tem, there are employed at the works we visited, a powerful steam-engine, intricate machinery, a gas generator, and a gasometer. The gas here made, however, is a very distant relation of the noxious vapour which is prisoned up in the great round cylinders of the gas works, and to the escape of which we have such an aversion. It is indeed that pure body which, present in all spring and well water, gives it its sparkling character, which we wire up in our bottles of soda water, and which, liberated from its crystal captivity, causes such water to dance and frisk with effervescent freshness. It is called carbonic acid gas; and this, with the flour of wheat, a little salt and fresh water duly mingled by machinery in manner following, yields the bread of which we speak.

From the yard, containing these miniature gas-works, we pass into the bread-room; and here our attention is first called to a huge machine rising to the height of twenty feet, perhaps, looking very ponderous and powerful for so peaceful a purpose. This is an "aerating" machine, and is intended to accomplish all that has hitherto been done by the tedious process of fermentation. Resting on a heavy metal frame-work, and about ten feet from the ground, is a large iron globe, three feet in diameter. Its appearance is that of a huge bomb-shell. It is in this globe that the dough is made. Within it is a sort of paddle-wheel moved by heavy gearing outside, which acts in place of human hands, and is termed the "mixer." Round the globe is a stage or gallery for the use of the baker's man, and rising from it to a considerable height is a pillar which contains the water.

When operations commence, the air-tight cover is pushed off the iron globe, and the mouth of a canvas bag descending from the ceiling being untied, a whole sack of flour is allowed to fall into this cavernous receptacle. On goes the cover, and so far the shell is charged. But flour lies loosely, and the globe is not quite full, therefore there is present a good deal of air, which must be disposed of. An ejectment is accordingly served on it by the force-pump, and we have a perfect vacuum.

The gas which we saw making at first, is next about to be used. Our floury demonstrator "turns it on," and we are told that it is streaming into the globe, and taking possession of the space from which the common atmospheric air was so forcibly ejected by the pump. And now, though we cannot peer into the mysterious depths of the iron shell, we know that at the bottom lies the flour, and at the top a quantity of highly condensed gas. Another cock is turned on, and water, frisky and brilliant, rushes in. It has become fresh and dancing by the passage of the gas through it when in the pillar. It is soda water without the brackish mineral taste, or the water which wells up from the sand and rocks under the influence of a laughing gas, which makes it tumble and leap in beautiful brilliancy. It is such water which now bounds into the globe amongst the flour and gas; round go the arms of the mixer, as plash, plash go the blades of the steamboat wheel; and flour, salt, water, and carbonic acid gas lose their identity and become dough.

We wait eight minutes, listening to the whirr of wheels and hands on every side, and then descend from the gallery to see the dough drawn from the globe. A spout is opened at the bottom; light and spongy it comes forth, and is caught in moulds of the shape of the future loaf. In twenty minutes the whole sack of flour has thus been drawn off.

This is the working of Dr. Dauglish's patent. He aims at the abolition of the fermenting process by at once introducing into the dough, and forcing throughout it, the pure gas, instead of engendering it by yeast and working it in by kneading.

We must not, however, leave the loaf in incipiency while we discuss the patent; so a word or two on ovens. There have been a considerable variety. The kind employed here, and at most wholesale bakeries, is called a "traveller," and a very unwearying traveller it is. The floor is composed of iron plates hinged together, and forming an endless band, traversing on rollers, arranged to move at a pace which admits of the nicest regulation. The dough which has issued from the globe is caught in moulds by boys, and passed to others who stand at the mouth of the oven. The tins are placed on the moving plate, and immediately commence a slow journey through this tropical region. The ovens are about twenty feet from end to end, and the exit is in another room from the entrance or mouth. After an hour's journey over this scorching desert, the loaves arrive in parties, like overland passengers, considerably burned and regularly baked, and drop into baskets, to be hoisted away to another department.

We forbear to express any opinion on the bread thus manufactured, but may say that the principle is a beautiful application of chemistry to common things. As a system it is very interesting. It will gratify all who require to see science employed for the weal of mankind. Too often her large resources are not well applied, and not unfrequently her sons dig into her depths and soar her heights but to gratify curiosity. It is well, then, to note any instance where the wonderful knowledge of man is made to minister to the welfare of the race.

OLD MODES OF ADVERTISING.

