15¢
$5.50 A YEAR

September 4, 1954

VOL. 66, NO. 10 PAGES 145-160

SCIENCE NEWS LETTER

®

THE WEEKLY SUMMARY OF CURRENT SCIENCE

Four Generations

See Page 153

A SCIENCE SERVICE PUBLICATION

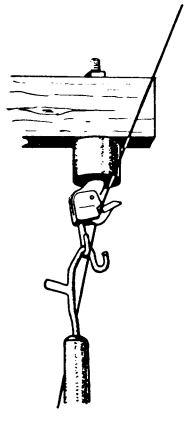
The pole that need not be climbed

Fastening wires with new tool.

Since telephony began, there has been just one way to install telephone wires on poles: have a trained man climb up and fasten them there. Now Bell Telephone Laboratories engineers have developed a special pole line for rural areas. The entire line can be erected without climbing a pole.

The whole job is done from the ground. Light-weight poles are quickly and easily erected. Newly created tools enable men to fasten wires to crossarms 10 to 25 feet over their heads.

This inexpensive line promises more service in sparsely populated places. From original design to testing, it exemplifies a Bell Telephone Laboratories team operation in widening telephone service and keeping costs down.



Key to the new "climbless" pole is this insulator. Ground crews use long-handled tools to place the wire in position and then lock it fast.

BELL TELEPHONE LABORATORIES

Improving telephone service for America provides careers for creative men in scientific and technical fields

What General Electric people are saying . . .

F. K. McCUNE

Mr. McCune is General Manager, Atomic Products Division

". . . We at General Electric believe that electric companies will be owning and operating a number of atomic power plants within the next ten years.

Second, we believe some of these will be full-scale and, what is most important, they will generate electricity at competitive costs, possibly within five, certainly within ten, years.

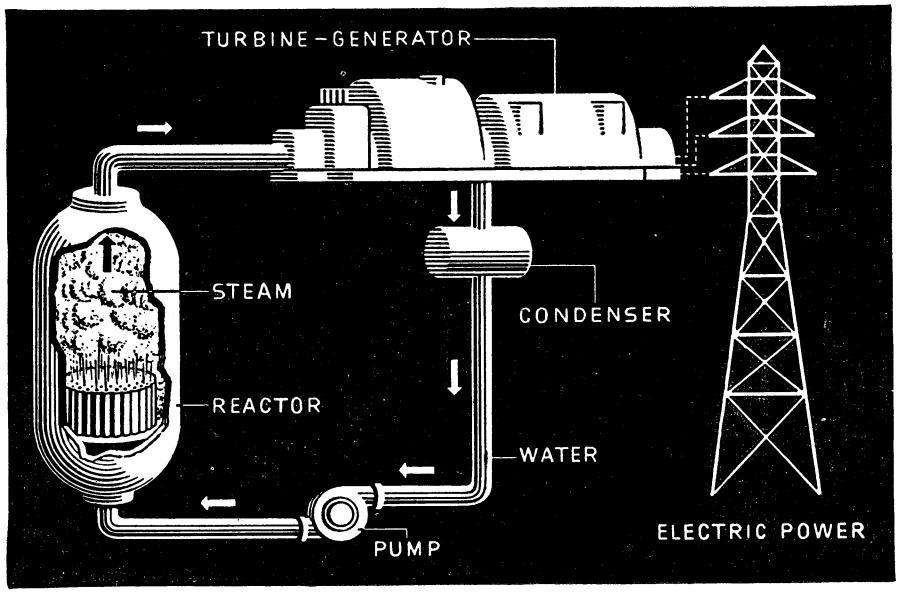
Third, we believe that this will be accomplished without Government subsidy for production plant construction or operation, and that Government-supplied fuel will be priced at cost-of-production levels.

Fourth, we believe that two nuclear reactors best suited for earliest and most effective competition with conventional fuel plants in this country are (a) the light water-moderated and cooled boiling reactor, and (b) the graphite-moderated water cooled reactor. These we think hold greatest promise in the years just ahead.

In saying these production plants will operate without Government subsidy, I do not wish to detract from the immeasurable significance of knowledge developed through A.E.C. contracts. Of course, the Government's large expenditures for research and development of plutonium production reactors, mobile power reactors, and other power reactors forms the base from which private industry can proceed. But, the important thing here is that we believe production size atomic power plants can be made economic. They will stand on their own feet. They may sell products to the Government. They will certainly buy nuclear fuel from the Government. But, trading with the Government need not be a subsidy."

Atomic Industrial Forum Panel
Washington, D. C.

Copies of Mr. McCune's complete talk may be obtained by writing to Dept. Q-2-119, General Electric Company, Schenectady 5, N. Y.



BOILING WATER REACTOR, *of type developed by the A.E.C.'s Argonne National Laboratory diagrammed above, promises electric power at 6.7 mills/kwhr (as compared with 4.5 to 8 mills/kwhr in conventional plants).*

K. R. GEISER

Mr. Geiser is Supervisor of Engineering—Computer Unit, General Engineering Laboratory.

". . . There are three broad areas of manufacturing—manual, mechanization, and automation. In the manual area, physical effort is used to perform an operation by the use of hands or hand tools. In the mechanization area, manually operated power-driven machines, with varying degrees of controls, are used to perform one or more operations. Progressing into the automation area, we find automatic machines which are integrated with transfer devices to perform a series of continuous automatic operations. Here you see how industry can continually upgrade the manual operation into the mechanization area by replacing the hand tool with the machine; and then by adding transfer equipment we progress to the automation area. Please note that manpower will always be required. However, there will undoubtedly be fewer men as operations are automated and the emphasis will shift from the manual skills to the mental skills for both the productive and the maintenance worker.

Man has always devoted much of his effort to finding ways and means to accomplish or circumvent the arduous and laborious tasks, especially those not requiring his full ability as a human being. There still exist in industry today many tedious, time-consuming, laborious or simple discrimination jobs which often lack mental stimulus for the people who must perform them. It does not require the full complexity of the human mind and body to carry tote boxes from one machine to the next nor to load parts in a lathe, nor to tighten bolts and solder wires in building, for instance, automobiles or radios.

As surely as man lives and thinks and strives for a better way of life, these things will be replaced.

G.E. Engineering Specialist

Progress Is Our Most Important Product

GENERAL ELECTRIC