of rising to respectability in the World. The subject of my present addrefs will be on the World itself. I mean the ground on wc we tread — the air we breathe — the all-feeding Ocean — the source of Rivers — the use of mountains — the influence of the eye & soul of this lower world, the Sun — of the wonderful power of attraction, — and all to show the dependence, and consociation of the various parts of creation, constituting an harmonious Whole and demonstrating an Unity of Design: ~~To which I should like to add~~ the Book of Nature, in order to show that this goodly world was not so made as merely to support animal life, earthly conveniency & greedy commerce, but it is also a Book of Instruction teaching moral & intellectual truths. To chase away the chilly & [illegible] of blank chance

In our progrefs in the science of Nature, we notice three stages or degrees: — the 1st fixes our attention on the outside of things merely, and teaches us to collect external characters only, enabling us to distin-

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distinguish one body from another, as in botany and anatomy:— this is the alphabet of the Book of Nature. The 2d step is Physics, wc relates to the properties of bodies, there cause & effects, wc instructs us in spelling, or joining the alphabet into syllables, and to this, if we join Chemistry, we shall be able to read distinctly.

Human Science has been compared to a Pyramid erected upon the single basis of Natl History, or a collection of facts. The next stratum from the basis is physics; and that nearest the vertex is Metaphysics, so called because they pass above or beyond objects of the senses to things perceived by the intellect only— But for the vertex itself— the pinnacle of the structure— the manner in wc the Deity operated from the begining— or in better words— "the work wc God worketh from the begining to the end"— the summary of the Law of Nature, is higher than human enquiry can reach. But every man— even in savage life can read some of the pages in the Book of Nature written, as they believe by "the Great Spirit", and is to them a revelation; for every law of Nature is a manifestation of the will of the Deity. We wish to encourage people to read more carefully this volume of nature— this Sacred Scripture, written by the finger of the Deity himself upon every animal— every Plant— every mineral— and every natural thing in creation— an uncorrupted scripture this, wherein there is no dispute, controversy, or mistranslation.— Let us assure him, who has not time, from his daily occupations, or opportunity to study these things— that there are no defects— no imperfections in the works of creation, when viewed at a proper distance. We might as well expect a fly that lights upon a clock case to see and understand its ~~wheel work~~ exterior structure, and the

the dependence of one wheel part on another and their use, as that a man, who has to labor with his hands daily, should see, and comprehend, at once, the uniformity of design, the connex-ion, use, and beauty of the great and complicated machinery of the world he is placed in. A man must view Nature at a proper time, and in a proper light, to be convinced that every thing be-yond man's reach, or power of alteration, is, like its great Author, perfect.

Reason may be compared to the light of the Sun, w.ch enables us to see every thing upon Earth, but shuts up our view sight of the Heavens. We must wait 'till the Sun sinks below the horizon, and the shades of night spread their veil over the blue expanse. Then, and not before, the firmament exhibits to our gaze in all its grandeur and its glories! — Those larger and more splendid bodies, w.ch you then perceive as wandering among the host of Heaven, are the Planets, having the Sun for their common centre of motion, while the others, called secondary planets, as our moon, move round their primaries, and are called Satellites or followers. — But the fixed-stars — those very numerous sparkling points with w.ch the blue-ethereal-sky is sown below, are far — very far beyond our solar-system. They are in fact, so many Suns, suspended in the im-mensity of space to give light & warmth, to inhabited worlds, like this we live on — and w.ch roll around them as this earth rolls around our Sun. Sh. you ask how we know those worlds are inhabited? because among other reasons they have light, and light was made for eyes, and eyes are the offspring of a brain.

An assemblage of those distant — far distant bodies, are doubtless di-vided into systems, each one having its centre, focus, or star, or to speak

"There are two powers or primitive forces in Nature, viz — that wc causes weight; and that wc causes heat. The one tends from the circumference to the centre, and is called gravitation. The other tends from the centre to the circumference, & is called fire (or caloric) Altho' the direction of these powers are diametrically opposite, the action of each is not the less exercised. They balance themselves without ever being destroyed and from the combination of these two powers, alike active, all the phenomena of the Universe result." — at p. 5.

