

### Arts and Manufactures.

#### IMPROVEMENTS IN MANUFACTURE AND USE OF COAL GAS.

The production of coal gas, which was originally a simple mechanical operation for the "distillation of coal," is becoming more and more a precise process requiring chemical knowledge. It is well known that the richer coal gas is in hydro-carbons the more brilliant will be the flame produced by its combustion. An English clergyman has invented an apparatus to increase the illuminating power of inferior coal gas, which has been applied with success in the city of London. The means employed is to introduce carburetted hydrogens, rich in carbon, into the flame, and the apparatus consists of a gas-tight metallic vessel in which they are held, and which has an inlet connected with a gas supply, and an outlet connected with the burner. The gas in its course passes over the heated hydro-carbons which are carried along with it in vapour and greatly enrich the flame. By adding 31½ grains of naphthalin vapour to each foot of gas, the light-giving value is raised to between seven and eight candles per foot. A gallon of oil, sold retail for 50 cents, is capable of producing, with 1000 feet of London gas, more light than is given by 4000 feet of gas, or \$1.10 and 50 cts. against \$1.50 gas alone. These are London prices. In Halifax the difference in favor of the new process would, no doubt, be more considerable.

Within the last few years gas has come into use extensively as a source of heat as well as light. Recent improvements have enabled it to be employed with great success and economy in glass works, potteries, iron forges, and other manufactories which used to be a nuisance on account of the black smoke they produced. In this way waste coal may be used up in a most economical manner.

**ALLOYS OF MANGANESE.**—In Germany M. E. Prieger has commercially prepared alloys of manganese with iron or copper possessing valuable properties, and the applications of which are constantly improving in number and utility. To prepare the alloys of iron and manganese (ferro manganese) he made a mixture of pulverised oxide of manganese, charcoal dust (corresponding in quantity to the oxygen of the oxide) and of metallic iron sufficiently broken up, such as minute grains of cast-iron filings, or turnings of iron or steel, &c.; the mixture was put into a graphite crucible, which would hold from 30 lbs. to 50 lbs., and covered with a coating of charcoal dust, sea salt, &c., then heated for a few hours at a white heat. After cooling there was at the bottom of the crucible a metallic

homogeneous mass, containing but very insignificant quantities of foreign bodies. Of these alloys the most important are those containing 2 equivalents of manganese to 1 of iron, and 4 equivalents of manganese to 1 of iron, and corresponding to 66.3 per cent., and 79.7 per cent. of manganese. Both are harder than tempered steel; they are capable of receiving a very high polish, they melt at red heat, and can be easily poured; they do not oxidise in the air, and even in water only superficially; their white colour is of a shade between steel and silver. Alloys of copper and manganese are similarly obtained; they resemble bronze, but are much harder and more durable. Alloys of tin are very fusible, durable, and easy to work; in colour and brilliancy they may be compared to silver. The iron and manganese alloy furnishes a very simple means of adding to iron or steel a given amount of manganese; by the addition of from 1-10 to 5 per cent. very satisfactory results are obtained.—*Chemical News.*

### Miscellaneous.

#### DOMESTIC RECEIPTS.

(Selected from various sources.)

**NEW ENGLAND CHOWDER.**—Have a good haddock, cod, or any other solid fish; cut it in pieces three inches square; put a pound of fat salt pork into the pot, set it on the hot coals and fry out the oil; take out the pork and put in a layer of fish, over that a layer of onions, and so on alternately until your fish is consumed; mix some flour with as much water as will fill the pot; season with black pepper and salt, to your taste, and boil it for half an hour. Have ready some crackers soaked in water till they are a little softened; throw them into your chowder five minutes before you take it up. Serve in a tureen.

**TOMATO SAUCE.**—Mrs. G. Dowdeswell, begs to mention a very simple mode adopted by herself for some years past, by which she can have tomato sauce prepared by the cook as required, fresh at any time. The tomatoes are gathered perfectly ripe, free from cracks or bruises, and are gently wiped with a soft cloth, and placed in a wide-mouthed jar. Some vinegar, having been boiled and allowed to stand until cold, is then poured over them, sufficient being used to entirely cover them. The jar is then covered with wetted bladder, and the tomatoes keep perfectly fresh and good until those of the following season come in. The peasantry in the south of France keep the tomatoes in this simple manner. Their mode of making sauce Mrs. Dowdeswell, unfortunately, has not perfectly; but the toma-

atoes in the manner described, can be made as required into sauce by any cook.

**TURNIPS.**—Peel them, and boil in plenty of water, in which has been put some salt; boil till tender, and serve either whole or mashed.

**CARROT.**—This root varies quite as much as the potato; some are quickly done, even in twenty minutes, and some require two hours. They should be scraped, and boiled in water and salt; serve out in quarters lengthways.

**EGGS AND SAUSAGES.**—Boil four sausages for five minutes; when half cold cut them in half lengthways, put a little butter or fat in the frying pan, and put the sausages in and fry gently; break four eggs into the pan, cook gently and serve.

**SWEET CIDER.**—A. M. Ward, Hartford Co., Conn., writes; "After years of 'fussing' with cider to 'make it good' I have this season found the short road to perfection. Took cider direct from the press, heated nearly to a scald over the fire, returned it to a barrel, and have made daily use of it with great satisfaction."—*American Agriculturist.*

**PRICES OF CATTLE KEPT UP.**—A lot of frozen mutton has been sent to Liverpool as an experiment; also a sample of fresh beef. Little is doing in the Corn Exchange. Hucksters are on a strike and have shut their shops, owing to the law preventing their purchasing country produce before eleven o'clock.—*Canada Pap.*

**SHEEP STOCK BOOK.**—The editor of the *Agricultural Gazette*, after referring to the great benefits derived from the stud book and herd books in England, deploras the want of a sheep stock book. Here is a worthy object for the contributions of the wealthy, and for the surplus funds of agricultural societies.

### TO CORRESPONDENTS.

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