

6. For the manufacture of artificial honey. This is neatly put up in glass jars containing a small piece of genuine honey comb.

7. In the manufacture of vinegar.

8. In the manufacture of liquor-coloring, used in mixing liquors and making artificial liquors.

9. Other more limited applications; in the manufacture of wine; by the baker in making cakes; in cooking; in the preparation of sauces; as an addition to some canned meats, especially corned beef; in the preparation of chewing tobacco; in the manufacture of printers' rollers, and in the manufacture of some kinds of inks.

ICE AND COLD AIR MADE BY MACHINERY.

The proprietors of a great up-town hotel in New York, have thrown off the yoke of the despotic iceman. A large refrigerating plant on a novel principle makes it "a cold day" for the contents of the numerous refrigerators, while the contents no longer possess that unpleasant moistness which the proximity of melting ice induces. The guest with scientific tendencies is not now able to discover fossils dating from the glacial epoch in his ice water, for the ice is frozen from pure water in a carafe or glass decanter, holding about a quart and especially designed for this purpose.

The plant is designed to run on the absorption principle with certain improvements on the Carré machine which materially increase the economy. Although machines of this description have been in the European market for a year and have been introduced with success in India and Australia, this is the first one built in America. The principle of operation is familiar to all those acquainted with the Carré machine. In the generator is a quantity of ammonium hydrate, familiarly known as spirits of hartshorn. Through a coil of pipe in the generator, steam at a pressure of fifty-four pounds is passed. This is sufficient to evaporate the pure ammonia from the liquid into gaseous form. This gas is permitted to flow into a cooler where it surrounds a coil of pipes containing brine which is caused to circulate through this coil and those in the refrigerating closets. The ammonia gas absorbs a large part of the heat from this brine by expanding in the cooler. The brine thus serves as a conveyor of the heat absorbed from the refrigerating closets and their contents to the cooler, where the heat is in turn absorbed by the ammonia gas. After passing through the cooler the gas goes into a third vessel called the absorber, into which the "weak water," left after evaporation in the generator has been allowed to flow. This water being cooled by radiation, absorbs the ammonia gas and forms ammonium hydrate which is pumped back into the generator and the process is repeated.

This is essentially the method employed in the Carré machine. The main novelty and improvement of the apparatus described is in this, that after leaving the absorber, the ammonium hydrate is not returned directly to the generator, but is passed through a cylinder containing perforated trays. The mechanical action of these trays upon the liquid as it passes through them frees about 75 per cent. of the ammonia gas, which is used directly in the cooler; while only the remaining 25 per cent. has to be evaporated in the generator. The plant described was put in at a cost of about \$10,000. It requires about 500 pounds of coal a day, and will produce ten tons of ice for every ton of coal consumed.

THE FUEL OF THE FUTURE.

That the gas for heating purposes will eventually drive all other combustibles out of the field in Pittsburg is inevitable. Already the consumption of gas, instead of coal, is enormous. It is estimated that from 15,000,000 to 20,000,000 cubic feet of gas is burned each day in Pittsburg as fuel. Already ten iron and steel mills in the city, and six in other parts of western Pennsylvania are using it in their puddling furnaces and under their boilers. Within three months a dozen more mills will have it in operation, and every other manufacturing firm is eagerly awaiting the completion of the various pipe lines. Six glass factories in the city, and seven in near towns are using it. Every brewery in the city uses it, instead of coal. There has not yet been enough gas to spare for domestic purposes, and only a few dwellings, comparatively speaking, have been able to get it for their stoves and grates. Two of the largest hotels use it entirely in their kitchens. Safety inven-

tions have been made and much of its dangerous possibilities averted. As a result householders are anxiously awaiting more gas. Within an area of fifty miles about Pittsburg at least a dozen small towns have discarded coal entirely, and every dwelling house has gas in its cook stove, parlor grate and bedroom fireplace. Among these places are Butler, Freeport, Clarion, Tarentum, Kittanning, Oil City, Wellsburg, Apollo and Murrysville. There are no ashes to remove, no sooty fireplaces to kindle in the morning. A thumb valve regulates the flame, brick bats in the grate distribute it and retain the heat and it may be kept burning low all night to have the house warm in the morning.

NORTHERN ONTARIO.

THE GREAT LAKES EXTENDING ALONG THE HEIGHT OF LAND. COAL AND IRON DEPOSITS. A DISTRICT OFFERING ADMIRABLE FACILITIES FOR SETTLEMENT.

Three years ago Pagamasing was the furthest point known to the white man in the direction of James Bay in ascending Spanish River. This H. B. Post is on an island in a beautiful lake about 8 miles long by 2 in width. It is the first of a series of great lakes extending along the height of land nearly to the Michipicoten. They form, with a few portages, a continuous route for canoes over a large district of country, and are valuable for their fisheries. Sugar maples occur on some of them, and a farm of potatoes and corn is cultivated by the Indians with good results. The lakes for a long distance empty northward into the West Branch of the Spanish River; and further west into the Mississauga, Garden, Batchewaning, and Moose Waters. Of this lacustrine plateau very little is known, except along the surveys of the C. P. R. Its northern slope is a region of muskegs, sandy prairies, frequent streams, and sharp ridges of sand rock at long intervals. The centre is occupied chiefly by lakes surrounded by fine grooves of timber, and probably abounding in fish and waterfowl. Its southern declivity inclines to clay, and will be found more suited to agriculture than the northern slopes. The rock on the slope is chiefly Huronian, and on the highest altitudes Laurentian much denuded by glacial action. The whole region is

STRONGLY IMPREGNATED WITH MINERALS.

and several clearly defined bands cross the railway. An exploratory line from Nemagosendu to Sault Ste. Marie would be very useful in revealing the true character of the country. In 1882 a party ascended the Mississauga, and struck N-W from Green Lake to the head of the Montreal River of Lake Superior. They traversed a region of rich brown clay, treeless, covered with straws berries, and abounding in clear lakes with large springs visible in their bottoms. The leader of the party seemed to consider it well suited for settlement and the lakes are adapted for trout breeding. It may be years before we know the full value of the land we hold, but the hardy settlers of Bruce Mines region will yet scale the rugged escarpment which binds their settlement to the north and reveal the worth of uplands beyond. The canons through which the Garden, Mississauga, and Spanish Rivers descend are wild and beautiful, and will in time become favorite resorts for tourists. The slope northward is very gentle, and all its waters are collected over an extend of 250 miles into one great estuary known as the Moose Waters emptying into James Bay. From the head of the Ottawa to the Michipicoten all the streams flowing north converge to the outlet and for a very extensive water system. Long reaches of these streams are navigable and if the land between were occupied by Swedes and Finns the region would soon become valuable. When

THE COAL AND IRON

of that land are made available, and its character better known, it may prove that Ontario has a N. W. of its own, that Mowat Land may possess advantages unknown in Manitoba, and that its mines, stock, and fisheries may prove an important factor in the future resources of Ontario. A survey of the whole region now confirmed to Ontario, which would give a definite knowledge of its resources in land, timber, minerals and fisheries, would be the means of attracting to its development a large amount of capital and energy which are at present working elsewhere or lying idle. While deeply regretting the check given to progress in the North-West by present troubles, it be-