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speak a more earthly language — a Sun, w.ch shines by its own inherent light, and around which several earth-like globes or worlds revolve, reflecting with more or less brilliancy the light w.ch they borrow from their sun, w.ch renders them visible to us: — but they are too remote and being not to for our present consideration. We must confine our view to our own System.

While the Planets in our own ~~mundane~~ system perform their ~~own~~ periodical revolutions around the Sun, by w.ch the course of their year is regulated, they turn round upon their own axes, like a carriage wheel, which while it progresses on its journey turns upon itself — a simple motion by w.ch we enjoy the alternate succession of day & night, with all its delightful consequences.

But some may enquire what holds these vast bodies up in empty space, where there is no visible prop or support to rest and turn upon? I answer — by a standing miracle; for we do now as they have done in all ages — push our investigations as high as ever we can, as in the case of gravitation, and beyond that principle, say with them — it is the Hand of God — an expression denoting only the last term of our analytical results — We answer then that it is attraction — the approximating principle of attraction, w.ch is the silent but mighty power w.ch retains them in their orbits, and causes them to circulate with so much regularity and harmony. By this power, all the bodies in this our Solar-system, tend toward each other in a relative proportion to their bulk; and this is the ruling principle w.ch sustains, upholds and governs the motion of our Earth, and its satellite the Moon, as in the other planetary-worlds. Its simplicity, its energy, its duration, and undeviating regularity is evidence of its eternal source. Nothing stands absolutely alone in this great clock — work

Attractant heat

clock-work of the world — one wheel touches and moves another. Even the atmosphere is, as we shall find it, an aërial-satellite of the sea: — so that everything is systematical! acc'g combination — relationship — affinity, and connexion. The Sun gravitates on the planets — the Planets on the Sun. Our system gravitates on the next system, and these again on more distant ones, while the balance of the Universe remains in equilibrio in the hands of the Legislator of all things. — Should we encourage imagination, and allow it to exert its wings, and fly so high as to see our Sun but a Star — nay — our Solar System as a point — then, even then we should find ourselves but on the theshold of Creation!

Let us leave this sublime view to silent contemplation with a remark and an observation. Astronomers had long considered that superb Planet Saturn with its wonderous-ring & numerous satellites as forming the frame of that astonishing picture, the Solar system: but later discoveries & improved glasses, have corrected this too confined idea, and taught us, that on the orb of Saturn there too is written Plus Ultra; as upon every thing else whether seen through the telescope, or the microscope; The scale of the creation does not terminate at the highest of the planetary worlds. and that when speaking of the power of the Deity in creation. Another Universe commences there! A thing cannot be estimated if we have nothing wherewith to compare it. When speaking of that Power w.c calls into existence that which was not, words fail us. Human language is so framed, that neither numbers nor comparisons are applicable to the awful, all-ruling mind. The Hebrew expression Jam that Jam i.e. I am what thou seest all around thee in the Great Book of Nature, — a page or two of which we wish to hold up to your view. In doing this, we shall infringe the rules of the Rhetorician, who directs us to rise with our

subject

subject. We shall so far violate this rule as to discend from the dread magnificence of Heaven down to a mere nothing — a spec-
-ck an atom in creation — I mean this Earth — our evanescent residence — our short lived habitation — yet the only observatory allowed to man whence to view the wonders of the firmament.

This ball on wc we live, is, by calculation, a million-
-times less than the Sun — yet this little world is great to little man; and ∴ worthy his study and attention —
Where there appears no bounds, as in the great outlines of the visible creation, the mind of man is in endless mazes lost; — but this Earth is circumscribed. We can measure it, and say that it is 8,000 miles in diameter; and we sail round it, and, what reflects honor upon man, we can mend it, and make it better, by canals & rail-roads — make it more healthy — more productive, and more pleasant, by judicious Labor, — that kind task imposed by the Creator on man as the best means of preserving his health and his safety.

