

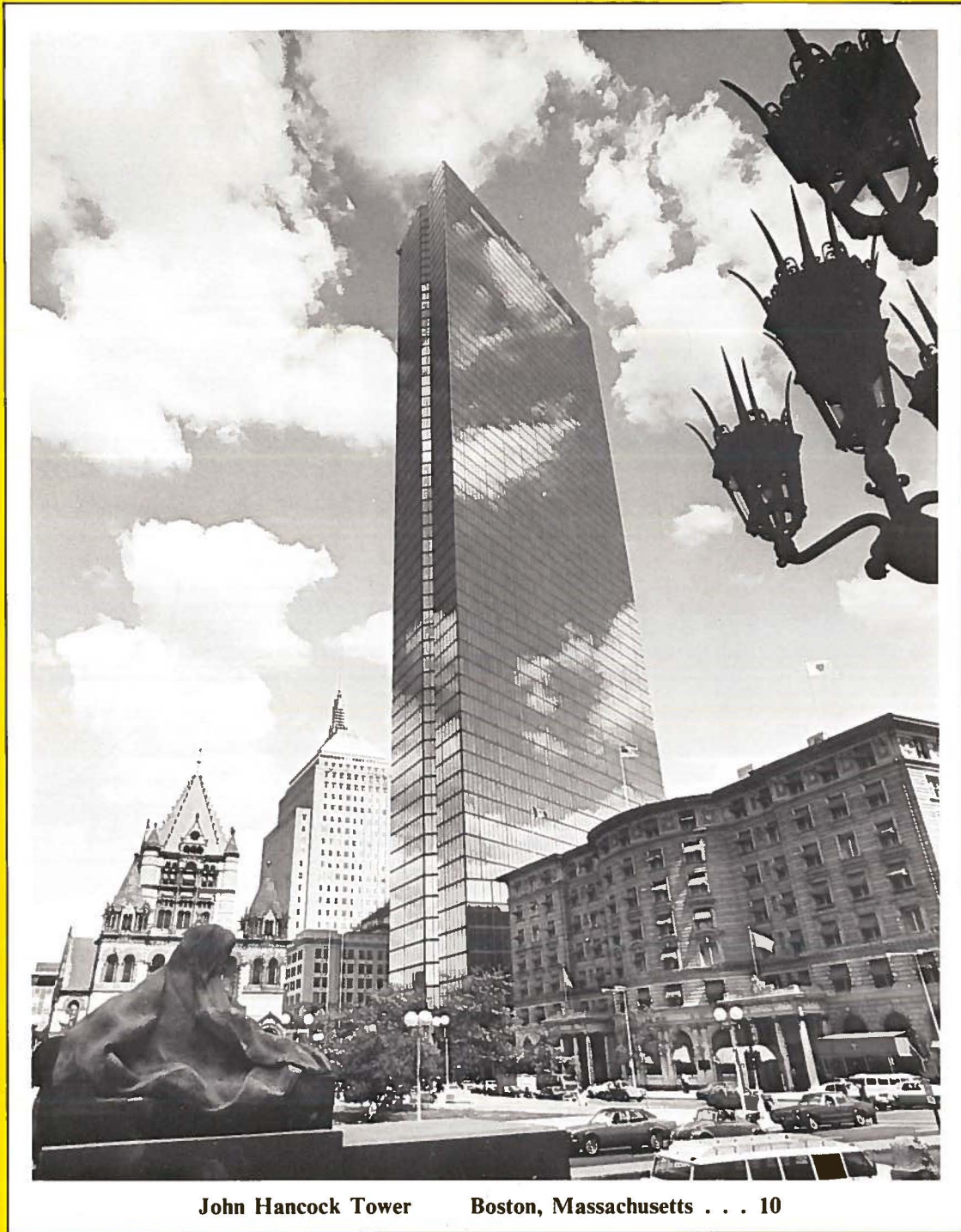


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Global Internationalism In District Heating

by Norman Jenkins
Surrey, England

In American fiction, the best seller lists are generally books by authors with an unusual style, a refreshing approach, or a different expression. With our technical or scientific publications, this is turned about and the mode is conformity that translates, in many instances, to a dull presentation. Norman Jenkins is the exception to that tradition and whether you agree or disagree, like or dislike, he brings his subject into sharp focus.

