

such as they were, were for the most part impossible for the transportation of produce and merchandise. Highways were infested by freebooters and robbers, who made travelling dangerous, and who were hunted by blood-hounds kept for the purpose by the parish. So that there was but little travelling in those days; and it not unfrequently happened that people in one part of the realm were starving of hunger while those in another—and not a distant part—had enough and to spare. On the best roads—as that from Birmingham to London—transportation was slow and uncertain, costing, it is said, fifteen times as much as is now charged between the same places by rail.

London, two hundred years ago, was a little over one-third larger than St. Louis now is, and there was no other town in the kingdom larger than our Petersburg. The drainage was bad, the streets were unlighted, narrow, and filthy, so that the death-rate in London averaged 1 in 23. It is now 1 in 40. The houses were of wood, relieved here and there by a more pretentious building of badly-burned brick. The shops and stalls projected far into the narrow streets, and were overhung by balconies—as a Chinese city—so that it was often difficult and frequently impossible for two carriages to pass each other. To keep out of the way of the mud, which was splashed right and left by the vehicles, the foot passengers hugged the wall. When two gentlemen met, the timid gave way, the bold took it. If it was disputed, there was a call for "pistols for two, and coffee for one."

The shops were by no means such as they are now; and as for the commerce and wealth of the city, it has been estimated that the merchandise in London alone is now, any day in the year, worth more than that of all England was then. The nobility in the provincial towns, instead of rolling through the streets, as they now do, in their elegant carriages and fine turn-outs, were followed along the dirty streets by trains of servants in rich liveries.

The *London Gazette* and *The Observer* (neither larger than a fly-leaf) made their appearance twice a week, about this time; but though any person might print at his own risk a sermon or a poem, the courts decided that this liberty did not extend to *Gazettes*, and that by the common law of England, no man, unless authorized by the Crown, had a right to publish political news. So the people had small knowledge of what was transpiring in the world.

The post-office was a new institution, and at the end of a whole generation after its first establishment, its revenues, derived not from letters alone, but chiefly from the hire of post-horses, which at that time was a perquisite of the establishment, amounted only to £20,000 a year. There were men in those days—who, like the newspaper correspondents of the present age—made their living by writing *news letters*, and sending them to the universities and to the towns, where they were received once a week, eagerly read, and then passed from hand to hand through the neighborhood.

Edward VI. had in his parliament peers of the realm who never wrote their names, but had a mark to themselves, like Jack Cade's honest plain-dealing men.

The domestic discipline, like that of the shop and school-room, was harsh and severe: masters whipped their servants; and husbands who beat their wives did not lose caste in decent society. As soon as a boy attained the age of seven years, the father was required to furnish him with a bow and two arrows, and to practise him in the art of shooting till he attained the age of seventeen; after that, till he was sixty, he was compelled to have at least one bow and four arrows.

During the period of which I treat, the wages of farm-hands rose from 1 d. to 2d. a day; farmers in this country

—and there too—now pay forty times as much. The average price of wheat was for many years 20 cts. the bushel; and of meat 1 ct. per pound. The wages of mechanics (they *finding* themselves) were fixed by law at 6d. a day in Summer, and 5d. in Winter. One person in every five received relief from the poor-rates; it is now only one in every eighteen, and we think that enormous.

Under Henry IV., the average income of an earl was £2,000; and the expenses of the Court in 1509 (which included the entertainment of ambassadors, the wages and maintenance of the guard, servants, and the whole cost of the King's establishment) was about £14,000; not as much as many noblemen and private citizens of that country now possess, nor as much—by half—as many planters among us enjoyed before the war. The average income of a farmer in those times was between £60 and £70. There were no large manufacturing towns then; all classes wore homespun, and every farm of sixty acres was required to have at least a quarter of an acre in flax, that the women might have occupation in working it up; as for cotton, the total import from this country, in 1770, was four bales. It is almost needless to say that self-acting machinery could scarcely have been employed in the art of spinning in that day; for though Napier had invented Logarithms, steam had not yet come into play.

It is curious and instructive to mark how inventions and discoveries have a sequence, as if it were in obedience to some natural law; and that they come one after another as the world is ready for them. You could not have had ocean steamers one hundred years ago, simply because the instruments of navigation were too rude, the astronomical tables too much in error, charts too faulty, and the whole science of ship-husbandry and navigation too imperfect for the safe conduct of an ocean steamship, such as are now seen daily walking the waters of the Atlantic; and so the manufacture of textile fabrics could never have attained its present proportions, even with steam, but for Logarithms.

You know that the thread, as it is spun, passes from the spindle to the spool to be wound; and as the spool grows, it must alter its rate of revolution, so that it may always take up the thread just as fast as it is spun—no faster, else it will break—no slower, else it will tangle. Now it was one of the nicest problems in mathematics—the elements of a comet and the prediction of its return are plain sailing to it—not only to develop the formula of the winding spool, but to tell how many revolutions the spool should make in a given time at the first going off, what should be the rate of decrease till it was full, and give a mechanical expression to it all.

The tonnage of the whole kingdom was about 200,000 tons. Now the tonnage of the steamships of Liverpool alone amounts to more than ten times as much.

The trade with the American Colonies made Bristol the chief shipping port of the kingdom, but some of it was of a savage kind. Men of high position, the mayor among them, did not hesitate to engage in the business of kidnapping their fellow-subjects, and sending them over to the plantations for sale. Other ports did the same.

Nor was it possible, with the state of science at that time, to develop the mineral resources of the realm or to bring mining up to the proportions of a large industry, simply because no such thing was known to science as a force-pump: mines had to be kept clear by bone and muscle; consequently, shafts could not be sunk where the water-veins were strong, nor could the mines be very deep. Now we have well-drained mines as far down as two thousand feet below the surface; and in England there is a gallery under the ocean half a mile long, from which the sea is kept out by calking with oakum the rifts in the vein.