ENGINEERING

Problem of Power Control Major Question at Conference

Conservation of Natural Resources Stressed as of Utmost Importance in Any Type of Economic System

THE outstanding question before the Third World Power Conference of some 3,000 delegates from 54 nations who have been meeting in Washington was not concerned with technology or engineering so much as with social and economic philosophy.

Transcending national and linguistic lines, the giant meeting was divided into two friendly factions, those who believe that the energy of the world should be supplied by private industry with a minimum of interference and regulation by government, and those who believe that the people as represented by government should do the job.

It is a high compliment to the organizers of the conference, under the leadership of Morris L. Cooke, Chairman, Executive Committee, American National Committee, that these divergent viewpoints could meet in fruitful discussion and that the conference had the sponsorship on behalf of America of both the various power industries and the federal government.

In many instances the viewpoints of private and public ownership advocates are so diverse that there were two papers from the United States among the prepared reports on various questions that were discussed orally.

Opposing Views

Take the question of national and power resources policies. Floyd Carlisle, of Consolidated Company of New York, assumes *laissez faire* to be a national policy in the United States and deplores tendencies towards modification of it. George Soule, an editor of the *New Republic,* argues that there is not a national policy and that present conditions of production and use require the establishment of a definite policy.

Mr. Carlisle, pointing out that 94 per cent of the electrical business is done by privately owned companies, favors such private ownership and management, with government regulation of "such a character that will not destroy the ability of management to run the business and to make decisions based upon sound economic principles free from political meddling."

Mr. Soule charges that, notwithstanding abundant energy resources and a capacity for high productivity, a large proportion of the population has a low standard of living and there is much unemployment. He says that as a guide to national policy, "a scheme of social accounting must be developed, in order that values and costs that do not appear in the books of private enterprise, but are real and vital to the nation as a whole, may be accorded their due weight."

Because power is so fundamental to modern technological and industrial development, the 3,000 delegates found themselves considering broad questions like "national and regional planning" and "conservation of natural resources" as well as the more technical problems of how to burn coal, utilize oil, build dams and generate and distribute electrical power.

The score or more of national papers on conservation of national resources were analyzed by David Cushman Coyle, American consulting engineer, as a basis for discussion at the conference.

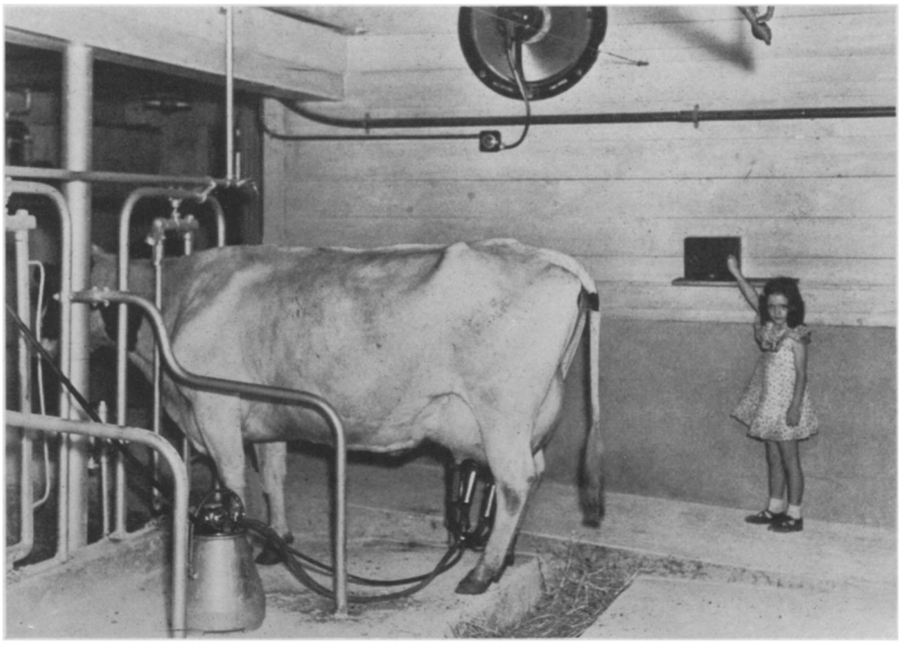
"Our business system may be capitalist or socialist or a combination of the two," Mr. Coyle observed. "Our governments may be democratic or absolutist. But under all forms we must organize our activities to meet the demands of natural law. Toward that end the civilized nations, each in its own way, are now struggling."

