

and physicists to be untenable. Some even go so far as to say, that it would be equally valid to show that the formula of Newton gives too large a result, as to show that the result is too small. Mr. Potter states that he was an early disciple of the late Dr. Dalton in chemistry, and that he has always remained forcibly impressed by his great master insisting, in their lessons, on the necessity of considering the change in the distances of the centres of the atoms of gases during their condensation and rarefaction, when the elastic force and the heat and cold developed were the subjects of study. He has accordingly investigated the question according to the atomic view of the constitution of the air, and finds by exact mathematical reasoning that according to this law three times the number of feet descended by a falling body should be substituted for double the number, as given by Newton's formula. The Newtonian rule thus modified brings out the velocity of sound for a certain temperature of the air, 1122 feet and one-fifth of a foot per second. Sir John Herschel's data give the velocity at the same temperature, 1122 feet and three-fifths! This numerical accordance is, it must be allowed, most extraordinary, whatever may ultimately be judged of the validity of the reasoning by which it is obtained. The subject cannot fail to excite the attention of all the cultivators of physical science at home and abroad; and if the final verdict of competent judges should be in his favour, Mr. Potter will have reason to congratulate himself on the accession of reputation which will reward this brilliant and unlooked-for discovery.

The Great Exhibition.—Among the various things at the World's Fair, is a model of a hat manufactory, in all its departments, with moving automata, to illustrate all the operations of the workmen. It shows the progress of making a hat, from the raw material to its completion. The busy little workmen are represented by what artists term "lay figures" about six inches in height, and being jointed, the attitudes in which they are placed are faithful to life. In the model, every implement, as rules, blocks, brushes, iron, scissors, &c., are given to a scale, and specimens of the actual materials deposited, forming a perfect and highly interesting piece of workmanship. Another object of curiosity, which is likely to attract more than ordinary attention, particularly among the fairer portion of the visitors, is a *bal costume*, made by a Miss Solomons, of Lambeth, a self-taught body, not yet 20 years of age.

The London *Morning Chronicle* describes the opening of the Crystal Palace in three languages, in English, French and German. Those who cannot afford either the time or expense to visit the World's Fair, are to have an opportunity of seeing what the Crystal Palace is really like, by inspecting a beautifully executed model. This model, which has been made by Mr. Cogan, of London, contains 10,000 joints, &c. It has been carefully constructed by permission, from the drawings of the Royal Commissioners, and by actual and careful survey of the building during the progress of its erection, on the scale of one inch to twenty feet. So far we can judge the model is a perfectly correct representation of the Crystal Palace; and gives the spectator a better idea of the beauty and extent of that wonderful structure than any drawing or description possibly can do.

The Crystal Palace Beaten.—Dr. Duff, in his speech at the anniversary meeting of the Wesleyan Methodist Missionary Society in London, thus described one of the heathen temples of India:—"In Seringham you have the hugest heathen temple that can probably be found from the north to the south pole. It is a square, each side being a mile in length, so that it is four miles round. Talk of your Crystal Palace! Why, as a man would put a penny into his pocket you might put your Crystal Palace into the pocket of this huge pagoda. The walls are 25 feet high, and 4 or 5 feet thick, and in the centre of each wall rises a lofty tower. Entering the first square, you come to another with a wall as high, and with four more towers. Within that square there is another, and within that again another—and you find 7 squares, one within another, crowded by thousands of Brahmins. The hall for pilgrims is supported by a thousand pillars, and cut out of a single block of stone."

British and Foreign Bible Society.—At the usual monthly meeting of the committee of the above society, it was stated that, by dint of unwearied exertion, 3,217 district associations had been formed in Great Britain alone—has circulated during the last 45 years more than twenty-three million copies of the Scriptures, promoted the translation and printing of the sacred volume into 140 different languages or dialects, and expended nearly £3,500,000. Lord Bexley, the President of the British and Foreign Bible Society, has sent a donation of £1,000 to that important Institution, as the commencement of an "appeal" to enable them to extend their operations at this juncture.

The Bible contains 3,566,489 letters, 31,170 verses, 1,189 chapters, 66 books. The word "and" occurs 46,227 times, "Lord" 1,855, "Rev'd" only once. The 21st verse of the 7th chapter of Ezra contains the alphabet. The 19th chapter of 2nd Kings and the 37th of Isaiah are alike. The first man recorded as buried in a coffin was Joseph (5th Gen.

26 v.) No where but in the 1st chapter of 2nd Timothy is the word "grandmother" mentioned.