The Earth is one of those bodies wc circulate in the Solar System and some please themselves with the idea that it is the most favored of Heaven of all the Planets in respect to the Sun, being in its position, less distant from it than Jupiter and Mars; less ~~par~~ parched up by it, than Venus & Mercury; — and, above all com-
-parison, more favorably situated than dreary Saturn, who is kept at such an awful chilling distance from the Sun — that "eye & soul of this lower world" that it has a ring, or Orb to reflect its light and augment its heat.

Without speaking with astronomical precision, we shall say that this Earth of ours is a perfectly round ball, — for whenever its shadow falls upon

upon the moon in an eclipse, it appears always circular, — But on laying our eyes nearer to this Earth, and viewing it with the scrutinizing eye of a Naturalist, we discover great inequalities on its surface; and that every where — in the polar regions, South as well as North. There the rocky & barren ground rears itself, in various places, into lofty Mountains & inaccessible clifts, and with the additional frightfulness of disinal chasms covered with Ice and Snow. While this heidious condition of things is common to both poles, the middle space near the Equator, is, almost as unfavorable for habitation: — there the sun-beams striking directly downwards, dry up the soil, forming extensive sandy deserts, where travellers suffer as much from the proximity of the Sun, as from the absence of it near the poles; — so that the extremes of our material-world is like that of the moral — the happiest situations is in that middle region called the Temperate Zones; 10.c have been, hitherto, the residence of improved Nature — polished humanity — refined arts — the best governments, and the brightest glories of the human Understanding.

Some writers — men who seem to take a delight in deriding the order of things upon Earth, have spoken of Mountains as so many warts, wens, and excrescences, deforming the fair face of Nature; and have pronounced them imperfections and defects in the creation, as so many rude obstructions thrown unkindly in the way of honest Industry, especially when he sees that some of them are tremendous fireplaces, casting out rivers of flaming lava, as in Italy & in South America. Such writers are but shallow Philosophers. — Now, Mountains based upon, and sustained by alternate rocks & earth, so far from being defects of Nature, are absolutely — nay, indispensibly necessary to the economy

of this globe

of this globe. They form a needful part of that grand apparatus in Nature in carrying on that never-ceasing distillation of fresh water from the Salt-Ocean — What would be the consequence if the world was as smooth as a block of marble? Without Mountains & correspondent valleys and plains, there could be no Rivers upon the surface of the ground — nor under it; — and the solicitude of Nature for its production & course, seems to be equal to the importance of it. Had mountains been formed of clay, or entirely of Earth, there would have been no reservoirs, or channels to aid rivers in their long and winding course from their summits to the Ocean, whence all the fresh water upon Earth came from originally — hence the epithet among the ancient Poets — "Father Ocean"

There are two kinds of Mountains — Primary, and Secondary, or Primæval, & Alluvial. The first are as old as the globe itself, made when that was made, whereas the 2d. kind were cast up since. How do we know this? because there are no bones, shells, horns, or any petrefactions, or any remains of animals or vegetables whatever — neither any vestage of any organized body, or any thing capable of growth; and for this plain reason, those mountains were created before Man or any other animal, or vegetable existed. The secondary, or Alluvial mountains are of a different construction They bear strong evidence of having been made after man & other animals were created, and plants also: We find in them remains and impressions of animals and vegetables — of bones — horns, and teeth; and also metals, and other minerals, and deep impressions of the leaves of vegetables — And what is remarkable, we find the remains of animals that belong to the depths of the sea, as the bones of the whale in mountains more than a thousand miles from the Ocean*. All these facts

