Motion of the Moon.

[We have concluded to admit the following letter on this subject, for the reasons given below.]

MESSRS. EDITORS—It is somewhat surprising that men of science should enter into a discussion in regard to whether or not the moon rotates on its axis. The controversy is in character similar to that which was carried on by Descartes and others, as to what was the measure of force—a dispute about the definition of terms. All astronomers know precisely what kind of a motion the moon has; and the controversy is only what this motion shall be termed—whether it is a revolution around the earth and a rotation on its axis, or simply a revolution around the earth with the same side constantly towards it. We have many similar motions, both in and out of nature. The balls of the governor revolve round a center with the same side continually towards the center of motion. Any ball on the surface of the earth does the same; and in fact each particle of matter composing any body in rotary motion revolves around the center of motion with the same particular side towards the center.

If we consider the motion of the moon as relates to the earth, we see it always presenting the same side towards us, and of course, as relates to the earth, it has no apparent rotation on its axis. But viewed astronomically, as a body moving in space, we see it revolving around the sun once a year, in a path slightly serpentine, always concave to the sun, however, only varying the 1-400th part of its distance from the sun from a true elipsis. And during this revolution it presents its different parts to the sun thirteen times. Thus, as relates to the sun, it rotates on its axis.

But it is said the question can only be determined by a model. How so? Models are only for illustration to those who do not understand the thing represented. And do not all astronomers know as well what kind of motion the moon has, as they would after seeing a model? Would not the question still arise, as to what the motion should be called?

A model was made some century ago by that ingenious mechanician and astronomer, James Ferguson. He made many machines to illustrate the motions of the heavenly bodies, and amongst the number one which he called the *Trajectorium Lunare*, for determining the paths of the earth and moon, showing what kinds of curves they make in the ethereal regions. And he concludes a description of it by saying, "This is an occular proof of the moon's turning round her axis."

The time of scientific men might be much more profitably employed than in disputing about what a well-known motion of one of the heavenly bodies shall be called.

J. B. CONGER.

Jackson, Tenn., 1856.

[It is but little to the credit of men of science to dispute about mere terms, but the recent controversy about the moon's rotation in England, is not in relation to what terms shall be used to express a certain motion of the moon, but whether the moon has such a motion. Men who really comprehend a subject should be able to write clearly upon it, but this is not always the case. The majority of men have not the faculty of clearly conveying, by langnage, the views which they entertain on subjects, hence, by the very terms they use, they confuse others and oftentimes confound themselves. There has been no controversy regarding the moon's revolution round the earth in twenty-eight days, and always presenting the same face to the earth. The boor who believes the moon is "no larger than his grandsire's shield," can be made to understand and believe this in a few minutes' conversation. But here, during the whole year 1856, there has been a controversy going on in the London scientific journals, whether the moon has a relative motion on its own axis in 28 days, conjointly with a revolution around the earth in the same period. In this controversy some of the most scientific men in England have engaged—such as Dr. Lardner, Prof. Whewell, Evan Hopkins, Mr. Simonds, and others. If these men have been disputing about mere terms—what a thing shall be called—they certainly have displayed an immense amount of stupidity in expressing their opinions.

The motion of the moon has been compared to that of the governor of a steam engine, but the comparison is only correct in one particular, namely: the ball of the governor and the moon always present the same face to the point or body around which they revolve. The governor is connected by an arm to an axis or spindle, and it revolves around its axis in the same period of time in which this axis or spindle rotates; but the earth around which the moon revolves, has no 28 days' rotation, it rotates on an axis of its own every 24 hours. Comparisons, to be really useful, must be correct.

During the period in which the moon is revolving around the earth, it must present all its sides to the inhabitants (if there are any) of the planets, as clearly set forth by Mr. Conger. A locomotive driving wheel, in moving around a curve, revolves *with* its axis; a cart wheel, in performing the same operation, would revolve *on* its axis—the one is loose, the other fast, but they both show a varying phase to the center of the curve, around which they revolve. They always show the same side to the center of the curve, but not the same phase; the crank pin of the driver on the locomotive is seen above, below, and at each side of the axis during its revolution. If the wheel of the locomotive (or that of the cart) be chained and made to slide along the curve, it will present the same phase to the center during its entire revolution. It has but one motion— that of revolution. Is this the motion which the moon has around the earth? Hopkins, Simonds, and others contend that it is—or else they write so confusedly as to make others believe they do. Whewell, Lardner, and others, contend that it has an independent motion on its axis, besides its revolutionary motion. This question has nothing to do with the conjoint motion of the moon with the earth around the sun.

