GENERAL SCIENCE

From Now On: Energy

A five-point program of energy exploration is needed to find out new sources of energy and more efficient means of utilizing present sources.

By WATSON DAVIS

The middle of the century is a good time for stocktaking for the future. Mr. Davis, for three decades a pioneer in interpreting science for the public, points out the opportunities for advances in science and technology in the coming years. This is the first of articles that will appear weekly.

➤ ENERGY is necessary for everything that happens in the world. In olden days, most of the applied energy was furnished by the muscle and brawn of men and domesticated animals.

Today coal, oil, water, and wood give us our gross power. Your muscle and mine are spared from working too hard.

Basically all the energy of this earth of ours comes from the sun. The heat and light of the sun, eight minutes away from us measured by radiation's travel-time, is a matter of life.

All the coal and the oil is fossil sunshine. We live on the stored energy of past ages. We spend extraordinary riches accumulated eons before our great-ever-so-great grandfathers began to evolve. If we did not have so much of it, every piece of coal and drop of oil would be like so much gold or uranium. It is unrenewable.

The energy we trap by harnessing the fall of water impounded by big dams is this year's production. So, too, the wood burned is using relatively recent sunshine, sun's energy only a few years old.

Human energy comes from the calories of our food, usually grown only a few months ago.

Experimentally, the fission of uranium, as in the atomic bomb, has opened a new story of energy, which again is unrenewable and extremely limited despite the fact that one pound of matter converted entirely into energy would furnish all the electrical power of the U.S.A. for nearly a month.

We are hardly on the ragged edge of an energy shortage, yet a long-time look ahead should worry us, for the sake of our children.

So valuable are coal and oil for the chemicals they contain that prohibition of their burning for power would be logical. We are getting ready to tap the world's great deposits of oil shale.

Our use of current imports of sunshine, poured on us by the sun, is woefully inefficient. The fields and forests use only a mere fraction of the radiation they receive. But we cannot build a factory that is as effective as the green leaf.

We need as vigorous a research effort on energy for the future as the Germans drove us to in developing atomic energy. We should be spending a billion dollars and ten thousand best brains on it. We need to:

A. Discover the secret of the green leaf (photosynthesis) and duplicate it chemically and mechanically, with real efficiency.

B. Explore for plants, whether algae or what, that can capture the sunshine better for food, chemicals and fuel.

C. Re-explore power from the temperature differences in the ocean, the ebb and flow of the tides, the rush of the winds, and direct heat of the sunshine. Sneers from self-contented exploiters of our lush energy stores should not deter us.

D. Study the sun and the stars for new hints as to how to convert matter into energy, for that is what stokes these flaming bodies.

E. Find other elements besides uranium and thorium that contain usable nuclear energy. (If this is not a prime project of the Atomic Energy Commission, it should be.)

Science News Letter, April 1, 1950

CHEMISTRY-ENTOMOLOGY

Pyrethrum Insecticide Synthesized Commercially

➤ A SYNTHETIC pyrethrum chemical, with the insect killing power of the pre-DDT pyrethrum from pyrethrum flowers, has now been made on a commercially practical scale.

"Allethrin" is probably the name which this new insecticide will have.

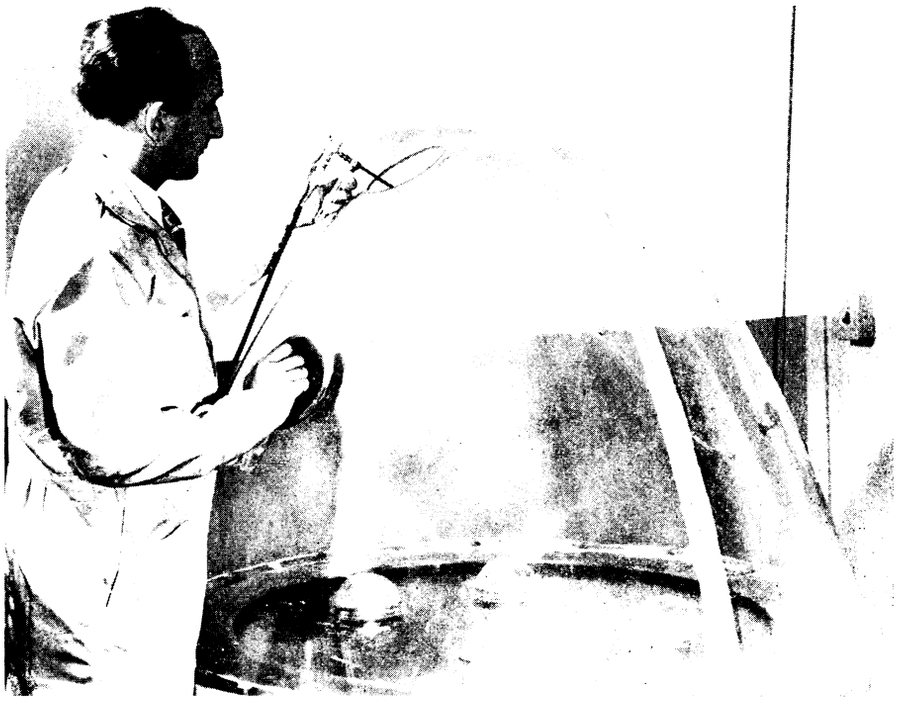
Pyrethrum-like chemicals, with the insect killing power of the plant material, were synthesized on a laboratory scale just a year ago by U. S. Department of Agriculture scientists. The commercial synthesis of one of these was recently announced by the Union Carbide and Carbon Corporation.

Science News Letter, April 1, 1950

On This Week's Cover

➤ THE MAN in the white mask is a worker in a microbiological pilot plant which manufactures antibiotics. He fills the vials in the sterile area with the liquid concentrate before drying in a vacuum. The antibiotics have made possible the conquest of such diseases as pneumonia and the venereal diseases and give promise of a remedy in the future for the common cold and other maladies.

Science News Letter, April 1, 1950



BLISTER TEST—The effect of allyl cinerin, a pyrethrum insecticide, is tested on cockroaches (under small screens) by Dr. Harry L. Haynes, entomologist at Boyce-Thompson Institute. Though not an official test method, this "blister" is a means of observing the effect of the insecticide with non-clogging and non-staining properties not possessed by the natural product.