

# VARIOUS

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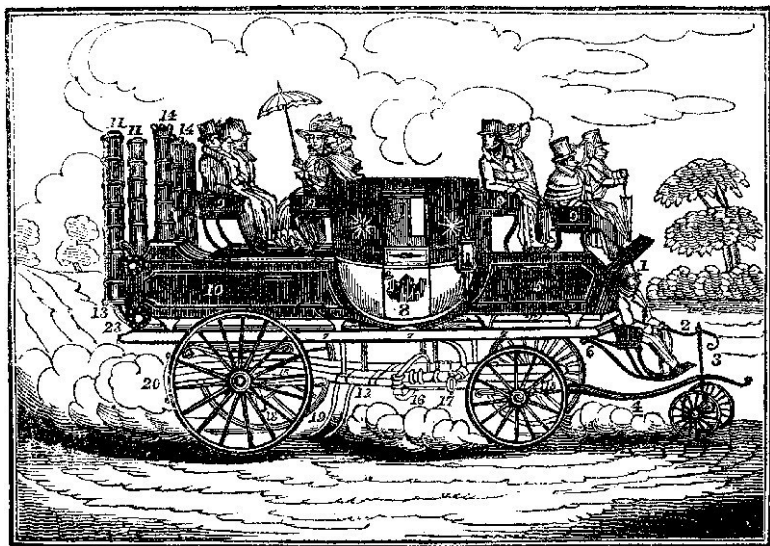
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# Содержание

HISTORICAL FACTS RELATIVE TO THE EARLY CONDITION OF THE ENGLISH	13
Конец ознакомительного фрагмента.	18

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# NEW STEAM CARRIAGE

## Explanation of the References

1. The Guide and Engineer, to whom the whole management of the machinery and conduct of the carriage is intrusted. Besides this man, a guard will be employed.

2. The handle which guides the Pole and Pilot Wheels.

3. The Pilot Wheels.

4. The Pole.

5. The Fore Boot, for luggage.

6. The "Throttle Valve" of the main steam-pipe, which, by means of the handle, is opened or closed at pleasure, the power of the steam and the progress of the carriage being thereby regulated from 1 to 10 or 20 miles per hour.

7. The Tank for Water, running from end to end, and the full breadth of the carriage; it will contain 60 gallons of water.

8. The Carriage, capable of holding six inside-passengers.

9. Outside Passengers, of which the present carriage will carry 15.

10. The Hind Boot, containing the Boiler and Furnace. The Boiler is incased with sheet-iron, and between the pipes the coke and charcoal are put, the front being closed in the

ordinary way with an iron door. The pipes extend from the cylindrical reservoir of water at the bottom to the cylindrical chamber for steam at the top, forming a succession of lines something like a horse-shoe, turned edgeways. The steam enters the "separators" through large pipes, which are observable on the Plan, and is thence conducted to its proper destination.

11. "Separators," in which the steam is separated from the water, the water descending and returning to the boiler, while the steam ascends, and is forced into the steam-pipes or main arteries of the machine.

12. The Pump, by which the water is pumped from the tank, by means of a flexible hose, to the reservoir, communicating with the boiler.

13. The Main Steam Pipe, descending from the "separators," and proceeding in a direct line under the body of the coach to the "throttle valve" (No. 6,) and thence, under the tank, to the cylinders from which the pistons work.

14. Flues of the Furnace, from which there is no smoke, coke and charcoal being used.

15. The Perches, of which there are three, conjoined, to support the machinery.

16. The Cylinders. There is one between each perch.

17. Valve Motion, admitting steam alternately to each side of the pistons.

18. Cranks, operating on the axle: at the ends of the axle are crotches (No. 21,) which, as the axle turns round, catch projecting pieces of iron on the boxes of the wheels, and

give them the rotatory motion. The hind wheels only are thus operated upon.