* Fishes are the eldest children of Creation

Facts prove that the alluvial are junior-mountains, accu-
-mulated at the Deluge, or by some universal or partial in-
-undation of water;-or else thrown up by Earthquakes. The Ante-
Deluvian, or primary-mountains are formed of the durable Granite
such are the Andes in South-America

The higher & more extensive the mountain, the larger the rivers
all the world over. Whoever examines the structure of Mountains
will find that they are formed to a certain end and use. They are
supported by firm, unyielding rocks-not unlike the shell and
bonney-structure of Marine & Land-animals. They are never con-
densed into a solid lump like clay or dough, but are open, at least
not compact & close; but pervious so as to admit into their channels
and cavities the distillation of water from the clouds, w.c settle every
night upon their summits- drawn thither by an attractive power in
the mountains. [They will draw the plumbline from its perpendicular
direction.] They are every way calculated for drawing water from the
clouds, and conducting it upon their surface forming visible rivers,
and admitting them to pass under ground into deep caverns and
subterranean rivers, both rushing on to the great rendezvous
of all the fresh water-the salt ocean.

On casting our eyes on a map, or
artificial-globe, we find that by far the greatest part of this world
is covered by the salt Ocean. $\frac{2}{3}$ds- or about $\frac{3}{5}$th, of the globe is covered
with salt water; w.c we believe to have been its original quality-
Heretoo, the Sneerers & grumblers have found fault, and accused
Nature with wastefulness, for not making more dry land instead
of

1 to 4 in

of covering ~~the~~ so much of this globe with unproductive water. But these are shallow Philosophers — poor interpreters of the Book of Nature. This proportion of land to water is dealt out with exact measure. There is not a drop of water, more or less now than at the first creation. The sum total of matter in the world remains perfectly the same as at the first creation. All things change out of, and into every thing else:— But as it was the work of Omnipotence to create something out of nothing, — the same Omnipotence is required to reduce anything back to nothing. Annihilation and creation — are equal powers of Almightyness.

This world of waters — the vast Ocean was undoubtedly created as we now find it, — salt; for fresh-water is its Offspring; and the Atmosphere its satellite — I cannot allow myself to ~~call~~ consider the salt Ocean as a dead body, any more than the Air; which is to us the breath of life, as the Ocean is to its inhabitants. It has unceasing circulations, like that in our own bodies. In the Atlantic its course from E. to W. is perpetual. It has another, I mean the Tides, w.c is like the breathing of a huge animal, steady and uniform, (?) a swell or rising up of the water against the shore, w.c occupies 6 hours, and then it seems to rest ab.t a $\frac{1}{4}$ of an hour, and this may be likened to the inspiration or drawing in of the breath; and then it begins to retire from the shore, w.c takes just 6 hours more: then after a pause of 15 minutes, it flows again as regularly, and this forever! — The grand stream, like the circulation of the blood from the heart, passes through the Atlantic, in the course of the everlasting trade winds — washing the shores of the West India Islands — pours into the Bay of Mexico — thence recoiling forms the Gulph of Florida, & sweeping along parellel with our American coast, spends itself in the North sea. It has another motion from the Atmosphere, w.c is local & variable, and seems subservient to the transpiration of the Ocean. It ruffles the surface merely

merely, and, from this superficial agitation commences the distillation of fresh water from the salt, for in rising from the sea in the form of vapor, it leaves the salt behind as in artificial distillation. There is, however, a self motion in the great Ocean, resembling the spontaneous motions in animals: and when we view it in this light, it seems as if the Eternal Spirit still "moves upon the face of the waters". Beside these motions within itself, we should take into the consideration that mighty one, w.c very few advert to — I mean that w.c carries the whole terraqueous body round on its own axes that w.c carries it every 24 hours; and around the Sun in the course of a year at the astonishing rate of 68,000 miles an hour! —

So that all is Motion in Nature! nothing stands still! Why then do you wonder that I cannot allow myself to call "the all feeding sea" a dead-body?! — No! it is actuated by the Anima Mundi — the Soul of the world — that

which lives thro' all life, extends thro' all extent,
spreads undivided — operates unspent!

