

FERRIES WANTED IN ENGLAND.

Americans who are accustomed, when crossing rivers, to walk into a spacious saloon, supplied all around with comfortably cushioned seats, and if in winter, warmed by steam or anthracite, or, remaining seated in a carriage, drive on board, amidst other vehicles and loaded teams, the spacious deck of a ferry boat, and having arrived at the opposite side of the river, pass on to the shore as if they had been crossing an ordinary bridge, are but little aware of how far we are in advance, in inland steam navigation, of the old countries. I therefore suspect that the following slip, cut from the *London Weekly Times*, will amuse, and very likely surprise many of your readers, as it indicates rather a disposition to ridicule the practicability of the system of ferry-boats, which, with us, have been so long in use, even before the days of steam, as they were then called "team-boats," the paddle-wheels being turned by horse power, but which, now, the English entertain an idea of as "steam-bridges."

"The Liverpool *Albion* states that some years ago a scheme was proposed for connecting the two sides of the Mersey by a tunnel, after the manner of that tunnel which passes under the Thames, a contrivance at present used as an arcade for the sale of gingerbread and children's toys. Sometime afterwards an aerial bridge was suggested, flying across from St. Georges Church to Oxton Hill. The Mersey Board has come down to a very unromantic proposal, to have a steam-bridge, by which carts and carriages can be passed across the Mersey, unloaded and unyoked. This scheme we are informed by Mr. Stewart, is not only quite practicable, but it is really a beautiful one—a term by which, we suppose, Mr. Stewart means to express that it will answer in an admirable manner the purpose for which it is designed; but it will cost about £70,000."

With the advantage of the American system of ferries, Birkenhead and Rock Ferry, on the opposite side of the Mersey, would be to Liverpool what Brooklyn and Williamsburgh are to New York, and a more liberal supply of the valuable products of Cheshire would reach the markets of Liverpool; but the ferry-boats now in use are capable of carrying passengers only, and in a very uncomfortable manner; they being exposed on an unsheltered deck, unless content to stow away in a miserable hole below; but not calculated to carry teams and cattle, there being a boat arranged especially for the latter purpose, on which the vehicles and horses are placed separately, or unyoked, and the whole process of getting them over the river, performed in a slow, awkward and expensive manner.

London, too, needs five or six good ferries over the Thames, below London Bridge, as there is no means whatever of crossing the river in this manner below that point, the tunnel being useful only for pedestrians; hence London Bridge presents almost one continual jam of teams, omnibuses, &c., whilst the same distance of river below, and still in the midst of city traffic, if measured around New York, would pass at least 10 splendid ferries.

American boats are also wanted on the Thames, for carrying passengers up and down the river, for those in use are alike rude and ill-adapted to the purpose; having no accommodations but an unsheltered, narrow deck, and being built of slim, steamship form, they draw too much water for the upper parts of the river, unless very small, and this too, where a boat properly shaped for the purpose would carry, at the rate of 15 miles an hour, five hundred bales of cotton, and as many passengers secured from any inclemency of weather, with plenty to eat and drink, and comfortable lodgings.

Englishmen don't seem to appreciate, or even understand the adaptation of boats to river navigation; it is singular, too, that so industrious and persevering a people should overlook the vast commercial advantages that would result from the introduction of such a system in their colonies, particularly the long rivers of the East Indies.—*Corr. Philadelphia Ledger*.

GASES IN WATER.

The gases which are found to exist most frequently in water are oxygen and nitrogen (but in different proportions to those which prevail in atmospheric air), the hydro-carbonic, carbonic, and hydro-sulphuric acid gases. They occur in variable proportions, dependent at times on the atmospheric pressure, at others on a countless number of local causes connected with the state or the movement of the atmosphere. Thus in the case of river waters it has been found that the quantity of air in solu-

tion is normally about 1-25th of the volume of the air itself, and that it is composed of from 31 to 32 parts of oxygen to from 68 to 69 parts of nitrogen. The proportions of air thus held in solution differ, however, in the respective seasons of the year, and they are greater when the temperature is low than when it is high. It is the oxygen which varies the most in quantity, for the nitrogen seems to be less affected by external causes, such as the solar light and heat. Spring waters invariably contain less oxygen than river waters; and in some cases the air which enters into their composition consists almost entirely of nitrogen—a circumstance which may account for the unwholesome character of some spring or well waters, and which are said to cause fever and ague. It is a common opinion that the more deep and confined the spring, the more healthy are its waters; this is not so in very many cases, but the reverse. The water which bursts from the rock, catching the oxygen as it falls into its stony basin, is generally the most healthy. The hydro-carbons so often to be found in soft waters are among the most injurious of the gases the waters are able to dissolve. They are furnished by the decomposition of vegetable and animal matters under the influence of light and heat; and the *marsh gas*, the proto-carbureted hydrogen, is the one which is given off with the greatest abundance under such circumstances. The waters again which filter through the soil around gas-pipes are very likely to take up these hydro-carbons, and it therefore becomes important to take precautions against the occurrence of any such danger in case of the supply to a well in a city.

