

same manner that fluids find their level, so will the redundant population of Great Britain and Ireland be profitably dispersed over territories hitherto untrodden by the footsteps of civilized men.

My second fact is more hypothetical, but not less obvious to our understanding. It is an old proverbial expression, that "necessity is the mother of invention." Now, in this sentiment we discover one of the wisest provisions of Providence. It is only by necessity that mankind, in a savage state, are compelled to hunt, or otherwise toil, for their subsistence. The same feeling predominates through all the ramifications of civilized society. In proportion as the necessities of men spur them on to seek out new means of subsistence, so do these new means of subsistence open upon their view. If we cast a retrospective glance upon those steps which society has traced from its infancy to manhood—from a state of barbaric rudeness to a condition of luxury and splendour—we invariably find that all improvements have originated in the wants of the people; and that in proportion as they increased in number, so did they whet their invention, and contrive additional means of support. It is from this cause that Scotland, for instance, had no greater surplus of food when it had only a million of inhabitants than it has now, when it supports nearly three times the number. Nay, it had much less food in proportion when it had only a million of people; and hence it is proved that mankind, by their inventions and improvements, greatly increase the means of support beyond the point at which they formerly stood. The power of seeking out, or inventing, new means of subsistence, just as the old ones are perceived to be inadequate, has been actively at work since the beginning of time, and will operate for the benefit of our race as long as sun and moon endure. It is in the exercise of this transcendent faculty of the human mind that we see the beneficence of the Creator in providing unseen means of subsistence; and it is in it that we find the cheering hope, that at no period, however distant, even when the whole earth shall have been covered with inhabitants, shall mankind languish for lack of food. As they go on increasing in number, so will they go on perfecting their contrivances; every succeeding generation may labour under some new difficulty, but so will it be endowed with the faculty of releasing itself from it.

I have been led into these reflections by cogitating on the probable effects of that species of elemental locomotion in which steam is the active agent, and which appears to come into use for the benefit of our species precisely at the time that the quantity of food produced in this country has begun to be felt as too limited. An exceedingly instructive volume, illustrative of the commercial, political, and moral advantages of elemental locomotion, by means of steam-carriages on common roads, has appeared in London, from the pen of Alexander Gordon, civil engineer; and on turning over its leaves, I am glad to perceive that the same idea, with regard to increasing the amount of food by the introduction of inanimate for animate power, is insisted upon both by the author and by those who have been examined on the question by a committee of the House of Commons.

"The substitution of inanimate for animate power (says Mr. Gordon), if not the panacea which is to cure all the evils of our condition, is at least one that comes recommended as a matter of fact—easy of operation and effectual in its result. If want of food, or, in other words, redundancy of population, be the bane of the country, it does not propose to meet that evil by a visionary project, tending in its operation to unhinge society, tedious in its process, and ending at length in bitter disappointment; but it meets the evil directly, substantially, and effectually, by the substitution of [consumers of] food. And how are all these advantages to be effected? By the substitution of inanimate for animate power. At present, the animate power employed in the commercial transportations of

this great kingdom is estimated to amount to two millions of horses. Each horse consumes as much food as is necessary for the support of eight men. Hence the conversion of its consumption to purposes of human existence would, if carried to this practical extent, amount to a quantity of food equal to support sixteen millions of people. Now, the suppression of our stage horses upon our principal thoroughfares, and of the dray horses in the great commercial towns, may be calculated to economise a saving of food equivalent to the supply of the above human beings. The reduction of farm consumption, the bugbear of the project, will be met and compensated by a steady and proportionate demand from other quarters; whilst in the United Kingdom, the 5,100,000 acres of land now required to feed the horses, together with the capital sunk in their purchase, will, when both applied to other and general purposes, amply compensate for the change. If instead of 20,000 horses we keep 20,000 fat oxen, butcher's meat will be always cheap to the operative classes, whilst the quantity of tallow will of course make candles cheap, and so many hides lower the price of leather. Or the same quantity of land may keep 30,000 cows, the milk of which will make both butter and cheese cheaper to the poor, as well as to the labouring manufacturer. The same thing may be said in favour of more sheep and woollen cloths.

