## *THE TUNNEL UNDER THE ENGLISH CHANNEL.*

The London *News* says: "At Sangatte, near Calais, shafts are being driven downward to the depth of 100 metres below the sea, in order practically to test the possibility of the above gigantic undertaking. More than a year ago we reviewed at some length the plans of the proposed subway, and on Jan. 22, 1875, a carefully-prepared chart, showing the locality of and the course to be taken by the tunnel, appeared in the *Daily News*. At that time the scheme deserved only to be examined theoretically; but now that the preliminary works have been commenced, the chances of the completed tunnel becoming, as its promoters expect it will become, the way, *par excellence*, between England and the Continent, become practically interesting. Capt. Hotham, her Majesty's Consul at Calais, in his report for the year 1873, remarked that he had great confidence that a submarine way would eventually be constructed. 'In which case,' he added, 'the question as to the best kind of vessel to be employed will be set at rest, and breakwaters, dredging machines, narrow harbors, floating sands, and *id genus omne* will be things of the past, as far at least as the international communication in this channel is concerned.' Here we have a reminder of the difficulties that at present beset the maintenance of speedy and regular communication between England and France, and, at the first blush, it seems to be beyond a doubt that if the tunnel can be satisfactorily completed, it must take to itself much of the traffic that now passes over the old routes. But it must be remembered that the character of the old routes is somewhat altered by a Castalia, and that the class of vessels soon to be built will be able to travel almost as fast as a railway train, and almost as steadily as a Pullman car. If the Castalia is improved upon, the problem of international transit must resolve itself into a fairly-matched struggle for supremacy between open-air and submarine travelling. The two methods will be about equally fatiguing and of nearly equal duration, and, as far as passengers are concerned, the question in five years' time will be one of preference simply. To severe critics of the tunnel project it does not appear probable that a healthy traveller should prefer to journey in a tunnel when he can progress as surely and with greater comfort in the open air. It does not seem to them likely that a man whose wish is to go from Dover to Calais should care to travel in a hot carriage through some thirty miles of damp, close atmosphere, when close to the pier, as he starts, is a vessel that will not roll, that will carry him as speedily as the train, and that will not confine him and poison his lungs with carbonic acid gas. But to those critics the horrors of sea-sickness are evidently unknown. As regards speed, the two routes, we may allow, would be very nearly equal; and as regards comfort, the sea route would to many carry the palm. The average length of sea-passage between Dover and Calais, even at present, is under an hour and a-half, and a train on slippery rails in a tunnel, six miles of which has an upward gradient of one in eighty, could scarcely perform the distance in much less time. To good sailors, a steady vessel would be superior to a railway carriage in a burrow thirty miles in length, and as to cheapness, the Channel Tunnel, in order to be a success, will have to pay interest upon £8,000,000, at the very lowest estimate, and, almost certainly, upon a good deal more, and consequently the tariff would be high. If the tunnel monopolized even as much as half the actual passenger traffic from England to the Continent, and *vice versa*, would the results be particularly favorable? At the present time about 400,000 persons travel annually across the Channel, and at 10s. per head, half of these would only give a gross passenger revenue of £10,000. An official statement, printed for the Channel Tunnel Company, after dealing hopefully with the statistics relating to passenger traffic, adds:

"'As to goods, the receipts would no doubt be very important. London is the seaport of all the world, receiving and sending forth enormous quantities of all kinds of goods In regard to many articles of merchandise, and in a great many cases, it will be more advantageous to transport them by railway through the tunnel than to ship and unship them. No doubt the goods on which the higher freights are paid, and which now go through the ports of Boulogne, Calais, Dunkerque, Ostend, and Dieppe, to or from England, would go through the tunnel. This alone would be a heavy traffic. The quantity of goods passing between England and the Continent through those ports is enormous. It does not consist solely of fancy goods and manufactured articles, but also of grain, wine, fruit, vegetables, and dairy produce. For many of these things the cheapness of water carriage would be more than counterbalanced by speed of transport, certainty, and even decreased cost of packing.'

"This train of reasoning doubtless contains the secret by which the tunnel is to be made to pay, if it does pay, fair interest upon £8,000,000 of capital. But the question arises, whether it would be worth the extra expense to send any of the goods specified, except fruit, vegetables, and, perhaps, dairy produce, via the tunnel? And would the fruit, vegetables, and dairy produce, even combined with the two hundred thousand passengers, bring in sufficient to pay the working expenses, and the necessary dividends? Considering the enormous sums that must be sunk before the Channel Tunnel can earn a penny, these few considerations should be attentively regarded. While admiring the pluck that suggests the enterprise, and the devotion that animates the promoters, and particularly the engineers, of the work—nay, even while supporting the undertaking as a monument of ingenuity and resource, we hold back from expressing any decided opinion, as to whether the work will ever pay—as to whether, in short, a satisfactory proportion of the eight millions invested, or to be invested, will be returned in the form of dividends."

***A New Ventilating Apparatus*** was exhibited at the recent show of the Royal Agriculture Society, invented by Mr. C. S. Hall for a special purpose, by passing noxious gases, vapors, and fumes to the chimney, or furnace, or condenser for decomposition. A Baker blower is placed on the roof, a jet of air is forced through into a large tube which connects with the chamber below, and by induction takes up and carries to the condenser without passing through the blower.

## USEFUL RECIPES FOR THE HOME AND SHOP.

GOLDEN VARNISH.—Pulverize 1 drachm of saffron and ½ a drachm of dragon's blood, and put them into one pint of spirits of wine. Add 2 ounces of gum shellac and 2 drachms of Soccotrine aloes. Dissolve the whole by gentle heat. Yellow painted work, varnised with this mixture, will appear almost equal to gold.

BRONZE ORNAMENTS.—First varnish the work to be bronzed, and allow it to dry until it is "tacky," then lay on the pattern (which should be cut in good foolscap paper,) and apply the bronze (dry) by means of a small velvet cushion; allow the coat to become thoroughly dry, and then varnish again.

QUICKLY DRYING GLUE.—Put your glue into a bottle two-thirds full, fill up with common whiskey, cork tightly, and set it by for two or three days; it will dissolve without the application of heat, and will keep for years.