19. Propellers, which, as the carriage ascends a hill, are set in motion, and move like the hind legs of a horse, catching the ground, and then forcing the machine forward, increasing the rapidity of its motion, and assisting the steam power.

20. The Drag, which is applied to increase the friction on the wheel in going down a hill. This is also assisted by diminishing the pressure of the steam—or, if necessary, inverting the motion of the wheels.

21. The Clutch, by which the wheel is sent round.

22. The Safety Valve, which regulates the proper pressure of the steam in the pipe.

23. The Orifice for filling the Tank. This is done by means of a flexible hose and a funnel, and occupies but a few seconds.

Mr. Goldsworthy Gurney, whose name is already familiar to most of our readers, after a variety of experiments, during the last two years, has completed a STEAM CARRIAGE on a new principle; or, as a wag said the other day, he has at length *brought his plan to bear*. We have, accordingly, procured a drawing of this extraordinary invention, which we shall proceed to describe generally, since the letters, introduced in the annexed Engraving, with the accompanying references, will enable our readers to enter into the details of the machinery:—First, as to its *safety*, upon which point the public are most sceptical. In the present

invention, it is stated, that, even from the bursting of the boiler, there is not the most distant chance of mischief to the passengers. This boiler is tubular, constructed upon philosophical principles, and upon a plan totally distinct from any thing previously in use. Instead of being, as in ordinary cases, a large vessel closed on all sides, with the exception of the valves and steam conductors, which a high pressure or accidental defect may burst, it is composed of a succession of welded iron pipes, perhaps forty in number, screwed together in the manner of the common gas-pipes, at given distances, extending in a direct line, and in a row, at equal distances from a small reservoir of water, to the distance of about a yard and a half, and then curving over in a semi-circle of about half a yard in diameter, returning in parallel lines to the pipes beneath, to a reservoir above, thus forming a sort of inverted horse-shoe. This horse-shoe of pipes, in fact, forms the boiler, and the space between is the furnace; the whole being enclosed with sheet-iron. The advantage of this arrangement is obvious; for, while more than a sufficient quantity of steam is generated for the purposes required, the only possible accident that could happen would be, the bursting of one of these barrels, and a temporary diminution of the steam-power of one-fortieth part. The effects of the accident could, of course, only be felt within its own enclosure; and the Engineer could, in ten minutes, repair the injury, by extracting the wounded barrel, and plugging up the holes at each end; but the fact is, that such are the proofs to which these barrels are subjected, before they are used, by the

application of a steam-pressure five hundred times more than can ever be required, that the accident, trifling as it is, is scarcely possible.

A contemporary journal illustrates Mr. Gurney's invention by the following analogy:—"It will appear not a little singular that Mr. Gurney, who was educated a medical man, has actually made the construction of the human body, and of animals in general, the model of his invention. His reservoirs of steam and water, or rather '*separators*,' as they are called, and which are seen at the end of our plate, are, as it were, the heart of his steam apparatus, the lower pipes of the boiler are the arteries, and the upper pipes the veins. The water, which is the substitute for blood, is first sent from the reservoirs into the pipes—the operation of fire soon produces steam, which ascends through the pipes to the upper part of the reservoir, carrying with it a portion of water into the separators, which of course descends to the lower part, and returns to fill the pipes which have been exhausted by the evaporation of the steam—the steam above pressing it down with an elastic force, so as to keep the arteries or pipes constantly full, and preserve a regular circulation. In the centre of the *separators* are perforated steam pipes, which ascend nearly to the tops, these tops being of course closed, so as to prevent the escape of the steam. Through these pipes the steam descends with its customary force, and is conducted by one main pipe all along under the carriage to the end of the platform, which is, in point of fact, the *water tank*, where it turns under till it reaches two large

branch pipes which communicate with the cylinders, from which the pistons move and give motion to the machinery. The cranks of the axle are thus set in action, and the rotatory movement is given to the wheels. By the power thus engendered also a pump is worked, and which, by means of a flexible hose, pumps the water into the boiler, keeping the supply complete. The tank and furnace, it is calculated will hold sufficient water and fuel for one hour's consumption, the former being sixty gallons."

