

Atomic Energy 'Secret' Put into Language That Public Can Understand

Scientists Tell 'How' Bomb Is Made, Power Can Be Used Commercially

NEW YORK, Sept. 28 (UP)—The world was given a report on atomic energy today that the man in the street could understand.

The report was a 22-page document of the Scientific and Technical Committee of the United Nations Atomic Energy Commission.

In the technical introduction of the report on world control of atomic energy, the scientists reviewed the known facts about the atom.

The committee said:—Two and two-tenths pounds of atomic fuel would generate heat at the rate of a million kilowatts—the same amount that could be obtained by burning 300 tons of coal.

If used in production of electrical power, the output would supply power and light for a city of a million persons for one day.

The cost of making an atomic bomb is insignificant after a quantity of atomic fuel has been produced.

It is quite possible that some other nations will try to obtain a way of producing atomic fuel and atomic bombs—than the method used by the United States.

The scientists used simple terms such as "fuel" and "burning" in explaining the secret of the atom.

Process Similar
The process of producing atomic energy resembles ordinary combustion in the same that fuel material is used up. However, the reaction differs in that no oxygen is required.

Here is how to harness the atom for commercial use, or make an atomic bomb:
Efficient atomic fuel comes from three sources: The only immediately usable material found in nature is uranium. Like common fuels, for example gasoline, there are various grades. The most common is uranium-238 or U-238. The most efficient is U-235.

The other two basic fuels are produced synthetically in the laboratory. They are plutonium-239 and uranium-233.

The two substances also can be produced by burning uranium-235 and thorium, another element.

The principal source of uranium is the pitch-blende deposits in the Belgian Congo and Czechoslovakia, and in Carthage and Australia in the western United States. Thorium is found in India, Brazil, the Dutch East Indies, Australia and elsewhere.

Must Be Refined
Atomic fuels, like gasoline, must be highly refined for the best results. There are three refining methods.

The first can be compared with the screening of sand to build a better concrete foundation. The uranium compound in a gaseous state is forced through porous barriers. The U-238 isotope, being very slightly heavier, can get through the barrier somewhat more rapidly than U-235.

By a large number of repetitions of the process it is possible to secure material which is slightly enriched in U-235.

The report said that the method used in a large part of the atomic plant at Oak Ridge, Tenn. The second method of separation is similar. It involves the speed at which U-238 and U-235 are carried through a liquid layer by a heated wall and an adjacent cold wall.

The U-235 springs through and is carried off before the U-238 gets to the finish line. This method is called thermal diffusion.

Thermal Control
The third method might be compared with the direction of traffic at a crowded intersection. It is a gas-magnetic separation. Magnetic fields are hurled into a magnetic field which bends their paths. The molecules, containing U-235, being lighter, turn more sharply than U-238, and are thus separated.

The preparation of "fuel" is the same for commercial power or an explosive bomb.

"Atomic fuels may be burned at a controlled rate . . . or in a run-away explosion as in a bomb," the report said.

The next step is in the use of the fuels. "Atomic energy in quantities useful for peace or war comes only from nuclear chain reactions, which like fire, is self-propagating and releases energy in proportion to the number of neutrons the report said.

Spontaneous Explosion
"Highly concentrated fuels are required to permit the most rapid combustion. Such materials will explode spontaneously as soon as the quantity of material in a single piece becomes large enough that the neutrons are effectively confined and utilized.

"The detonation of a bomb is then a matter of bringing together rapidly two or more pieces of fuel material which together exceed this critical size."

There are several problems to be solved in adopting atomic "combustion" to commercial use. In addition to heat, the "burning" uranium gives off deadly radiation. Published reports indicate that protective walls five feet thick are necessary to protect workers.

These large units such as those for driving ships could be built, but smaller, mobile units are unlikely. The report also raises the question of whether sufficient "synthetic fuel" could be manufactured to give an unlimited supply of atomic energy.

Number of Bombs Unknown
"If you note, the world supply of nuclear fuels is measured by the amount of U-235 present in nature, extended a few fold by such additional quantities of plutonium-239 or U-233 as are generated in the course of the U-235."

The committee said 1941 scientific reports predicted that not less than 1.4 pounds (two kilograms) and not more than 250 pounds of material would be required for an atomic bomb.

If one were to assume that 100 tons of natural uranium (annual world production estimated in September, 1945, issue of the Engineering and Mining Journal) were available each year for the making of bombs, then using the limits on critical size given above as the amount of U-235 required for a bomb, the number of bombs which could be produced from all the available uranium would be between 70 and 3000 per year."

Westinghouse Man Awarded Medal

Gets Highest Award in Engineering Field

Dr. Lewis Warrington Chubb, director of the Westinghouse Research Laboratories, has received the John Fritz Medal and certificate, the highest award in his field.

He was cited for "his long career of scientific achievement and notable contributions to the electrical industry."

Among other contributions, Dr. Chubb has worked with magnetic properties of iron and iron alloys, improved the design of electrical machinery and the measurement of electrical and magnetic quantities.

In addition, he has obtained about 100 patents in electrical, mechanical, electrochemical and welding fields.

Serving in World War I as a member of the Naval Consulting Board, he contributed in World War II to the development of the atomic bomb and jet propulsion.

