Analysis of Peat from Alfred Bog. Absolutely Dry.

	Per cent.
Volatile matter	68.23
Fixed carbon	26.00
Ash	5.77
Nitrogen	1.76
Sulphur	0.218
Phosphorous	0.033
Calorific value in B. t. u.	9005

Before actual manufacturing operations were started at the Government bog about 24,000 linear feet of drainage ditches were run late in the summer of 1909. This required the excavation of about 9,300 cubic yards. The excavating was done entirely by hand and cost approximately 8½ cents per cubic yard.

The Canadian Government will keep all of the peat that it requires for testing purposes and sell the rest at a suitable price.

The fuel testing station is located in Ottawa. It was erected during the summer of 1909. At present the plant is equipped for testing peat fuel only. The apparatus consists of a Körting double-zone suction gas producer, the necessary purifying apparatus, a Körting gas engine and a 50 kilowatt Westinghouse direct current generator. The producer room is large enough to hold additional apparatus and producers of other types are to be installed in the near future. These producers will be especially designed for bituminous coals and lignites. The producer is 15 feet high, 2 feet 9 inches wide and 5 feet long. The gas-cleansing apparatus is at the right of the producer. This consists of a wet tar separator and a coke scrubber.

The engine is a single-cylinder four-stroke-cycle machine, fitted with a throttling governor. The diameter of the cylinder is 15 inches and the stroke is 24 inches. The speed is 200 revolutions per minute. The air supply for the engine is obtained from the interior of the engine room through a brick duct built against the wall of the engine room. With this arrangement the temperature of the air supply remains practically constant throughout the year. During tests, the current generated by the dynamo is absorbed by either the bank of 500 16-candlepower incandescent lamps which is located on the end wall of the engine room or by an iron grid against the wall.

When the producer is started up, suction is furnished by a small centrifugal exhauster belted to an alternating current motor. The engine is started with compressed air.

The gas-testing apparatus is located on the right wall of the engine room. Gas is drawn from the system by a small Root blower and passed through a Junker gas meter. From the meter the gas goes to a calorimeter which is also a Junker instrument. The average effective heat value of the gas is about 126 B. t. u. per cubic foot. The producer requires from 2½ to 3 pounds of peat per brake horse power per hour. The plant has been in actual operation for such a short time that no specific data in regard to the cost of operation and the performance of the apparatus are available.

PANAMA CANAL SCRAP.

Eleven bidders have competed for the scrap metal, relics of the machinery used by French Panama Canal Company in its attempt to dig a canal across the isthmus, and which the United States government wishes to clear away before the waterway is completed. The highest bids came from the Chicago House Wrecking Company, of Chicago, ranging from $215,000 to $700,000, and the Phoenix Iron and Steel Company, of Galveston, Texas, $66,250 to $246,250. The successful bidder must remove it within three years.

MODERN HEATING PRACTICE.

Konrad Meier.

(Continued from last week).

Direct-indirect heating, with the air inlets back of radiators, is also adversely affected by wind and weather, giving less air when most is needed. Proper control of temperature becomes almost impossible without shutting the inlets, which is the usual fate of these devices. A more satisfactory solution in some cases may be found in the use of very small sash ventilators, admitting fresh air directly, in as many places as possible, deflecting and diffusing it, and thus keeping the room air sweeter and cooler, with comfort depending on the radiant heat provided.

In general, radiant heat is best applied by hot-water radiation, which has an average temperature of only 130 deg. to 140 deg. and is rarely unpleasant. With steam-heaters, the radiation is usually too intense and too concentrated, and should be modified by greater division of surface.

Hygiene in Ventilating.

One cannot discuss hygiene in heating without touching on the same principles as applied to modern ventilating apparatus. Even though each should act independently, one may spoil the result of the other, hence they must be treated in harmony. The first point to be borne in mind when designing ventilating apparatus, more especially an air-supply system, is again salubrity. This must not only be made possible, or probable, but compulsory or automatic, inasmuch as the air passages are necessarily out of sight and therefore only too apt to be neglected. In order to prevent dead spaces, which form eddies in the current and create dust pockets, smooth clean metal or tile ducts should lead directly from outdoors to the tempering surfaces and fans, and from the same to the flues and registers. All the passages should be of sizes to assure a fair velocity of the air current that will not allow any accumulation of dust and foreign matter at any point, from intake to room. Tempering surfaces should also be spaced for a fair speed, and should be of the kind that will present a smooth surface, completely swept by the air current. The entire system in fact should be designed with the idea of sweeping itself, or making it "clean as a whistle." This is recommended not only with the idea of avoiding all possible contamination but also in order to preserve the natural sweetness of the air, which is always destroyed in contact with organic dust stirred up by the unavoidable motion. Moderate temperature of the stacks for warming, higher speed in passing the surfaces, and lowest practicable temperature of the air supply will always tend to preserve its ozone and oxygen, that is, its life and wholesomeness.

The mere capacity of an apparatus to heat, and to effect a certain renewal of air, should no longer be the only criterion of performance. The sanitary requirements must receive equal consideration, if the best results are to be obtained. It will be conceded that the average practice in the planning and installation of apparatus is still deficient in these respects. Indeed, probably the best chances for improvement in this field at the present time may be found in the application of hygiene. In any event, due attention to this subject is more likely than anything else to prevent such extremes as the establishment of open-air schools. It will also tend to overcome the frequent opposition to modern ways of heating and to artificial ventilation on the part of the medical profession, which has no doubt its basis of justification. As a general conclusion it may be stated that the preventive sanitary measures advocated can only increase the efficiency and usefulness of modern installations.