

The writer is convinced that the *ipsissima verba* of Mr. Langley, who occupies a conspicuous place in the foremost rank of living scientists, will be for the average reader an authorized expression of views commonly accepted by scientists of our age. Taking up these bearings of astronomy in the order given, time and space permits us to cite only, as it were, the condensed conclusions of Mr. Langley to elegantly written pages and chapters, wherein are brought together the researches and opinions of the leading scientists of our century.

1. Motive Force, page 111.—“From recent measures it appears that from every square yard of the earth exposed perpendicularly to the sun’s rays in the absence of an absorbing atmosphere, there could be derived more than one horsepower. . . . Even on such a small area as the island of Manhattan or that occupied by the city of London, the noontide heat is enough, could it all be utilized, to drive all the steam-engines in the world. It will not be surprising then to hear that many practical men are turning their attention to this as a source of power, and that, though it has hitherto cost more to utilize the power than it is worth, there is reason to believe that some of the greatest changes which civilization has to bring, may yet be due to such investigations.” Following is a description of M. Mouchot’s sun-machine, which by the solar heat, concentrated on a boiler by a great parabolic reflector, was used at the Paris Exhibition to drive a steam-engine which was employed in turn to work a printing-press, also of Mr. Ericsson’s actually working solar engine.

2. Forecasts of the Weather, page 78.—“Would it be of any practical interest to a merchant in bread-stuffs to have private information of a reliable character, that crops the world over, would be fine in 1888 and fail in 1894? The exclusive possession of such knowledge might plainly bring wealth beyond the dreams of avarice to the user, or, to ascend from the lower ground of personal interest to the higher aims of philanthropy and science, could

we predict the harvests, we would be armed with a knowledge that might provide against coming years of famine, and make life happier and easier to hundreds of millions of toilers on the earth’s surface.” After this, the learned author of “The New Astronomy” details a number of attempts recently made to prove a connection between certain astronomical phenomena and the weather. Some of the scientists who have participated in these investigations are confident of success, ultimately. Mr. Langley believes that there is *at present* no likelihood of our being able to predict the weather for the next year, as the signal service now does for the next day. He says, in conclusion: “We leave this vision of forecasting the harvests and the markets of the world, as one of the fair dreams for the future of our science. Perhaps the dream will one day be realized.”

3. Connection with Electricity, page 83.—“If we investigate the connection between spots (on the sun) and terrestrial magnetic disturbances, we shall find more satisfactory testimony (than that in reference to forecasts of the weather). This evidence is of all degrees of strength, from probability up to what may be called certainty, and it is always obtained not by *a priori* reasoning, but by the comparison of independent observations of something which has happened on the sun and on the earth.” Here Mr. Langley gives a number of instances where, within the past few years, disturbances on the sun were co-incident with electric storms in different and distant parts of the earth. He concludes: “While we fully concede our present ignorance of the nature of this cause—we cannot refuse the cumulative evidence of which a little has been submitted.” Mr. L., with many of his brother scientists, is confident, that a knowledge of the nature of electricity, which he hopes may be some day or other obtained by the investigations he refers to, would be speedily followed by important developments in the practical use of that great force.

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