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In closing let me state that it has been a pleasure to serve the Association as chairman of this committee during the past year, and I appreciate the support of the officers and committee members and the valuable help of the Secretary.

President Herr: You have heard the Report of the Membership Committee. Are there any questions? Thank you, Mr. Barnes.

We are honored this morning in having with us one of our Paris members, Mr. Philippe Schereschewsky, who has been a member of this Association for quite a number of years. I believe this is the first time he has attended one of our annual meetings. I shall ask Mr. Schereschewsky to stand up and say a few words to us.

Mr. Schereschewsky: Mr. President and fellow members,

I have been a member of this Association for about fifteen years but this is the first opportunity I have had to attend your annual meeting. I used to send a cable of good wishes every year. It is a great pleasure to be with you this time when your Association is performing great tasks and efficiently helping the war effort. I am also very glad to be with you because I have been looking forward for a long time to expressing publicly my gratitude to all of you who helped me so efficiently and kindly when I was confronted with the task of creating the district heating system in Paris.

I went to the United States and visited many of your district heating systems. I may say that had your members not given me such a whole hearted reception, the Paris network would certainly not have been built the way it was built.

The district heating problem in Paris is a difficult one, at least, it looked difficult to a beginner. I was just a beginner at that time. Our shareholders were, as often happens, the large utility companies of the Capital. They were willing to invest a rather large sum of money in the network which expressed in American figures would correspond to approximately 10 million dollars but they also wanted to have the system cover its operating expenses and capital charges as early as possible, in approximately 5 years. Depression times were starting and the task did not look easy. I found here a great number of examples which sustained my hopes and efforts.

I would like to mention some of the difficulties of the Paris District Heating System and of the very useful devices I found here.

DISTRICT HEATING IN PARIS

Climate

The climate in Paris may not be as sunny as thought by many Americans speaking of "sunny France" but it is mild, which is just as bad from the standpoint of district heating. The average load factor in the U.S.A.

networks is about 25% whereas in Paris it is only half of that figure. Consequently the heat losses of the mains play a much greater part, condensed water must be returned to the plant, insulation is more costly and capital expenditures heavy.

City Regulations

The municipal administration in Paris is very proud of the aspect of the streets and has issued regulations which increase substantially construction costs. For instance, it is not permitted to place manholes on the road; they have to be on the sidewalks. A short tunnel has to be built from the manhole on the sidewalk to the main.

We have no right to remove anything already installed underground. If removal of a gas main is unavoidable, it is done by the gas company and the district heating system must bear all expenses without having supervised them.

In the rue de Rivoli, one of the main streets in Paris, near the river Seine, there is an underground railway and not enough space between the top of the underground tunnel and the pavement to place the district heating main. We had to build our mains (about one and a half miles long) at various depths down to approximately 50 feet. This was rather expensive. Fortunately the diameter of this main was rather great, 600 millimeter, i.e. 24 inches, and as you know, tunnels for such diameters are not as costly compared to the usual construction as they are for smaller diameters.

Floods

This tunnel as well as most the mains of the Paris system is built in sandy terrain. The river is not far away, sometimes only 50 yards distant, and floods often reach the top of the mains. They have to be built floodproof, which increases construction costs.

Electric Power

It had been suggested that our live steam first be used in turbines and heating be done by means of exhaust steam. The idea is a tempting one. It was only applied to a small extent insofar as the district heating plant was operated without purchasing power from the outside.

As the curve of the district heating output has its peak in the morning whereas the peak in the consumption of electric power occurs in the late afternoon, the idea did not work. Kilowatts produced by district heating steam would have to compete with hydroelectric kilowatts which can be purchased cheaply in off peak hours from plants located at a distance of only 300 miles. Capital invested in district heating turbogenerators could not have been amortized.

Therefore, we came back to the idea of building our network as cheaply

as possible, which was done by using relatively high pressure, approximately 270 lbs psi.

We found very useful examples of operation at high pressure in existing systems. I am specially glad to mention here the system in Rochester, N. Y., where I was very kindly welcomed when visiting the U.S.A. Copenhagen, Denmark, unfortunately operating presently under hardship, also deserves to be gratefully mentioned.

Automatic Control

When the operation of the Paris system was started in 1930, the use of automatic control of heating was just starting in Europe. For commercial reasons, we were compelled to supply heat at a given price for the entire heating season, which did not induce customers to save heat. Consequently, the consumption and waste of heat proved too high and threatened to prevent financial equilibrium being obtained. Substantial savings were immediately made by using the American Pendleton equipment. This is one of the main features which safeguarded financial equilibrium.

To small customers, who were numerous, the investment in the Pendleton equipment seemed a little high and they purchased a simpler and cheaper type (100,000 to 300,000 calories hour).

The distribution system expanded progressively. In 1938 it reached buildings about 4 and a half miles from the heating plant.

A larger project was conceived whereby the whole city of Paris could have been supplied from 3 plants already operating as electric power plants and situated at the points of a triangle about 8 miles apart. War disrupted the completion of this project.

When the war started, I was sent by the French Government to the U.S.A. as a member of the French Purchasing Commission here. Therefore, I am not in a position to give detailed information on what happened to the system after 1939. After the French armistice of June 1940, I remained in the Western Hemisphere, taking occasional trips to South America, where I had opportunities to advocate creation of district heating systems.

To my knowledge, the Paris heating system did not suffer any damage in 1940 during the "blitz" period. It is in its main portions rather deep underground and consequently well protected. Due to lack of fuel and transportations facilities, new customers' applications and demand for additional service must have been numerous. I feel sure that these circumstances will give impetus to the expansion of the system after the war.

When in South America, I was asked to lecture on fuel problems. One of the methods I advocated to save fuel on this continent south of ours, which has not yet adequate fuel sources of its own, was to establish a district heating system in towns which are properly located. I told how

convincing and useful the examples given by U.S.A. systems had been to us. This was the first and indirect form of my thanks to you. Today I am glad to express them directly in my broken English but most sincerely. Thank you.

President Herr: Thank you, Mr. Schereschewsky, for your very interesting and instructive talk on the Paris Steam Heating System.

I shall call on Mr. E. E. Dubry for the Report of the Advisory Committee.

. . . Chairman Dubry presented the Report . . .