The Total Eclipse of the Sun, on the 28th of July, 1851.—On this occasion a total or partial obscuration of the Sun may be seen throughout the greater part of North America, (Mexico and the southern extremity of Florida being excepted,) throughout Europe, in the western, northern, and northeastern parts of Asia, in the northern and northwestern parts of Africa, in Greenland, &c., whilst the line of the central and total eclipse will pass over 191 degrees of longitude, or from the vicinity of Sitka, the capital of the Russian settlements on our northwest coast, to the southeastern extremity of the Caspian sea. But in no part of the United States will the eclipse be total; the greatest obscuration taking place at Cape Flattery, in Oregon, at the entrance of the Straits of Foca, where the sun at 4h 56m, A.M., or twenty-four minutes after it rises, will be about five sixths (10 deg. 3 min.) obscured on the north side. At San Francisco the greatest obscuration will take place before the sun rises, but as the end of the eclipse may be seen, it is hoped it will be carefully observed not only there, but at every place in California and Oregon, where are suitable instruments, as a long time will elapse before another as favourable an opportunity offers for the determination of the longitude. Indeed, a total eclipse of the sun at any particular place so seldom occurs, that but a small part of those inhabitants of the earth, who remain stationary, ever have an opportunity of beholding this, the most sublime of all phenomena. In April, 1715, the sun was entirely hidden by the moon at London, and again in May, 1724, at Paris, but in the course of the long interval between those years, and 1901, and perhaps much longer, the shadow of the moon has not again passed, and will not, over either of those cities. The only total eclipse that has happened in Boston, since its settlement in 1630, as is believed, was that which took place under such very favourable circumstances, on June 16th, 1806, and by the list of eclipses from 1824 to 1901, originally published in the *Columbian Sentinel*, and afterwards in an abridged form in the *American Almanac* for 1831, it appears that there will not be any other, certainly within the present century; moreover, it is very probable that there are many places in this country, at which there has not been, since their settlement by Europeans, even one. It also appears, by the list above referred to, that in the course of the seventy-five years between 1826 and 1901, the shadow of the moon passes but three times over any part of our widely extended Atlantic coast, viz.: on November 30th, 1834, over a small part of Georgia and South Carolina; on August 7th, 1869, of North Carolina and Virginia, and on May 29th, 1900, over part of Virginia. Annular eclipses, it is true, occur more frequently, as those of April, 1791, and February, 1831, were, and those of May, 26th, 1854, and September 29th, 1875, will be, visible in Massachusetts, or four in about a century and a quarter; but these eclipses, although beautiful, have little of the sublimity that attends a total obscuration. Rare therefore as is in general the occurrence of a central eclipse at any particular place it occasionally happens, that some places are, in this respect, especially favoured. Thus, the eclipse of July 8th, 1842 was, and that of the present year will be, central in Poland, in lat. 50 deg. 36 min. 7 North, long. 27 deg. 5 min. 5 East, so that the inhabitants of that spot will have an opportunity of beholding two total eclipses of the sun in the course of nine years. In this country the central path of February 12th, 1831, was crossed in Alabama by that of November 30th, 1834, and in Virginia by that of September 18th, 1838, and in 1853 the two eclipses of June 6th and November 30th, will both be central in the Pacific Ocean, in long. about 125 deg. West, lat. 2 deg. South; these are, however, but exceptions to the general rule, and the places thus favoured, nearly points on the surface of the earth. The width of the shadow of the moon on the 28th of July next, will vary as usual, whilst passing over the earth, but in Greenland, Norway, Sweden, and Prussia, it will be about 140 geographical miles. If, therefore, the central path given below, be carefully marked on a good map, and a line be drawn parallel thereto to the North, and another to the South, at the distance of seventy miles or a little less, therefrom, the places at which the eclipse will be total will be easily seen; there being of course some doubt as to those situated like Elsinour, just within the edge of the shadow, as a small error in the moon's tabular latitude is not uncommon. Within the lines thus drawn are included in America several of the Russian settlements South-east of Sitka, part of British Oregon, two of the forts of the Hudson's Bay Company on the Great Slave Lake, the winter harbour of Captain Ross in 1830, and of Capt. Parry in 1822, the Northern part of the Island of Disco, in Baffin's Bay, and several of the Danish villages on the Western coast of Greenland; and in Europe the Northern part of Iceland, the astronomical observatories at Christiana, Koenigsburg, Warsaw, and Nicolaeff, also the cities of Bergen, Gottenburg, Carlsrona, Calmar, Frederickshall, Jorkoping, Dantzic, Elbing, Pillau, Jitomir and Cheroon; and in Asia, Tiflis and Bakou, between the Black and Caspian, besides many others of less note; but Sitka and Stockholm, Copenhagen and Odessa are not included within these limits, the two former being situated a little too far to the north, and the two latter to the south.