The Ocean is the fountain of all our fresh water, and the Father of all the Rivers upon Earth. We presume — i.e. we guess, that the Earth had no atmos — or vapor sphere at the beginning — there was only dry ground, & salt water — a mere uncloathed, naked globe without vegetables, or even air — cold — dark and dreary — without a drop of fresh water upon Earth, and no fluid but the salt Ocean: and in that state, our hypothesis supposes that it was made to approach towards the Sun, to a heat 4 times greater y.n the medium heat of summer [60°.] What would be the natural consequence of this approximation to the source of heat & light? — Why a vapor-sphere w.d be at once formed around the globe. If the effect of Light was heat then the consequence we hint at would follow, and this

correspond.

corresponds to the very concise account given in the book of Genesis.

Time wd. fail us to recount the benefits of the invisible air or atmosphere. It benefits us by its weight, and by its expansion. It is the spirit of flame: fire cannot exist if deprived of it. It benefits us by moderating the light of the Sun, and by spreading a lustre over every object;—and what is entirely to our present purpose—it forms the Link between the Salt Ocean & the Mountains, forming that endless chain of operations—that vital circulation between Earth & Sea, and wc is as much the Life of the world as the circulation of the blood is to man.

Various have been the theories explanatory of the ascent of fresh water from the sea. Dr Halley's of Eng. is encumbered with the fewest difficulties— He filled a vessel a foot square and one inch deep with sea-water, warmed to the heat of the hottest summer months. After standing two hours, he found on weighing it how much it had lost by evaporation; and from these data, he proceeded in his calculations, & found that a square mile yielded by evaporation 6,914 tons of fresh water. He then calculated the surface of the Mediterranean-sea; and found that it must loose in vapor, every summer's day Five thousand Two hundred and Eighty Millions Tons of Water, sufficient as he thought to supply all the Rivers on the globe To this mathematical calculation we must add a chemical principle, wc teaches that the Air is a powerful solvent, capable of dissolving & suspending the corpuscles or particles of water within itself, forming clouds, wc spread themselves in the upper regions of the air adorning the celestial canopy, by their ever varying forms and colours. But they contain other elements than air & water: They some times

sometimes astonish us by their flashes of fire & awful thunders. At other times, by super-saturation, they discharge themselves in the form of rain, and thus yield back to the Earth what was exhaled from it, before they reach the mountains.

We presume that fresh water rises out of the sea on the principle of artificial-distillation, as sometimes practised at sea on a short allowance of water. They put salt water into a still, and by applying heat, they draw off fresh water fit to drink: so in Nature—the ocean & the clouds constitute the Still, and the Sun is the fire which causes the attenuated particles of fresh-water to rise in form of vapor. These form clouds more or less dense. These sail along the sky, and adorn it with their matchless tints, observable about the rising and the setting Sun. In the neighborhood of Mountains, they are less gorgeously attired; but appear in more solemn grandeur, cloathed in drapery of black, slowly, but perceptibly marching on towards the Mountain—to the awful music of rolling thunder, alter-nating with appaling flashes of celestial fire. On reaching the summit of the mountain, they seem to sa-lute the Earth with a discharge of celestial artillery, and at that moment pour upon it their treasure of fresh water distilled from the salt Ocean. As it regards the clouds, Mountains have a magnetic-power, and operate on them like an enormous load-stone.— A cloud surcharged with water chemically combined with air, will sail on towards a high mountain and will rush to it with accelerated motion, and burst upon it in a clap of thunder.

