

second, which we will call unit distance or 18 miles in a second, in its orbit—we will call this distance one. We go *four* times further off than our earth is from the sun, and take the square root of four. But inquires one, how do you get the square root of four? A number that will multiply into itself, say two into two, makes four; two then is the square root of four, that is, it is the *direct* square root, not the *inverse*. But now you put this figure 2 underneath a line, and place the figure 1 above it (thus  $1/2$ ) and such a fraction is the inverse square root of four. Hence, one-half the velocity that our earth has, must be given to bodies which are four times further from the sun than we are. When nine times further off from the sun than we are the orbital velocity will be only one-third of ours; because one third is the inverse square root of nine. In like manner, when sixteen times further off, the orbital velocity is one-fourth ours. When twenty-five times more distant, the orbital velocity will be one-fifth, and so on to any distance.

Here, then, is a regular law of velocity; and you may extend this to any distance, in the solar system, that you please.

Now, who ordained this velocity? Did the unconscious materials of nature come together, and undertake to consider this matter? Here are laws that are conducted with great intelligence—intelligence too, that was not understood for several thousand years preceding the period of Newton. We have no account that the most civilized nations of the earth had any idea of the law of velocity depending on the inverse square root of the distance. Yet this law existed whether understood by man or not; it made no difference whether the nations were ignorant

in regard to this matter or not, the law existed, and operated for ages unperceived by mortals.

The Latter-day Saints say, that the Lord of Hosts who has given us laws, adapted to our condition as free agents, has also given laws to these material worlds, by which they act and by which they are preserved for a great, and wise and good purpose, to sustain unnumbered myriads of animated beings, who are by numerous other laws adapted to these worlds, and enjoy life therein. We now have been speaking of the infinitely wise law of the velocity of planets. But this law would not preserve our universe in its present beautiful order, if the law of gravitation was not exactly what it is. We say that the law of gravitation acts inversely as the square of the distance. Now, why doesn't it vary as the cube of the distance? Why doesn't it vary inversely as the fourth power of the distance, or some other law of distance? Because all these other laws would throw the system into destruction at once; it could not be sustained. There is only one law among an infinite number that might be chosen, that would preserve the system in its present beautiful order, and that is the law of the inverse square of the distance. Who gave this law to materials that they should have this attractive force? The Book of Covenants tells us that, "God hath given a law unto all things, by which they move in their times and their seasons;" but if he had given a different law than this I have named, in regard to gravitation, the whole system, in a very short period, would be reduced to a chaotic mass, lifeless and inanimate, existing for no purpose, accomplishing no design or end. All this infinite wreck of worlds would be the necessary result of