sun glistening so serenely on the farther side?

Mathematicians tell us that we can form no correct idea of numbers beyond the few hundreds or thousands used in regard to matters of every-day life. We will therefore try to appreciate this interval by leading the mind to it gradually.

The distance of the Earth from the Sun is 91,750.000 miles; of the planet Neptune 2,800,000,000 miles. Let this be borne in mind while we glance at some one of the brightest stars. Between this and the star of our system (the Sun) there is a gulf of space, to convey an idea of which is now our endeavor. We may get a general, *relative* conception of the interval referred to by comparing it with the interplanetary spaces. If, for example, we suppose the Earth to be only one foot from the Sun, then Neptune would be thirty feet foom that luminary, and the star *a* Lyræ, at the very least, *two hundred and fifty-three*. If *a* Lyræ, you may say, is only two hundred and fifty-three times the distance of the Earth from the Sun, that is a matter very easily taken in by the imagination. But our statement as just written may mislead you; the sentence should read: The distance of the Earth from the Sun being taken at one foot, the distance of Neptune would be thirty feet, and that of *a* Lyræ two hundred and fifty-three *miles;* that is to say, five thousand two hundred and eighty times the distance our first account seemed to show.

In general we can not conceive of distances like those with which astronomy deals except by representing them by the time occupied by certain moving bodies in traversing these distances. A cannon-ball propelled from the Earth at a uniform speed of five hundred yards a second would occupy ten years in reaching the Sun. Sound, suppose it to have the same speed in the air as on the surface of the Earth (1090 feet a second), would require fourteen years for the same journey. If a railroad through space united the Earth and the Sun, a train of cars, traveling at express-train speed (30 miles an hour), would not reach its solar terminus till the end of two hundred and ninety-one years—leaving the Earth to-day, this suppositious train would not arrive at the Sun till the year 3161. But in attempting to conceive these distances by the aid of any considerations of *velocity*, we should leave out of sight altogether such nothings as the speed of a railroad-train, of sound, or of a cannon-ball. If, however, we take into our minds the velocity of light, we may receive some assistance. Let us add therefore that the light of the Sun, which moves at the rate of 212,000 miles a second, must occupy seven minutes twelve seconds in reaching the Earth.

So we may assume the distance from the Earth to the Sun as our unit of measure—our celestial yard-stick—for appreciating the distances of the stars. To proceed by easy stages, let us take the stars that are nearest to us. The star *a* in the constellation of the Swan is distant from the earth 336.000 times our unit of measure. If any one desires to calculate the same distance by the time occupied by its light in its passage, this light would spend five years in its transit from the star to us. If you do not remember the distances of some of the other stars of the first magnitude, we ask your attention to the following statistics, which may be gathered from any good work on astronomy.

TABLE OF DISTANCE OF CERTAIN STARS FROM THE EARTH

NAME.	Distance (Sun's distance = 1).	Parallax (seconds.)	Light traverses this distance (212,000 miles a second) in	
a of Centaurus	224,000	0.9187	3	years.
61 of Cygnus	366,000	0.5633	5	"
Vega	1,337,000	0.155	18	"
Sirius	1,375,000	0.15	19	"
Arcturus	1,624,000	0.127	22	"
Polar Star	3,078,000	0.067	42	"
Capella	4,484,000	0.046	61	"

Since therefore the light transmitted to us by Capella, occupies sixty-one years in its journey, if by some celestial catastrophe this magnificent sun should be blotted from the firmament, we should still see it for sixty-one years thereafter shining undimmed in its paradoxical splendor.

Now we have given as incidents a few stars whose distances have been measurably guessed at, with the time it takes a ray of light to traverse those distances; yet there are others so far removed from us that even light, speeding with the velocity ascribed to it, could not and does not reach the Earth from those mysterious regions in less than one million years. One million *years* did we say? There are "nebulæ" which through the magical lens of the telescope are this instant disclosing the secrets of a *million ages* by-gone. In a word, the events which at this moment we behold in those worlds are the identical events which interested their inhabitants ten hundred thousand centuries ago. All the stars visible to us may each form one of a series of clusters, the rest of which are invisible through distance; that is, the intervening space between our world and them is so vast that the electric tidings of their birth have not yet through the lapsing myriads of years been able to traverse the awful interval. But some time in the far future the news will come. Let the hand of Omnipotence destroy one of these spheres, and the murmurous waves of light that this morning left it will wander forever, telling of his handiwork.

> The heavens declare the glory of God,
> And the firmament sheweth his handiwork.

Suppose that a host of active intelligences were deployed throughout space, at intervals of twelve million miles, whose duty it was made to watch for the last flickering flame of an orb thus dying. Each sentinel on the far-reaching line would note the expiring ray just one minute later than his neighbor one post nearer to the star than himself How many ages, think you, would elapse before the sentry on the extreme outpost would cease to see the extinct sun?

But the spirit of the Creator is everywhere, pervading all things, permeating every thing. In the fact of his omnipresence lies the proof of his omniscience. God, as we have said, being omnipresent, pervades all space; being all-wise, he is equally conscious in all places: so this last emanation of an annihilated world, traveling forever, would at some point of his grand existence ever be *present* to the Divine apprehension. Thus it is, we suggest in awe and reverent humility, the Creator may perpetually take cognizance of his every act of creation. The mutations of time may be telegraphed through the interstellar spaces, yet there will ever be stations which the message will reach only in the future. Thus it is the Past is also Present with God.

A child is born, and, passing through the years of his youth and manhood reaches a green old age; when

> ——comes a frost, a killing frost,
> And—when he thinks (good, easy man,) full surely
> His greatness is a-ripening—nips his root,
> And then he falls.

Do his deeds die with him? No; every ray of light that flashed the news of the follies which marred or the virtues which illustrated his career continues through the ages to bear the tidings to the Divine Intelligence. Thus is man's history written in letters of living light; and the record is imperishable.

May it not also be that the man, having lived say three-score and ten years, if taken, after death, to a point in space distant five and a half million times our astrometrical unit, and his soul, incorporate, made to travel toward the Earth a little faster than twelve million miles a minute—may it not be that he would pass in review the scene of his own death and his every deed done in the body from the grave to the cradle?

THE BLOOD IN ITS RELATIONS TO THE BRAIN.

BY LUNSFORD P. YANDELL.

IT was one of the theories of Pope, who has been styled the philosophical poet of England, that

> "From nature's chain whatever link you strike,
> Tenth or ten-thousandth, breaks the chain alike."

The chain which the poet fancied that he could see extending hrough nature can certainly be traced in the animal economy, every function of which is so closely connected with every other that disorder of one leads soon to derangement in all. Unless, for example, the food be properly digested by the stomach so as to furnish the materials for nutrition, the muscles in a little while feel the want of nourishment, the heart becomes faint, and every process of life is enfeebled. If the heart, as the result of any disturbance of its delicate machinery, ceases to distribute the blood over the body, atrophy is the consequence, muscles'