We can now no longer be at a loss for the Use of Mountains, w.c some have considered as warts-wens, & excrescencies deforming the face

problem Secretary of Nature

the face of Nature;— nor can we be longer ignorant whence enormous Rivers derive their inexhaustable store of waters. Here you see what some w.d have little expected a communication existing between such parts of the creation, as, at first sight, w.d appear to have no relationship with each other— viz. Between mountains & the Ocean— between rivers under ground and the atmosphere above it— between the Sea & Vegetation. But for them we should not have had the green carpet of Vegetables, w.c every year covers & adorns the Earth, ~~and~~ a new, and beautiful one spread a fresh season every ~~year~~, with a richer, & greater variety of forms & colours than the loom or pencil can boast— and each vegetable a wonder in itself; yes!

Not a tree
a plant— a leaf— a blossom, but contains
a folio volume.— We may read, and read, and
read again— and still find something new—
Something to please— and something to instruct.— (Village Curate

This harmony of the world— this Unity of Design throughout the Universe! must strike all who have eyes to see, and hearts to feel!

We have seen that the magazines or store houses of Waters is in the Atmosphere— and that the clouds obedient to the invitation of the mountains deposit the water there— This dripping down the crannies of the stones in little rills, form brooks, w.c increase as they run; when passing from ledge to ledge they accumulate in magnitude & force, and rush with accelerated impetus to the vallies below seeking the plains.

The violence

The violence of the fall hollows out the ground,— cast-ing up the earth on each side by way of banks.— Thus, it pursues its course forcing a passage as it goes thro-ugh every soft thing that opposes it;— and excavating a channel for itself. Thus enlarged— and thus fortified, it steers it course alone the sides of spacious plains— make-ing the tour of Hills & Mountains, forcing a passage through every pliable thing in its way,

Resistless— roaring, dreadful, down it comes,
From the rude mountains, and the mosy wild,
Trembling through rocks abrupt, and sounding far;
Then o'er the sandy valley floating spreads,
Calm— sluggish— silent;— till again constrain'd
Between two meeting hills— it bursts away
Where rocks and woods o'er hang the turbid stream,
There gathering triple force, rapid & deep,
It boils— and wheels— and foams, and thunders through,
— 'Till pouring on, it proudly seeks the deep;
Whose vanquish'd tide, recoiling from the shock,
Yields to this liquid weight of half the globe! [Thomp.]

— where it is destined to be again exhaled in vapors; and to re-enter afresh the channels of this magnificent circu-lation: — for— "All the rivers run into the Sea; yet is the sea not full; unto the place whence the rivers come, thither they run again".

The Author of the book of Job was aquainted with this circulation, & balance between the mountains— the sea, and the Rivers, as well as Solomon

Solomon. "He who hath measured the waters in the hollow of his hand, and weighed the mountains in scales"; and mentions among the wonders of nature "the balancing of the clouds."

And thus—is this blessed habitation of ours—the Terraqueous globe, knit together by a beautiful assemblage of things & apparently dissimilar principles—of many parts, made up in such a manner, as to constitute a regular chain of mutual dependencies, & union of principles, effecting an harmonious co-operation of parts, w.c we express by the single word System; w.c we have endeavoured to illustrate in the production & circulation of fresh water, without a plentiful supply of w.c neither Vegetable nor Animal life c.d subsist. It penetrates where air cannot. Broken water is taken a way from pumps, into its place & when it is abstracted it turns to dust, for water enters into the comp.n of every thing.

"Look on the Clouds—the streams—the Earth—the Sky;
Lo! all is interchange & harmony!
Cloud trades with River,—and exchange is power:
But sh.d the clouds—the streams—the winds disdain
Harmonious intercourse—nor dew, nor Rain w.d follow
To kindle into beauty Tree & Flower".

Corn-Rhymes.

And now you see what we meant by the great Book of Nature w.c is opened to all mankind for their instruction, sh.d they learn to read it correctly and wisely. The few pages of it w.c we have heed up to you; and may possibly constitute a chapter in it, written by the Creator for the benefit of his earthly creatures. Its further application must be left to our next Lecture, and we close this in the words of the admirable Dr Watts

Nature with open Volume stands
To spread her Maker's name abroad
And every product of her hands
Shews something worthy of a God!—