desert, the Nile being again reached at a distance of about 70 miles from the commencement at Wady Halfa. Again the line leaves the river for a few miles, owing to the natural obstacles of the ground, but touches it again at Songle, near the foot of a lofty mountain, which forms a conspicuous feature in the landscape. The 4 or 5 miles south of Songle constitute probably the most difficult section of the whole line. Along the river huge irregular masses of granite and porphyry oppose almost insurmountable obstacles, whilst the ground about a mile and a half to the east is broken up by deep ravines and the winding channels of the numerous Wadys cut out by the waters in finding an entrance to the river from the desert plateau. To follow the river bank would involve considerable tunnelling through the rocky spurs, so that the irregular ground between the river and the mountain ranges beyond was selected. In this length there will be about half a mile of cutting, not exceeding 17 feet deep as a maximum, and most of it through a hard rock. This is probably the heaviest cutting on the whole line. After this section of 5 miles the line again reaches the river, and runs for 17 or 18 miles over good ground with easy gradients and good curves. At the end of this distance, however, the ground beside the river is again too difficult to follow, and the line, therefore, turns inland for 25 miles, returning to the Nile at the village of Ferket This last 25 miles passes through the Akasha desert, covered with granitic and white quartz rocks. At Ferket, however, the formation changes, trap and metamorphic rocks taking the place of the granite which is rarely met with unless covered with gneiss or schist.

Regaining the river at a point about 115 miles from the commencement of the line, easy ground along the bank is found for 10 to 11 miles, then a bend in the river is avoided and the village of Amara is reached. A station to accommodate this district, which is extensively cultivated, will be provided; and beyond the line winds in and out between volcanic rocks and irregular cliffs, containing traces of sandstone in many places, for about 20 miles. Beyond here to Kohe a low stretch of land, varying in width from 1¼ to 6 miles, lies between the river and the hills, and across this the line will be taken in a straight line, and with works of the lightest description.

The nature of the ground between Wady Halfa and Kohé being as we have described it, the direction of the line is necessarily irregular and involves the adoption of steep gradients, combined with sharp curves. Consequently the works upon the line will be comparatively heavy. The embankment contains altogether some 2,300,000 cubic yards, and the cuttings, which have been avoided as far as possible, about one-thirtieth of this quantity; the material to be dealt with being hard, soft, and medium quartz rock, and light material, in about equal proportion. The culverts are numerous but not large; the total quantity of masonry being about 30,000 cubic yards, the largest work consisting of thirteen openings of 22 feet each in an embankment about 35 feet high.

Quicksilver at the Vienna Exhibition.—In the pavilion of the Ministry of Agriculture, erected on the Exhibition Place, which contains highly interesting collections, a floating cannon ball may be seen. Although weighing 50 lbs. it lies like a down feather on a splendid silvery mass, consisting of pure quicksilver from the celebrated mines of Idria. 150 cwt. of this metal is exhibited in a large iron caldron, offering a sight seldom to be met with, and on it rests the solid iron ball. It was interesting to observe the emptying of the quicksilver into its receptacle. The metal is very cleverly stowed away in bags of white sheep leather, specially prepared for the purpose, each containing 50 lbs. of the mass, the bags being tightly bound round the top, and then put into small wooden barrels, carefully bunged up. Formerly, this liquid metal, which penetrates easily all porous substances, was transmitted in wrought-iron bottles of very expensive make. A gentleman, in testing the resistance of the metal, had to use some force in inserting the hand into the mass; but how great was his surprise when, withdrawing his hand, he found that two gold rings he wore had been changed to silver.

According to T. Griessmayer one part of a solution of bisulphite of lime, sp. gr. 1.06, to 1000 parts of beer prevents the beer from turning sour.

PERFUMES.

From the Middle Ages up to the last century, musk, civit, ambergris, and lavender sum up the best known and most popular perfumes. It is only of comparatively quite late years that the art has made so much progress, and been enriched by so many new ingredients as we find at present. Nevertheless, and in spite of all additions, the base of European flower scents is contained in six flowers only, namely, orange flowers, roses, jasmines, violets, acacia, and tuberoses. Others that have been tried are found of small use, and their special odour is best given by imitative compounds: as heliotrope is imitated by vanilla dashed with almonds, and so on. And to these six bases add geranium, lavender, rosemary, thyme, and some other aromatic herbs—the last three growing chiefly on the mountains round Grasse, Nice, and Cannes, which are the principal European centers for the manufacture of perfumes—add also the peel of bitter oranges, of which the fruit goes to make curacoa; the peel of citrons and bergamots, of which the fruit goes to feed the cows of the district, and is good for the milk; add musk, sandal-wood, ambergris, and gum benjamin; of later days add the leaves of the patchouli (pogostemon patchouli, one of the labiatæ) from India; winter-green (gualtheria procumbens) from the United States; various of the andropagons, which we call goat's-beard in our own wild flowers, from Ceylon; ihlang-ihlang (unona odoratissima), one of the anonaceæ from the Philippine Islands; vanda (aerides suaveo-lens, an orchid) chiefly from Java, but from other places too in the Indian Archipelago; frangipanni (plumeria alba, one of the apocynaceæ) from both the East and West Indies—and we have some of the principal sources whence our scent bottles are filled, and the delicate soaps and pomades perfumed. But still, wheresoever the material is to be found, the French always remain the greatest producers; and, save as regards a few exceptional perfumes—as attar-gul for one, and eau-de-cologne for another—are the best manufacturers of the sweet scents which pervade the world.

They do an immense trade in perfumery, and England is their best customer, as Russia is their worst. England took, in 1867, when this table was drawn up, 424,500 kilogrammes of perfumery, valued at 2,546,000 francs; Russia only 13,300 kilogrammes, at the value of 79,800 francs. After England comes Brazil, then Belgium, and then Spanish America; but even Brazil does very little more than half the English trade, and Spanish America less than half. The United States took 57,400 kilogrammes, valued at 344,400 francs; and Austria only 14,000 kilogrammes, paying for them 87,600 francs. Germany, in spite of her own especial industry at Cologne, took 107,800 kilogrammes, spending 646,800 francs on her purchase; but it would be interesting to know what amount of her own perfume she exports, and which of her numberless Jean Marie Farinas has the largest clientele. England does a good trade in her own indigenous lavender water; but by far the greatest proportion is exported; perfumes, like prophets, not having much honour in their own country—all that is foreign being instinctively preferred to what is home-bred, and the question of comparative excellence counting for nothing in the choice.—*All the Year Round.*

Fruit in Tin Cans.—The Boston *Journal of Chemistry* says: The impression prevails among those who use freely fruits which are put up in tin cans, that they are injured thereby, and this impression is, in many cases, correct. We have long contended that all preserved fruits and vegetables should be stored in glass, and that no metal of any kind should be brought in contact with them. All fruits contain more or less of vegetable acids, and others that are highly corrosive, are often formed by fermentation, and the metallic vessels are considerably acted upon. Tin cans are held together by solder, an alloy into which lead enters largely. This metal is easily corroded by vegetable acids, and poisonous salts are formed. Undoubtedly, many persons are greatly injured by eating tomatoes, peaches, etc, which have been placed in tin cans, and we advise all our friends who contemplate putting up fruits the coming summer, to use only glass jars for the purpose.