"REWOLD ISSUE #55

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February 20, 1953

Music: World of Tomorrow
Plan for Progress
Salute to the Future
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Klein
Beck
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Issue #55

AS AMERICA ENTERS
UPON THE SECOND
DECADE OF THE
ATOMIC AGE

PARAMOUNT NEWS
PRESENTS

THE
A T O M
AND
Y O U

A graphic report on research and development in atomic energy, for
HEALTH — SCIENCE — INDUSTRY ...
The great peacetime applications of the atom.

In a world of international tension, the first objective of America's atomic energy effort understandably must be for the common defense and security of freedom-loving peoples everywhere. But atomic energy doesn't just mean atomic weapons.

Overshadowing the weapons is a great promise for the future. You — the American people — are stockholders in one of the world's largest corporations — the vast government-controlled atomic energy industry, involving a tremdous program of research and development: to fight disease; to provide valuable radioisotopes; to develop power to propel ships and planes and potential economical electricity for American industry.

Atomic energy is no mystery. You can understand the atom. One hundred and fifty-thousand of you — from American industry, colleges, universities and the government are at work in this vast field. Paramount News takes this opportunity to help you see how atomic energy comes into your life.

Basic to all nuclear energy research is an understanding of the strange, powerful forces that operate within the tiny atomic nucleus and cause atomic energy. To learn more about the basic nature of matter. tremendous machines are being

constructed, like this giant Bevatron at the Atomic Energy Commission's Radiation Laboratory, University of California.

Another similar machine is this Cosmotron at Brookhaven National Laboratory, New York. Both these circular accelerators smash atoms. Tiny sub-atomic particles bullet at more than 180 thousand miles a second and smash into atomic targets.

The basic research we've seen is unclassified. However, much atomic energy work is still secret. This military protection in the Washington State desert is for Hanford Works, A.E.C.'s plutonium-producing factory.

And at Los Alamos Scientific Laboratory, security-minded employees are checked carefully at this vital experimental center in New Mexico. At Los Alamos and elsewhere, a highly-developed communications network makes it possible for security officers to keep in touch with patrols that range through the isolated areas around atomic energy sites.

The Security system during World War Two veiled the operations of the Water Boiler Reactor at Los Alamos. Today, it is unclassified — a valuable research tool.

An atomic reactor is a machine for converting the energy of nuclear fission into forms that can be turned to useful purposes. An operating atomic reactor like the Water Boiler is a controlled nuclear reaction .... just as the explosion of an atomic bomb is an uncontrolled nuclear reaction. Uranium inside the reactor causes millions of tiny explosions. Energy freed by these explosions can be used for many vital purposes: to make radioisotopes for research in medicine, biology, agriculture and industry; to test materials for the effects of radiation; to create quantities of fissionable material that can be used for peacetime applications of atomic energy, or can be stockpiled for atomic bombs.... and to create heat that can be turned into electrical energy — for propelling the submarines that protect our shores .... the giant Navy aircraft carriers ... the airplanes of tomorrow .... and for factories and homes. But this conversion of reactor heat into usable energy is a tough problem.

At Knolls Atomic power Laboratory, Schenectady, New York, metallurgists and engineers study the transfer of heat from liquid metals into non-radioactive steam, that can drive turbines and generate power. Using a furnace to simulate reactor heat,

scientists study many complex things that happen to metals during heat-transfer. Since reactors create enormous amounts of energy, the scientists are striving to draw off the energy rapidly without melting away the very metals of which reactors are constructed.

New techniques learned in atomic research will be of vital value to American industry in the future. But to do the important metallurgical and chemical work with dangerous radioactive materials, and to discover the metals and alloys that will make atomic energy work for mankind, requires a special safety precautions. Remote handling equipment such as this Master Slave Manipulator makes it possible to examine radioactive metals in great detail — and yet remain separated from the metals by three feet of glass and concrete.

The lobster-like claws of the manipulator are geared to the grips in the hands of the scientist on the outside.

Safely and with relative speed, he can saw open a container of radioactive metal, select one specific piece, test it for hardness, examine it under a microscope, or give it routine chemical treatment. Such devices make the atomic energy industry one of the safest in the world in which to work.

All this important research has great meaning for the world of today and tomorrow, where the atomic energy program is a bold experiment in science, in economics, and in cooperation between Government and private enterprise for the benefit of all mankind!