

twentieth anniversaries of his various coups. And serious college students will wonder: What was it in the American value system of the Nixon-Reagan years that made Henry Kissinger the object of attention—even respect?

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EXCURSUS 2

Thomas Land on "MIRACLE TREE" PLANTATIONS

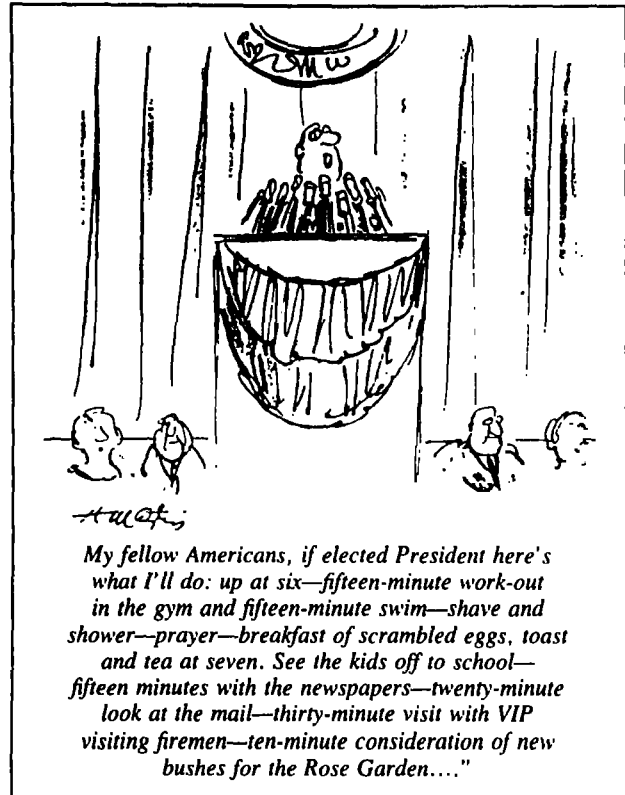
A network of seventy-two wood-burning power stations is to be erected within five years as part of a Philippine rural electrification project. Organized into cooperative enterprises, the small-capacity stations will be fueled by "slash-and-burn" farmers maintaining nearby plantations of quick-growing leguminous trees. The scheme offers an attractive new development model for many countries in the hungry belt of the globe. "If the project succeeds," says the Philippines National Electrification Administration, "it will revolutionize the Third World."

The new plantations, sited near the projected power stations in tens of thousands of acres of formerly deforested land, point the way toward reversing the destruction of the Earth's tropical forest cover, providing a lucrative but hitherto neglected source of renewable energy, creating a secure livelihood for poor farmers, and encouraging electrification and consequent technological, medical, and social development in the neglected country areas.

The program confronts an alarming international trend. According to a recent authoritative assessment made by two specialist organizations of the United Nations, the present rate of deforestation in the tropics is 11.3 million hectares a year. For every tree planted in the tropics, ten others are felled. During the past thirty years, about half of the world's forests have disappeared.

This could be the beginning of a self-perpetuating process leading to a rapid degradation of land and the conversion of the surviving tropical forest into near-desert. Many climatologists believe that a secondary effect of the destruction of the dark forest carpet might be a "shinier" globe, shifting rainfall patterns, and permanent drought affecting the great breadbasket regions of Europe and North America.

The dominant species grown in the twenty-seven thousand-acre plantations established so far in the Philippines is the self-fertilizing *Leucaena leucocephala*, brought to the islands by the Spanish from Latin America in the seventeenth century and known locally as ipil-ipil, or miracle tree. The family *Luguminosae*, to which the ipil-ipil belongs, offers agricultural planners an opportunity to stop and even reverse deforestation. Some leguminous trees grow nearly twenty meters a year, prevent soil erosion, arrest forest fires, and, in the case of one Latin American species, even provide a sap which can fuel a diesel engine without a refining process. With a high energy yield within four years, this species is an ideal timber crop for semiarid tropical slopes. Several other species are also being introduced as a buffer to avert



the danger of certain pests or diseases sweeping through the plantations.

Philippine "slash-and-burn" farmers are being recruited to tend the plantations, about one family for every ten hectares of forestland. They are offered a loan for housing as well as initial living expenses, and they can expect an eventual annual income of \$3,000 per family. They are encouraged to form farming cooperatives, selling timber to the local power plants. The power stations, in turn, will be handed over to the cooperatives under contract to sell excess energy to the national grid.

The \$350 million project has already attracted fierce competition by British, Canadian, American, French, Swedish, and Japanese suppliers of relatively small, 3-5 megawatt wood-burning electricity-generating stations. Balfour Beatty of Britain, for example, has developed standard power station layouts for a range of power outputs. Each station comprises a simple water tube boiler, with a large furnace and grate area, housed in a steel-frame building. A concrete lean-to houses a steam turbine generator as well as the electrical controls.

Expenditures for installation and first planting for the projected network of stations bring the cost of its electricity yield to \$3,500 per kilowatt. Each power plant has the potential to supply fifteen thousand rural homes with electricity at an annual saving of more than 26,000 barrels of crude oil.

Electrification may well bring increased nutrition standards to the countryside, as well as schools, clinics, and mobile medical services. The Philippines' global energy plans envisage an increase in the annual electricity generation from 4,300 megawatts in 1981 to well over 7,000 megawatts by 1987.

Thomas Land writes from Europe on global affairs.