We had the curiosity the other day to tot up the total of the advertisements contained in a single number of the "Times," with its double supplement, and found them to amount to little short of 2000. This suggestive fact set us speculating on the possible means by which people in old days, when there was no "Times" or any medium of that sort, made their communications to the public. Admitting that the desire of publicity has grown prodigiously with the means of obtaining it, there must always have been the desire, and some contrivances or other for gratifying it. In towns and cities, and wherever communities dwell together, the thing could be done by the blowing of ram's horns or the blast of a trumpet, and by *vivâ voce* appeals to the multitude thus assembled; but where population was sparse and scattered, however great the necessity for communication, such a plan would not do. Hence

arose the establishment of methods of signalling, which took various forms, such as mounds, beacons, the barking or burning of trees, the marking and inscribing of rocks, the erection of rude pillars in sandy deserts, or the arrangement of the bleached bones of animals—each and all of which were made by the traveller to impart some kind of intelligence to those who should follow in his track. Some of these primitive modes of advertising are in use even now. The arctic explorer, and the Hudson's Bay trapper, rears a cairn of stones for the guidance of his fellows; and if it is to secrete a written communication, he constructs it in a peculiar way, by which the next comer knows of the missive within. The American settler in the dense forest, where there is no trace of human footstep, barks the trees at intervals, and thus guides himself or the stranger to his dwelling: even at home, the gipsy and the tramp have their advertising hieroglyphics, by which your liberality or your want of it, your inexperience or your knowledge of the world, are stamped on the lintels of your door, the rails of your gate, or the stone steps that lead up to it; and thus it comes to pass that if you are particularly humane and generous to the vagabond classes, you are sure to have enough of them demanding assistance.

A characteristic mode of advertising prevailed some centuries back among the Highlanders. When the chief of a clan wanted to summon his tribe to battle, a messenger was despatched with a burning brand, one end of which had been dipped in blood; and he was expected to arrive at his destination with the brand still glowing. To this day the people in Norway are called together for the despatch of public business, in a somewhat similar manner. A bud-stick, or message-stick, of the size and shape of our constable's baton, is painted and stamped with the royal arms, and made hollow, with a head to screw on at one end, and an iron spike at the other. The official notice to meet, the time, place, and object, are written on a piece of paper, which is rolled up and placed in the hollow. This is delivered from the public office, a court-house of the district, to the nearest householder, who is bound by law to carry it within a certain time to his nearest neighbour, who must transmit it to the next, and so on. In the case of two houses equally distant, it must be previously determined at which he shall deliver it. If the owner is not at home, he is to stick it "in the house-father's great chair by the fire-side," and, if the door be locked, must fasten it to the outside. Each is bound to prove, if required, at what hour he received, delivered, or stuck it. He who by his neglect has prevented others from receiving the notice in time to attend the meeting, pays a fine for each person he has caused to be absent. There are fixed stations at which the bud-stick rests for the night, and it must not be carried after sunset or before sunrise. The householder to whom it comes last takes it back to the office. "In a country so extensive," says Mr. Laing, "with a population scattered in valleys, divided by uninhabited fields, and with few paths of communication, this primitive sort of gazette is the most expeditious mode of publication."

Analogous to the bud-stick of the Norwegians, although it was a secret rather than a public mode of advertising, was the circulation of *chupatties* (small cakes) and lotus-flowers, throughout the whole peninsula of India, previous to the outbreak of the late rebellion, and which were doubtless the signal to the Sepoy regiments for a general uprising. The mystery of the chupatties has never been thoroughly fathomed.

Some few years ago a friend of the writer, returning from a visit to the Cape of Good Hope, had the opportunity unexpectedly presented of visiting, for a few hours only, the capital of the free republic of Liberia. He found the black citizens in a state of excitement at the reception of important news from Europe, which they were receiving through a rather singular medium, but which was yet the only one applicable to their condition. As they had no press, and the single newspaper could not be generally circulated, they had fixed large boards in the market-place, above the heads of the people, upon which boards an official was chalking down in great letters the most important items of intelligence. As few of the adults could read, and many of them knew nothing of English, the several items had to be read and translated for them by their wiser companions, and it took a considerable time before even a brief announcement was fully mastered by the crowd. When that was accomplished, the board was spunged and inscribed again; and so on to the end, which our informant could not stay to witness, having to return to the vessel. It must have required a considerable period thus to distil the contents of even a single "Times."

Among ourselves, the most ancient medium of advertising now extant is, without doubt, the town crier; his origin dates back prior to the Conquest, and it is likely that, though he may not have rung his bell, he blew his trumpet, and sang forth his proclamations in the days when Britain was a Roman province. Though he has long vanished from London, driven away by the arts of the bill-sticker and the cheap printer, he yet survives in country places; and in those smaller towns and villages where the printer has not condescended to settle, he is still not only the medium but the monarch of publicity. Being appointed by the corporation, he not unfrequently exercises some other municipal function or functions besides that of bellman. We have known him in some instances, where the lieges were not very numerous, to be watchman, constable, road-surveyor, parish beadle, and even lamplighter to boot—all in addition to his monopoly of the crier's bell; though, as a pluralist, he is by no means such a dignified personage as when he is only the bellman to a pretty warm corporation in a town where his services are in frequent demand. Notwithstanding he is such a piece of antiquity, it is likely that he will survive many novelties yet unborn, because he adapts himself to the exigencies of the moment, and does what is to be done on the instant—proclaiming with equal mind the loss of my lady's diamond necklace, or the arrival of a grand catch of sprats, now selling on the beach at three-halfpence a pound—God save the Queen!