The International District Heating Association presents this article exactly as it is intended—the views and opinions of Norman Jenkins in his manner, his style, his expressions—not those of the magazine staff nor of the Association.

Mr. Jenkins is a free-lance writer specializing in this subject for many years, and his letters in preparation for this article were as intriguingly different as the discourse. The IDHA welcomes your comments.

The IDHA has a long and distinguished record of international cooperation in the field of district heating, although we in Europe must be forgiven if we have seen this much more of a North American affair than a global one. Much older than our own origins, probably by as many years as we in Europe have spent in development, we see the IDHA concerned with district heating concentrated on pass-out steam and rejected condensate, a conception that Europeans have avoided in favour of high and low-pressure hot water with return by closed-circuit distribution ring-mains. The difference in technology is by the way but an understandable reason for lack of closer working.

The situation has now reached a point of dramatic change pointing to strength in global reorganization, strength that is needed to meet President Ford's dicta—energy independence and energy interdependence, both of which we heard about at the 1974 World Energy Conference in Detroit. Strength that is needed to show world-wide governments that it is as much technologically sound national energy-use policies that must be laid down as it is fuel acquisition that must be assured.

There seems to be no point in telling the world we must continue to be supplied with our now established quotas of consumption if the sceptical overseas suppliers know as well if not better than we do that something like one third of the oil used by any one country is wasted by the electrical industry where single-purpose generation is employed. That, at least, is the situation in the United Kingdom where over 67 millions of tonnes of coal equivalent are wasted every year by the power

generating industry—firmly setting itself against combined heat and power for the last 30 years while every other European country has gone ahead at least to explore the potential, expanding every scheme so far instituted.

In 1970 the fledgling U.K. District Heating Association organized a successful international convention, attended by 600 delegates from 27 countries; an ad hoc arrangement for continuity led to the meeting in Budapest in 1973, attended by another 600 from 20 countries, 80 from the U.K., the largest single foreign delegation. The loose, ad hoc, arrangement for continuity led to Poland volunteering Warsaw for the venue for 1976, the first week in April, a date which clashes exactly and apallingly with another conference in London, one which is likely to have a far more long-reaching importance. The two eastern-block conferences are not looked upon as having more than dollar-earning significance, notwithstanding the support the three conferences have had so far from European countries deeply involved in district heating and combined heat and power generation.

The clash of interest that has arisen concerns a construction industry organization set up on truly international lines by the United Nations Educational, Scientific and Cultural Organization as long ago as immediately after the cessation of European hostilities, about the same time as the beginnings of European hot water district heating. The Conseil Internationale du Batiment (International Building Council)—C.I.B. as it is now called—was speedily supported by some 54 nations, a number that has dropped to 50; disciplining members

on unpaid subscriptions presumably responsible. Conferences every few years have been held all over the world; construction industry research co-operation greatly benefiting, overlapping eliminated and greater strength being given to individual projects which have now gained international significance and authority. C.I.B. is an international success of which the United Nations, and UNESCO in particular, have every right to be very proud. C.I.B. is now taking an interest in energy.

For the last five years, ever since that successful London conference, the writer has been trying to interest C.I.B. in the vital international need for co-ordinating research and development in—not so much district heating as in the significance of the amount of primary fuels, and therefore useful energy, wasted by the exponential growth of single-mode electricity generation. One of the most significant statistics to emerge from recent investigations is the proportionate use of electricity generated compared with the amount actually used for space and water heating. No one knows the precise ratio—nor is anyone likely to do so unless a series of national energy-use censuses is taken. In the U.K. it has been estimated that as much as 50% is used in this way. In a new official publication it is admitted that 36% of electricity sold to domestic users is employed in space heating and a further 25% in water heating—61% of the domestic use which is itself just under a quarter of the total generated.

Wasn't it Treasury Secretary Simon at the Detroit Conference who said that burning fuel to raise steam to turn a turbine to generate electricity to be sent down a wire and thus turned back into heat at the other end is the ultimate absurdity?