We have received a great number of communications on this subject from old and esteemed correspondents, but have always refused to publish them, because they presented nothing different from what has been published in the controversial articles in the London papers. The above letter is different from all we have yet received on the subject: it charges foreign scientific men with a warfare about mere *terms*. We therefore advise those English (and some German) Dons of Science, who are still slashing away at one another about the moon's motions, in the London *Mechanics' Magazine*, *Engineer*, &c., to come to *terms* at once upon this question—let them explain what they understand about the moon's motions, and no longer make fools of themselves by cultivating misunderstanding about what they mean.

Lord Palmerston and the Manchester Mechanics.

On a recent visit to Manchester the present Premier of Great Britain, on invitation, delivered a lecture before the Mechanics' Institute of that city, in their New Hall. The following are some extracts from it, and they are worthy of being written in letters of gold.

"We are assembled in a building which, in its splendor is worthy either of an emperor of the present day, or of one of those great commercial States, which in the earlier periods of history, played so powerful and prominent a part in the affairs of the world. There are two remarkable circumstances peculiarly distinctive of the times in which we live—the principle of co-operation for common objects, and the general diffusion of knowledge. In former times there were many men eminent in all the branches of human learning, but, as regards the great masses of mankind, the avenues of knowledge were, to a certain degree, closed; but the arrangements of later periods, which are improving from day to day, tend to diffuse among the great mass of the community, or, at all events, among all who are willing to receive instruction, the results of the labors of science and the fruits of the investigations of the learned. The intellectual qualities, as well as the moral feelings of our nature are scattered broadcast over the face of the earth. We find them everywhere, in the lowest classes as in the highest. Their development depends on the opportunities which are offered for their culture.

In this country the road to wealth and to honors is open to all. Some of those among us, who have filled the most distinguished situations have sprung from the humblest position, and have raised themselves by their talent and good conduct. The great merit of these institutions is, that whereas the laboring classes are unable, by their own unaided exertions to obtain access to those means of instruction which are necessary for the development of their intellects, and whereas their hours of leisure are so few as to afford them but little opportunity for mental culture, you open to them the whole range of the treasure of science, and, whatever line their genius may be best adapted to follow, you furnish them with the means of cultivating their faculties and thus increase their knowledge, and, through their knowledge, their happiness.

The poet hath said,

"A little learning is a dangerous thing,
Drink deep or taste not the Pierian spring."

But I hold that that is a mistake, and much error has it produced. A little knowledge is better than no knowledge at all. The more knowledge a man has the better, but if his time and the means at his disposal do not permit of his acquiring deep and accurate knowledge, let him have as much as he can, and, depend upon it, he will be all the better for it, and, although he may not be able to drink deeply of that spring, if his lips have once tasted of it, he will go back to the same delicious waters whenever he has an opportunity, and his draughts, be they great or small, will refresh his fancy, invigorate his intellect, raise him in the scale of civilization, contribute to his individual happiness, and make him a more useful and honorable member of society.

Then we may be told that we will make him a mere smatterer in knowledge, to which I reply that it is better for a man to be a smatterer than to be ignorant and uninstructed. I may be asked whether I would make him an astronomer, or expect him to calculate eclipses, describe the orbits of comets, or examine the course of the planets. By no means; but of all sciences the mechanism of the universe is that of which a man who has little leisure at his disposal may most easily obtain an insight by the knowledge of those facts which are the result of deep study and careful calculation. An ignorant man believes that his country is the only one in the world, that this planet is the only great portion of creation, that the sun is placed in the firmament merely to warm him, the moon to light him home, and the stars to amuse him on the journey, but when he is led into the secrets of that vast universe, the contemplation of which fills the mind with awe, his views become liberal and enlightened, his mind is raised above the ordinary groveling ideas of life, and he finds himself a superior being to what he had been before. It is clear, therefore, that institutions which promote such desirable objects are eminently deserving of the support of the nation. They tend to bring together the different classes of society, combining them in the bonds of good fellowship, allaying their jealousies, mitigating their asperities, and causing them to work together in harmonious action for the general benefit of the commonwealth."

