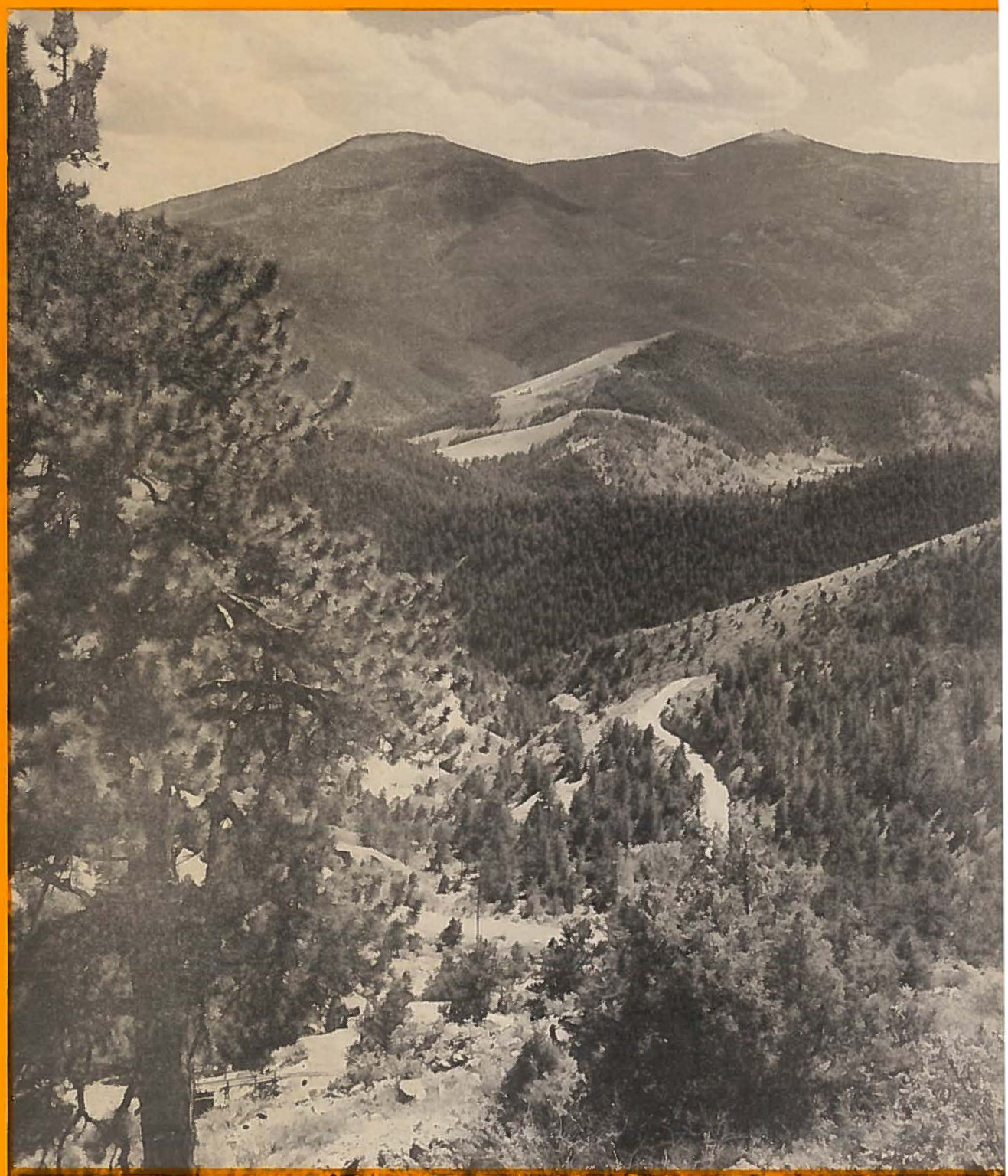
DISTRICT HEATING

PUBLISHED QUARTERLY SINCE 1915

OCTOBER, 1955 — VOL. XLI, No. 2



DISTRICT HEATING APPLIED TO VINE-CULTURE IN BELGIUM

G. Kirket, M.Sc., Bureau d'Etudes Industrielles,
D. Courtoy, Brussels, Belgium

The commercial production of table grapes in hothouses was started in Belgium some 90 years ago. The idea is to provide the market with high-quality products almost at any time of the year. Some varieties are particularly fit for *forward* culture and are made to ripen as early as in March or April, whereas others are *retarded* and grow ripe only in December or January or even later.

This of course involves an important heat consumption, amounting to the equivalent of 6 to 10 tons of high grade coal per annum for a standard-size hothouse of 1500 sq ft.

The Belgian grape industry produces some 12,000 tons of grapes annually. It is located in a region southeast of Brussels and numbers about 35,000 glasshouses, one-third of which are crowded within the limits of a single town named Hoeilaart.

Some of the better-off growers possessing, say 50 hothouses or more, have gone so far as to equip the latter with warm-water central heating. But, on account of the high investment costs, most of them had to stick to the old-fashioned way of heating, i.e. one or two kilns for each hothouse, with pottery flues running along the ground inside. The efficiency, with respect to the heat content of the coal should hardly exceed 55 to 60 per cent.

Owing to the favorable circumstances at Hoeilaart where more than 10,000 glasshouses are crowded within a relatively small area of about 1650 acres, it was just natural to consider a district-heating system as a means of cutting down the expenses.

A project of this kind was worked out by Messrs Bureau d'Etudes Industrielles F. Courtoy, Consulting Engineers, Brussels.

Careful heat balance tests were made in a few selected hothouses, and statistical data were gathered concerning the yearly production of several varieties. It thus appeared that the maximum heat consumption within the hothouses would amount to 400 million Btu per hour, while the average during the eight-month heating period would be about 135 million Btu per hour.

The plan provides for a central-heating plant, with two to five boilers, according to the development of the demand. Considerable economy is expected on account of not only the higher efficiency of these boiler, but also of the lower price of the fuel which they are able to use.

Heat will be conveyed in the form of steam or of pressurized water to the consumers' premises, and fed into the hothouses through appropriate heat exchangers and low-pressure-water piping. Temperature regulation will be applied to all glasshouses separately or to groups of them where simillar crops are grown; this to the benefit of the amount and quality of grapes produced, since these are no longer subject to the effect of unexpected temperature drops, frosts, etc., as often occur in this country.

The distributing mains will be about seven or eight miles long in the first years of operation, accounting for some 4,000 hothouses. Later on, the system will be extended to the other sections of the town, the ultimate length of mains being about 12 miles for 10,000 hothouses.

The financial results of the scheme are largely dependent upon the prosperity of the grape industry, either as such or in combination with other crops suitable for culture under glass such as tomatoes. This depends largely, in turn, on the state of the domestic and foreign markets.

This explains some hesitation on the part of those concerned with the task of gathering the funds to cover the investment costs. Nevertheless glasshouse owners at Hoeilaart have confidence that with the assistance of the Public Powers the project will be carried through.

"Coal Flows Like Water"

From the latest issue of its magazine, we learn that Bituminous Coal Research is experimenting on a method of emptying fine coal from a bunker "almost as fast and completely as water runs from a tank."

When fine dry powders such as flour or cement have air passed through them at low velocity, they can be made to flow through pipes or along troughs. Prior to the present study it was believed that the upper size limit for such flow with coal was about 100 mesh. The tests are showing promising results with crushed coal up to ⅜ in. in size.