The John Fritz Medal is awarded to more than one year by the American Society of Civil Engineers, the American Institute of Mining and Metallurgical Engineers, the American Society of Mechanical Engineers and the American Institute of Electrical Engineers.

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New Marines of the 'Westvania Platoon' are shown after they were by Major James W. Sperry in ceremonies broadcast from Station WJAS.

The recruits from Altoona, Pittsburgh and Wheeling, will train as a unit at Fort Meade, Sperry is pictured shaking hands with a 'Westvanian.'

New Gas Well Out of Control

Output Gauged at 32 Million Cubic Feet

UNIONTOWN, Pa., Sept. 28 (Special)—Drillers fought today to bring a granite mountain gas well under control before it blew itself in and ran wild.

The well, which ever struck the mountain area here, came in suddenly yesterday while a casing was being installed.

The roar was heard for several miles, and the gas, under nearly 3000 pounds pressure, was completely unmanageable.

Production was gauged at 32 million cubic feet.

The gas, already under contract to Carnegie Natural Gas Co., was being completely shut and workers managed to put in an emergency line—two lines to the nearest gas pipeline, and save a part of the well.

Despite the danger of fire, they were still trying to get in an emergency casing and control the well.

Outlook Improves For Milk Supply

HARRISBURG, Sept. 28 (Special)—First indication that fall milk production on Pennsylvania farms may be better than was expected today when State Secretary Agriculture Miles Horst declared.

"We really hadn't given any thought to it. Since Mr. McKeesport's production this year was only one per cent below the 1945 all-time August record."

The 160 million pounds of milk produced in August compared with the record 171 million pounds for the same month in 1945 and the 169 million pounds for the same month in 1946, a Federal-State survey disclosed.

'Old Maid' Philosophy Of Truman Rapped

CHARLESTON, Va., Sept. 28 (UP)—State Republican leaders, meeting here today to organize for the November election were told that they must provide the "old maid" philosophy of the Truman Administration.

The 300 G.O.P. members were addressed by C. Bep. Charles J. Brown of Ohio, national party campaign chairman, and Ira Lewis, director of the Pittsburgh Negro newspaper.

Marines' Stay in China Called Still Indefinite

SAN FRANCISCO, Sept. 28 (UP)—The stay of the U. S. Marines in North China still is indefinite, Maj. Gen. Keller E. Rockey, commander of Marine forces in China, said today.

Gen. Rockey, who returned to the United States to assume command of the Marine Corps Department of the Pacific, said that the Marines in North China are still in the disputed territory, they are turning over many of their duties to Chinese Nationalist troops.

Scouts to Demonstrate How to Weave Cloth

Troup 50 of East Borough Boy Scouts will present an interesting display at the Merri Budge Show at Spry Mosque next Friday and Saturday.

The Scouts will weave cloth with card-loom modeled after an ancient Egyptian pattern. The show will be open from 7:30 to 10 p. m. Friday and from 3 to 10 p. m. Saturday.

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A New 'Tale of Two Cities'—McKeesport Keeps Goin'

Pittsburgh Sweats It Out

County's First Largest City Has Power Strike Jitters; Second Largest Is Normal

It was business as usual at McKeesport yesterday residents found it difficult to believe radio verbatim shuffling duties because of the power strike.

The usual Saturday through just past 17th Ave. stores in the second largest city of Allegheny County which enjoys a "mull pay day" from some districts until every Friday.

Missing were the shoppers from Olquesport, Duquesne, Wheeling and East McKeesport where the Pittsburgh Railway trolleys and buses to reach the city. And the important McKeesport-Chariton football game attracted countless others out of the city.

Business Is Good
But, otherwise, business was normal in this modernized version of "The Tale of the Two Cities."

Most store owners and proprietors said business was good and there was no thought of an early closing to aid power conservation.

Their display windows have been darkened every evening under Mayor Charles A. Kistner's power conservation order.

But so far as the early closing, one large department store executive declared:

"We really hadn't given any thought to it. Since Mr. McKeesport's production this year was only one per cent below the 1945 all-time August record."

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State Promot Farm Show

HARRISBURG, Sept. 28 (UP)—The Pennsylvania Dept. of Agriculture is known Internationally as the largest and best products exposition in the United States, according to the State Secretary of Agriculture, Charles A. Kistner.

Co-operation by farmers organized groups has been noted to improvement in the show in the very heart of the exhibition which is now on largest building of the State Department.

Started in 1917, the F Show has been held in Harrisburg for each January except for the 1942, 1943 and 1944 main show building was the War Department.

Subsided in Jan. 1945, the show was held in the Penn State building.

Other bus lines which continued to operate included Men's Valley, East Pittsburgh-McKeesport lines of the McKeesport Transit Co., Duquesne Motor Coach, and Ride Lines serving Fort View and Liberty Borough.

Parking lots were jammed. The city's restaurants continued to operate and drug store counters were filled with shoppers ordering cooling drinks to escape the heat.

"Thousands of exhibitors of Philadelphia life is represented in its of exhibits and hundreds of lines. Farmers may see it in mechanical development on the farm and in the home. The coming Show will present in every detail except live poultry exhibits, but year from all county an unity fair and the Fair to prevent spread of the mauls disease."

For the 1947 show an at 10,000 square feet of floor space has been made available, a total of 870,000 square feet 10 times the space occupied first Farm Show in 1917.

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