The Value of Scientific Men.

The Philadelphia *Ledger* of the 29th ult. contains an exceedingly able article on the above subject. The following extracts from it will give our readers much pleasure:—

"To many, the scientific men of a nation seem but drones, without practical utility, trying all sorts of impracticable experiments in their laboratories, mixing acids and alkalies and talking learnedly on subjects far removed from practical life, but *doing* nothing for mankind. Solomon tells us too of a poor wise man who delivered a city, yet no man remembered him.

If there is one sign of these times more hopeful than another, it is that scientific men are, as a class more honored than at any former period of the world's history. James Watt, who discovered the steam engine, has enabled England, with a population of twenty-five millions, to do work that as many hundred millions of men could not have done without. It is thus that science has created the fabulous wealth of that monarchy. She is doing the same at this moment for our own country. Who can tell the value to this nation of the life of such a man? Fulton, with his steamboats, or even above him, our own glorious old Franklin, who wrested the lightning from heaven, and the sword from the hands of tyrants? Doubtless many a man, who boasted of his own great practical business powers, smiled, if in passing he marked him, with kite and key demonstrating, in this, our own city, the identity of lightning and electricity, and laying the foundation thus for those electrical telegraphs now ready to convey tidings from continent to continent round the globe in an instant. Who can calculate the value of such a man as Prof. Morse to the country and to the world?

The scientific man, then, is of value to the community just in proportion to the amount of labor he saves to other men while producing similar results. Leibig has increased the production of all the farms in England, by applying the principles of analytic chemistry to soils, manures, and agricultural results generally—he has been worth millions of bushels of wheat already to Europe. The scientific medical men of that country have lengthened the average of life several years. The same is true of mental science. He who has a better knowledge of those laws which enable a man at once to distinguish truth from error, can write a book which will save thousands from some popular mistake, or from years of laborious thought, enabling men to form just conclusions without delay. His empire is over the mind of man.

Nor is science less valuable even in matters of religion. Moral science is but a branch of this. M. Guizot, in Paris, is at this moment urging the establishment of a faculty of scientific theology in that city. Natural religion is, of all sciences, the most delightful, the most practical, and the most useful. It corrects a thousand political blunders, and is, in effect, the basis of all true legislation."

Industrial Progress of our Country.

The display of industrial activity in the United States almost exceeds the capacity to grasp it. Mr. De Bow, in his compendium of the census, gives the value of the agricultural productions of the United States, in 1850, as $1,320,691,326, and states that in 1854 it had increased to $1,600,000,000. The total tunnage of the United States in 1855 was 5,212,000, of which 2,535,136 tuns consisted of seagoing vessels. The internal commerce of the country in 1852 was,

Coasting trade	$3,319,439,372.
Canal commerce	1,188,000,000.
Railway commerce	1,081,500,000.

The products of manufactures and mechanics for 1856, it is estimated, will approach the value of $1,500,000,000, and the products of the seas, including fisheries, freights, transportation, etc., $1,200,000,000. In addition to the immense capital invested in commerce and manufactures, there is either improved or under actual cultivation, 113,032,614 acres of land. Within the last twenty-five years nearly $800,000,000 have been invested in railroads alone, and corresponding sums have been expended in other forms of internal improvements—ordinary roads, canals, improving the channels of rivers, harbors, &c.

Oak Acorns in Bread.

A French chemist takes acorns, hulls them, and then boils them in a weak solution of carbonate of soda for about half an hour then taken out and washed. This operation removes the astringent taste from them; after which they are dried and ground up into flour. Mixed with an aqual quantity of wheat flour, it is said to make a palatable and nutritious bread.

Removing Indelible Ink Stains.

To remove spots of nitrate of silver indelible ink, moisten them for a few moments with moist chloride of lime, which forms chloride of silver, and then dissolve the latter by caustic ammonia. It may be sometimes necessary to repeat the operation. Cyanide of potassium may also be employe.