"If then elemental locomotion can be made to supersede the expensive unproductive system of animate labour now in use, it will indubitably be for the vital interest of all classes of society that the substitution should be realized speedily and extensively. That steam can be so applied, has been satisfactorily proved by the report of the Committee of the House of Commons, in which it was expressed as an opinion that 'the substitution of inanimate for animate power, in draught or common roads, is one of the most important improvements in the means of internal improvement ever introduced.' " It would be needless here to particularise the evidence adduced before the committee, and I may only refer to what was said by Colonel Torrens, M. P. "With respect (says he) to the demand for labour, that demand consists of the quantity of food and raw materials which can be cheaply obtained; and, as by the supposition the displacing of horses will leave at liberty more food, and more material, the demand for labour will ultimately be greatly increased, instead of being diminished. If steam-carriages could ultimately be brought to such perfection as entirely to supersede draught-horses on the common roads (not including horses used for other commercial and for agricultural purposes), there would be food and demand for eight millions of persons. But when we take further into consideration, that lowering the expense of carriage would enable us to extend cultivation over soils which cannot now profitably be tilled, and would have the further effect of enabling us to apply, with a profit, additional portions of labour and capital to the soils already under tillage, I think it not unfair to conclude, that were elementary power on the common roads completely to supersede draught-horses, the population, wealth, and power of Great Britain, would at least be doubled. In point of fact, superseding horses by mechanical power would have precisely the same effect in increasing the population and wealth of England, as would be produced were we to increase the extent of the country, by adding thereto a new and fertile territory, equal in extent to all the land which now breeds all the horses employed upon common roads. Such addition to the extent of fertile territory in England, suddenly effected, would, in the first instance, lower the value of agricultural produce, and be injurious to the proprietors of the old portion of the territory; but no person would therefore contend, that if we would enlarge the island of Great Britain, by additional tracts of fertile land, the public interests would be injured by such enlargement. This would demonstrably ab-

surd. It is not less absurd to object to the increase of food available for human beings, by substituting mechanical power for horses."

My readers may now perhaps be satisfied with what has been said on a topic which has in various shapes already excited a good deal of controversy, and which appears to have been strangely obscured by the elaborate essays of a certain description of political economists. In my humble opinion, it requires neither books nor intricate disquisitions to elucidate those principles which govern the production and consumption of food by man. The very simple facts I have here chosen to bring undisguisedly forward, might, I think, convince every one who does not prefer the mystifications of theorists to plain sense and plain truth, that the doctrine as to the means of subsistence having a constant disposition to fall beneath the demand for food, rests on no sure foundation, is irrational in its character, and, in reality, amounts to a scandalous, though perhaps unintentional, libel on the beneficent designs of Providence.—*Chambers.*

THE COMING COMET.

According to the calculations of Astronomers, we are about to be visited by two of those wanderers called Comets. Did our limits permit, we would present our readers with a chapter on the nature and design of those Heavenly Bodies, as far as they are known, and we would show the utter absurdity of the notion, that a dangerous degree of heat may be generated on the surface of this globe, by the near approach of one of these luminaries. Very few instances have been recorded of a comet having approached so near the earth as to exercise any influence on its surface, and the few that have been so, have shown contrary results from the popular belief; the period of their nearest approach have been remarkable for the humidity of our atmosphere. Dense fogs and cloudy weather have generally intervened and prevented the observer from seeing these Luminaries when in the vicinity of the orbit of our planet, and the meteorological observations that have been made on these occasions, have generally shown a lower degree of temperature than at the periods corresponding in other years; hence inferences have been drawn by some that the flood might have been caused by a comet, approaching so near the earth, as to materially disturb the tides of the ocean by its attraction, and surcharge our atmosphere with those watery exhalations, which caused the prodigious rains so emphatically described by the Sacred Historian: "The same day were all the fountains of the Great Deep broken up, and the windows of heaven were opened."

From the reports of historians, and other observations, we select the following notices of Comets. Seneca mentions the appearance of one in the reign of Nero as large as the sun; and one which was seen in the year 1652, did not seem to be less than the moon, though it had a pale, and dummer aspect.

The first Comet of which any proper observations are recorded, appeared in the year 1472; when nearest the earth it excited great alarm, by the magnitude of its body and train: when in its *perihelion*, its velocity was so immensely accelerated, that it moved 40 degrees of a great circle in the short space of one day.