The vehicle resembles the ordinary stage-coaches, but is rather larger and higher. Coke or charcoal are to form the fuel, by which means smoke will be avoided; the flues will be above the level of the seated passenger, and it is calculated that the motion of the carriage will always disperse the heated rarefied air from the flues.

The present carriage would carry six inside and fifteen outside passengers, independent of the guide, who is also the engineer. In front of the coach is a very capacious boot; while behind, that which assumes the appearance of a boot is the case for the boiler and the furnace. The length of the vehicle, from end to end, is fifteen feet, and, with the pole and pilot-wheels, twenty feet. The diameter of the hind wheels is five feet; of the front wheels three feet nine inches; and of the pilot-wheels three feet. There is a treble perch, by which the machinery is supported, and beneath which two propellers, in going up a hill, may be set in motion, somewhat similar to the action of a horse's legs under similar circumstances. In descending a hill, there is a break fixed on the

hind wheel to increase the friction; but independent of this, the guide has the power of lessening the force of the steam to any extent, by means of the lever to his right hand, which operates upon, what is called the *throttle valve*, and by which he may stop the action of the steam altogether, and effect a counter vacuum in the cylinders. By this means also he regulates the rate of progress on the road, going at a pace of two miles or ten miles per hour, or even quicker if necessary. There is another lever also by which he can stop the vehicle *instanter*, and, in fact, in a moment reverse the motion of the wheels, so as to prevent accident, as is the practice with the paddles of steam-vessels. The guide, who sits in front, keeps the vehicle in its proper course, by means of the pilot-wheels acting upon the pole, like the handle of a garden-chair.

The weight of the carriage and its apparatus is estimated at 1-1/2 tons, and its wear and tear of the road, as compared with a carriage drawn by four horses, is as one to six. When the carriage is in progress the machinery is not heard, nor is there so much vibration as in an ordinary vehicle, from the superior solidity of the structure. The engine has a twelve-horse power, but may be increased to sixteen; while the actual power in use, except in ascending a hill, is but eight-horse.

The success of the present improved invention is stated to be decided; but the public will shortly have an opportunity of judging for themselves, as several experimental journeys are projected. If it should attain its anticipated perfection, the

contrivance will indeed be a proud triumph of human ingenuity, which, aided by its economy, will doubtless recommend it to universal patronage. Mr. Gurney has already secured a patent for his invention; and he has our best wishes for his permanent success.

# **HISTORICAL FACTS RELATIVE TO THE EARLY CONDITION OF THE ENGLISH**

**(For the Mirror.)**

London, in early times (King Ethelred's reign) consisted only of scattered buildings from Ludgate to Westminster, and none where the heart of the city now is; it was afterwards extended more westward and continued increasing—eastward being neglected until a more later period. Who can view its present well constructed houses, its numerous elegant squares and terraces, and its general superior appearance, without almost doubting that the inhabitants of Britain once dwelt in the most miserable habitations, regardless in every respect of comfort and cleanliness. Indeed, at an early period we seem to have been in a very wretched condition. Without carrying ourselves too far back, we will look at the state of the English about the year 1520, (Henry the Eighth's reign.) The houses were built entirely regardless of all that health and comfort could suggest. The situation of the doors and windows was never thought of, and the former only opened. The floors were made either of clay,

or sand, covered with rushes, which were very seldom removed.<sup>1</sup> Some few houses were built of stone, but generally they were composed of wood, coated over with *mud*, or cement, with straw or reed roofs. Things seem to have been in no very enviable condition during this reign. The laws were little obeyed; thefts and robbery were frequent, for "22,000 criminals are said to have been executed by the rigid justice of Henry VIII."