Unlike any other European, or for that matter global, country of any comparable size, the U.K. has no more solidly entrenched monopoly than that of the electricity generation industry, whose gross thermal power station efficiency (not system efficiency) is less than 30%. Decisions made are virtually unarguable, even in Parliament, where royal commissions, committees and others can cavil at expenditure, programmes and plans without effect, until recently. One grandiose plan—for large numbers of nuclear stations—has been cut drastically, to four steam-generating heavy water reactors (Canadian "Candu" type), leaving a large deficit in provision for future demand; a gap that can be filled in other ways.

The interest that C.I.B. is now showing coincides with publication of a somewhat remarkable document coming from a British Government source; a section of the Department of the Environment, the Building Research Establishment, whose Director, Dr. J.B. Dick, is also President of C.I.B. This is a current practice paper, No. 56/75, entitled "Energy Conservation: A Study of Energy Consumption in Buildings and possible means of saving Energy in Housing." The main conclusion of this document, somewhat buried in a great deal of statistical analysis of building-use energy consump-

tion data, is that the U.K. should have jumped on the combined heat and power bandwagon years ago when everyone else in Europe was seriously engaged in assessing the benefits and costs. It is estimated some 10 to 15% of the energy bill could still be chopped off by perfectly feasible, established engineering methods, without having to entertain pie-in-the-sky methods. This would just about put Britain's balance of external payments back into solvency, with all that that means.

The Building Research Establishment has done the unthinkable: criticism of a nationalised industry, however factual the case, just isn't done. Coincidence of the conclusions of CP 56 and the agenda for the C.I.B. Symposium next April (1976) is too close to be accidental, but the courage of all concerned is to be applauded. B.R.E. has done work that needed to be done in the interests of all nations now heavily in debt for their energy imports, a desperate situation getting much worse before it can possibly improve. That the international steering committee responsible has seen fit to adopt B.R.E. work for C.I.B. April agenda is symptomatic of other and even deeper thinking, significant of an attitude to energy-use that appears to be related to fundamentals. The conversion of fuel into energy produces twice as much heat as it does electricity. Is it not time this was taken into proper account and some attempt was made to reduce the Simon-labelled *ultimate absurdity* to something nearer sense?

In this context it is being said in England that there is, in the face of what is now known, no need for the building of any more 2000 MW central power generating stations. The next decade's load growth, if in fact there is any at all—there is evidence of negative growth at the moment—could be met by converting all the old and smallest power stations to combined heat and power generation, also converting the connected load from electric space and water heating to hot water supply. This has been proved in Sweden to be possible without loss of electrical output, producing three times the original amount of energy from the same turbine with the same fuel consumption. The Central Electricity Generating Board has just announced redundancy of 16 power stations in the densely populated Liverpool area of Lancashire—to the dismay of the trade unions concerned. So far, no word of possible conversions; that would upset merit order working of the world's largest generating network.

Those energy experts who had opted for visiting Warsaw next April (1976) must now be seriously considering the meeting of the rival conference of C.I.B. at Garston, B.R.E. Headquarters a few miles north of London. The construction industry, with its association with town planning, civil engineering and social services is one that must carry as much if not more weight than a number of delegates from heat-distributing municipalities preaching to the converted, with hangers-on from the engineering supply industries.

(continued)

Members of UNICHAL, the Union of European Heat Distributors, founded in 1954, who have just opted for more open policies and who have just held (September 1975) an only moderately successful first-of-its-kind conference in Paris, will certainly be torn between the two rival conferences. Their several hundred members are just as interested in the coming battle between the all-services energy distributors and the national electricity interests. For all its success, the Swedish district heating movement is as much dominated by the Swedish State Power Board, responsible for single-mode electricity generation, as any other nation's district heating.

And whether the electricity industry likes it or not, that is the way the cookie crumbles: it is more than likely that national fuel-use policies will dominate energy policies, and their obsession hitherto with fuel supply acquisition, and will necessitate the setting up of energy councils to determine how fuel shall best be used. Electricity certainly seems to have had its day. Next April (1976) will see the beginning of an end and the birth of a new kind of urgent action. When the odds are two to one, how can heat fail to dominate the energy picture of the future? *

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