The general objective of national economic planning is stated by Mr. Coyle as the highest per capita standard of living at the lowest man hour cost without stoppage of vital fluctuations and with the minimum wastage of national resources.

His principles of resource planning are:

1. To hold soil, water, forest, and grass at par.
2. To economize in the use of the irreplaceable minerals by every possible means.

"Nature lays down the terms; we must obey or suffer," Mr. Coyle said. "We can come to terms with nature in regard to the self-renewing resources by using them only as fast as they are replaced. In regard to the nonreplaceable minerals, we can come to terms only by finding new and abundant sub-



ELECTRICITY MODERNIZES THE FARM

Visitors to the World Power Conference saw what electricity can contribute to the farm when they visited this model farm in Virginia. The little girl is turning on a radio, believed to have a beneficial effect on the cow, while other electric appliances do the milking and ventilating.

stitutes faster than we use up the older materials. Technology races with waste.

"Face to face with the inexorable demands of nature, we suffer from the weakness of human nature. The consent of the people has to be obtained in spite of heavy propaganda by those whose interests stand in the way of the public interest. The laws of a Federal Union of sovereign States are a tangle of inconsistent rights and powers that hampers the action of the Nation. America is now struggling to acquire legal and political powers commensurate with her necessities.

"Modern technology has given to civilized man the power to support a greatly increased population by drawing more rapidly upon the material resources of the earth. For a century man has expanded his activity with little thought of the outcome. But now we realize that a new Malthusian law confronts us. We cannot expand our destruction of forests and soil, coal and petroleum, without limit. Unless we mend our ways and stop living on our capital we shall not merely press against the limits of subsistence. We are threatened with a crisis in which essential materials will be exhausted and the population will have to be drastically reduced by war or starvation."

Future Power Supplies

Taking a look toward the future, reports before the Third World Power Conference gave estimates of how long petroleum, coal, natural gas and water power resources of the United States will last.

The results are:

Petroleum—There is a possibility of the shortage of domestic petroleum in the United States as early as 1940 and the probability of a considerable shortage by 1945. This does not mean that there is imminent danger of exhaustion of petroleum reserves and there is no justification of hysteria in the figures reported. But wasteful methods of drilling and using are deplored.

Coal—The question of coal conservation is considered immediate and urgent. Although the coal resources are sufficient for several generations, they are sufficiently limited to make the avoidance of unnecessary waste a matter of social concern. The life of the coal resources at their recent maximum demand is from 1,700 to 2,200 years. With a probable increased demand the reserves are to be considered sufficient for hundreds of years only.

Natural gas—Known domestic reserves are from seventeen to twenty times the annual consumption, although estimates are difficult to make because conditions change rapidly.

Water power—Experts consider that only a comparatively small percentage of the total potential hydroelectric power has been developed. Many other factors enter into use of water for electric power, among them relation of power development to navigation, recreation, wild life, soil conservation, etc.

Petroleum By-Product

The possibility of replacing all the "manufactured gas," usually made from coal, with the by-product gas of petroleum refineries is suggested in one of the reports. The second most important gas resource of America is the nearly 200,000,000,000 cubic feet of gas which has been stripped of all condensable constituents that can be used in motor fuel. It has high heating value, can be made highly uniform and the refineries where it is produced are much more favorably located with respect to potential markets than are natural gas fields. In recent years, natural gas has been piped long distances, in some cases, to displace or compete with manufactured gas and the technologists foresee that the use of the by-product gases of American oil refineries might give a more permanent source of gas for city use over a longer period of years.

In the generation and distribution of electric power, engineers have effected notable economies in fuel consumption and the use of materials. This is a conservation step. But many engineers at the conference feel that this is not enough. Mining of coal, for instance, requires careful engineering to reduce waste. And going beyond production and distribution, some raise the question of the use of the power. Power may be used for purposes that constitute only "a waste of what the engineers have so economically produced."