Carbonic acid gas occurs in all waters in variable proportions, and either as free gas, or in the form of the bicarbonates of the bases. In stagnant waters it is less abundant than in those which are in movement; for it would seem that the vegetation and the animal life of the former tend to fix the carbonic acid gas at the same time that it gives rise to an elimination of oxygen. The free carbonic acid of springs is dependent upon the temperature; as this increases, so does the gas diminish in proportion. All river waters contain from 0.02 to 0.03 in volume of carbonic acid; and it becomes, therefore, an interesting subject of inquiry to explain the source of this enormous supply. In spring waters the quantity of this gas varies in a remarkable manner, whether considered in its free or in its combined state; and it has given rise to some of the most interesting phenomena connected with the chemistry of the globe. Carbonic acid in water renders it a solvent of great power, and to this agency geologists attribute many great changes which have taken place on the crust of the globe. Water charged with carbonic acid dissolves rocks, and carries them in solution from higher to lower levels, and finally deposits them in the beds of lakes and seas, either as sediment or precipitates. The rocks which are deposited from the water in which they were suspended are of every variety of clay, sand and gravel, and when compacted by great pressure become marls, shales, slates and sandstones. Many rocks which now raise their lofty heads on high once flowed in crystal streams.

SPLITTING SHEETS OF PAPER.—The *London Mechanics' Magazine* describes a mode of splitting paper so as to leave the least quantity of fiber compatible with leaving the ink undisturbed. If the sheet is sized, soak it in hydrochloric acid, much diluted with water, till the size is rendered perfectly soluble in moderately warm water; and when well washed press it gently between blotting-paper. While still damp, lay it between two sheets of smooth, firm paper, previously coated with a solution of isinglass, or other clear size on one side, press the sheets well together, and leave them till perfectly dry. Then by carefully separating the outer sheets, the middle one will be evenly ruptured or otherwise, accordingly as one sheet is bent more than the other during the process of separation.

In *Silliman's Journal of Science*, for September, Mr. David A. Wells, of Troy, N. Y., furnishes a comprehensive account of the late meteor in that neighborhood, the explosion of which was also heard distinctly throughout Berkshire county, Massachusetts, and even in parts of Connecticut and Vermont. He calculates that it was heard over an area of territory 100 miles wide, east and west, and 200 long, north and south.

A COLUMN OF INTERESTING VARIETIES.

"Patent" means *open*; "Letters Patent" are letters for the perusal of all. By Letters Patent, that is, open letters, the Queen of Great Britain grants lands, honors, and franchises. In this country the term is applied to the documents by which inventors are granted a monopoly of their inventions for a limited period; and to those by which the government conveys the public lands..... A San Francisco writer, of late date, says the following are about the rates of wages now paid: carpenters, from \$4 to \$7 per day; bricklayers and masons, from \$4 to \$6; blacksmiths, wheelwrights, machinists, painters, tinsmiths, from \$3 to \$4½; common laborers, \$3; farm hands, from \$30 to \$40 per month, and found; servants, from \$25 to \$40 per month, and found; cooks, from \$30 to \$60..... Some idea may be formed of the enormous sums of money expended in the purchase of pictures by the wealthier classes in England, from the fact that the collection of the late Lord Northwick has produced no less than £95,725. The sale extended over 18 days, and was attended by dealers from all parts of the world. The picture of the "Birth of Jupiter" which cost his lordship £80, was knocked down at £1,000. The picture of "St. John," by Carlo Dolce, from the Lucien Bonaparte Gallery, was knocked down for the sum of 2,010 guineas..... A new kind of bread, known as the "aerated bread," is now made in London, in the manufacture of which no fermentation is used. The process consists in forcing ready-prepared carbonic acid, by means of suitable machinery, into the water with which the dough is prepared, then mixing the flour, water and salt together in a highly condensed atmosphere. From the mixing-apparatus the dough is received in the baking-pans, and passed into the ovens without being touched by the hands. By this means the constituency of the flour is left both unchanged and uncontaminated, the loaf being absolutely pure bread..... James VI, of Scotland, was James I, of England. It was during his reign (in 1607) that the first permanent settlement was made in the United States, at Jamestown, in Virginia..... A very able writer in the last *London Quarterly Review*, after discussing the whole subject in a very intelligent manner, deliberately comes to the conclusion that if the French should invade England with 150,000 or 200,000 men, the whole military power of Great Britain could not prevent the taking of London. His principal recommendation is the adoption of the militia system of the United States. And yet the "London Quarterly" is the publication that talks about "the vulgar democracy of America," and thinks republics always were failures and, in the nature of things, always must be failures in every respect..... Tobacco-growing in California is commanding attention. The stalks are about seven feet high and the leaves finely developed. The plants are growing as an experiment and certainly a mere superb growth was never produced..... The Ordnance Bureau of the United States Navy Department has lately ordered 500 Joslyn's breech-loading fire-arms, and 900 Sharpe's rifles..... If any of our country readers who have occasion to kill a sheep or other animal, will cut open the heart carefully, they will find the valves arranged with wonderful and beautiful ingenuity..... 27 pounds of prussic acid consist of 14 pounds of nitrogen, 12 pounds of carbon, and 1 pound of hydrogen..... The interior of the earth is one mass of molten matter; it is estimated that the thickness of the hardened crust on the outside bears no larger proportion to the whole mass than the thickness of an egg-shell does to the mass of the egg..... Several of the stars which we see in the sky are shown by the telescope to be double stars, revolving about each other..... As a general rule in this part of the country, when a cobble-stone or boulder is found, if we travel in a north-easterly direction, we shall come to a ledge of similar stone, from which no doubt the boulder was broken..... The side wheels of the *Great Eastern* are driven by four engines, two on each crank, and the two cranks are connected by a friction clutch..... The English Patent Office had a surplus revenue above its expenses in 1858 of £7,814. 11. 2..... An explosion occurred at a percussion-cap manufactory in England, on the 28th of July, by which the woman engaged in mixing the fulminating powder was blown into so many small pieces that no fragment of her remains larger than a person's hand could be found..... The height of the Washington Monument is to be 600 feet.