It is not surprising that crime should have been great in this reign, for Henry himself was not only guilty of many crimes, but patronised vice in the regular system of bull and bear-baiting, particularly on *Sundays*, about four in the afternoon, which exhibitions were attended by great crowds of persons of all classes. The accommodations of a royal establishment at this period are thus described:—"The apartments at Hampton Court had been furnished on a particular occasion, each with a candlestick, a basin, goblet and ewer of silver; yet the furniture of Henry's chamber, independent of the bed and cupboard, consisted only of a joint-stool, a pair of andirons, and a small mirror. The halls and chambers of the wealthy were replenished with a cupboard, long tables, or rather loose boards placed upon tressels, forms, a chair, and a few joint-stools. Carpets were only employed to garnish cupboards." The food in this reign appears to be in character with everything else. From a household book of the Earl of Northumberland, it appears that his family,

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<sup>1</sup> It was reckoned an extraordinary luxury for Thomas à Becket to have his parlour strewed every day with clean rushes.

during the winter, fed mostly on salt meat and salt fish, with "an appointment of 160 gallons of mustard." On flesh days through the year, *breakfast* for my lord and *lady* was a loaf of bread, two manchets, a quart of beer, a quart of wine, half a chine of mutton, or a chine of beef, boiled. The earl had only two cooks to dress victuals for more than two hundred people. Hens, chickens, and partridges, were reckoned delicacies, and were forbidden except at my lord's table.

This excessive love for eating was not, however, confined to Henry's time, for about two centuries previous to this, (Edward III.) feasting was endeavoured to be restrained by a law, though Edward himself did not follow his own law, for when his "son, Lionel, of Clarence, married Violentes, of Milant there were thirty courses, and the fragments fed 1,500 persons."

The formation of London was but tardy and very irregular until the reign of Henry VIII. at which time, some extensive buildings and improvements were made. On the other hand, building seems at length to have gone on too rapidly, and caused such alarm, that about a century after Henry's reign, a proclamation was issued by James I. after mature deliberation, forbidding all new buildings within ten miles of London; and commanding if any were built after this they should be pulled down, though no notice was taken of them for seven years.

It is somewhat singular, that though the population in these early days were but a handful in comparison to the present number, the *redundancy* of population was as bitterly

complained of as it ever has been in modern days. About thirty years after Henry's reign (Elizabeth) we learn from one Harrison, who wrote in 1577, that "a great number complain of the increase of povertie, laying the cause upon God, as though he were in fault for sending such increase of people, or want of wars that should consume them, affirming that the land was never so full. Some affirming that youth by marrying too soon do nothing to profit the countrie; but fill it full of beggars, to the hurte and utter undoing, they say, of the common wealth. The better minded doo forsake the realme for altogether, complaining of *no room to be left for them at home.*" If there was no room in Elizabeth's time, what must be our present situation? Indeed the present crowded state of the metropolis, and the general closeness of the buildings, has frequently been a subject for regret, as tending to render it unhealthy and impure; but on referring to its state, when in comparison it was but a village, the old writers state that in the city, and all round it were a great number of pits and ditches, and sloughs, which were made the receptacle of all kind of filth, dead and putrid horses, and cattle, &c. In the time of Henry VIII. many parts are described as "exceedingly foul and full of pits and sloughs, and very noisome," and some years after (1625) in a tract, the author says, "Let not carkasses of horses, dogs, cats, &c. lye rotting and poisoning the aire, as they have done in *More* and *Finsbury* Fields, and elsewhere round about the cittie. Let the ditches towards Islington, Olde-street, and towards Shoreditch and Whitechapel, be well cleansed." In another tract

published in 1665, it states, that "there are all sorts of unsavoury stenches, proceeding either from carrion, ditches, rotten dung-hills, vaults, sinks, nasty kennels, and streets, (strewed with all manner of filth) seldom cleansed." From these statements it is evident that notwithstanding all the present inconveniences that the inhabitants of London live in more healthy situations now that they are surrounded by houses, than when they were exposed to extensive open fields.

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