ATOMIC ENERGY Newsletter

THE FIRST AND ONLY ATOMIC NEWS SERVICE

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Dear Sir:

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A new series of tests of nuclear and thermonuclear explosives has now been scheduled for the USAEC's Pacific Proving Ground. The tests are part of the USAEC's research program, as directly related to the improvement of such explosive weapons, and will be a further phase of a continuing series of weapons tests of all categories. The tests are to be conducted by Joint Task Force 7, which is commanded by M/Gen. P. W. Clarkson, USA. Observers will be from the USAEC, the various Armed Forces, and Governmental agencies.

Talks between the Soviet Union and the United States, on the recent proposal by President Eisenhower concerning an "atomic pool", have now begun in Washington. The meetings, which began yesterday, were between U. S. Secretary of State John Foster Dulles, and the Soviet Ambassador, G. N. Zarubin. (President Eisenhower had proposed in his December 8th speech to the United Nations in New York that the major atomic powers contribute to an international pool of fissionable material that would be available for peaceful purposes under the aegis of the United Nations. An approach was then made to the Soviet Union, by the U. S. State Department, on the possibility of holding "private conversations", which the President had suggested. The Soviet Union, after accepting the idea of such talks in principle, has now agreed to discuss arrangements for later negotiations.)

The Nautilus, the first nuclear energy powered submarine, is scheduled for launching at the yards of the Electric Boat Co., Groton, the twenty-first of this month. Since the Nautilus is basically a test vessel, it will displace some 2,800-tons, a size which will not be utilized in useable craft. The nuclear power plant of the Nautilus uses about half the vessel's 300-ft. length. Meanwhile, the Sea Wolf, the second nuclear craft, is now on the ways at Groton. (While the Sea Wolf will use a different type of nuclear reactor than the Nautilus, it will be of the same general design, and does not represent any significant advance.)

A proton synchrotron, of 25 billion electron-volts accelerating energy, is now to be constructed at Brookhaven National Laboratory, L.I. The apparatus can be constructed now, the USAEC stated last week, because the "strong-focusing" principle makes it feasible to build an accelerator with requisite magnets. It is expected that design of the synchrotron will be completed within one year; estimates are that construction will require five to six years.

Charges have now been made in Great Britain, by a House of Commons Committee, that efforts to develop a nationwide civil defense program there have been marked by lack of leadership, lack of drive, and "persistent overestimating of expenditures". All of Britain's civil defense services have been linked together since the Civil Defense Act was passed in 1948. The committee said one of the most serious delays in the civil defense program had been in the supply of instruments to detect and measure radioactivity.

Subscription rates: United States, U.S. possessions and Canada, $18.00 a year. Latin America, $20.00 a year. All other countries, $25.00 a year.

BUSINESS NEWS...in the nuclear field...

HANFORD CONTRACTS LET SHOW HIGH RATE OF ACTIVITY:- A year-end summary of contracts placed during 1953 by Hanford Works (Richland, Wash.) shows that there were approximately 32,600 order and supply contracts, with a total value of $72,001,367, that were let out. Of this amount, $41,461,072 in contracts were placed with business firms in three Pacific Northwest states. This amount was distributed among the states as follows: Washington, $31,012,524; Oregon, $10,363,860; Idaho, $84,686. In addition to the amount placed in the three states, Hanford Works procured $4,184,732 worth of materials and services through other government agencies generally operating in the Northwest. Sharing in this total were Army and Navy agencies, $2,975,673, and the Federal Supply Services, Seattle, $1,309,058. All of these orders were placed by the USAEC, its operating contractor at Hanford Works, the General Electric Company, and two prime construction contractors, Kaiser Engineers, and Blaw-Knox Company. The USAEC placed 6,000 orders; General Electric, 15,000; Kaiser Engineers, 9,000; and Blaw-Knox, 2,600.

UTEX EXPLORATION COMPANY BUYS OUT MINORITY STOCKHOLDERS:- Tow minority stockholders in Utex Exploration Co., uranium producer will receive $3,272,500 for stock in which they originally invested $19,500, Charles A. Steen, Utex president, recently stated. Mr. Steen said he has purchased the interests of S. O'Laurie, Casper, Wyo., and R. M. Barrett Dove Creek. The sale involved a cash payment of $150,000. The balance will be paid within a 10-year period through an ore assignment of 15% of the gross, excluding haulage and development allowances. O'Laurie and Barret controlled about 18,000 shares of Utex stock, or 28%, Mr. Steen said. Utex Exploration owns the Mi Vida Mine, 38 miles from Moab, Utah. From this mine, Mr. Steen testified before a Senate subcommitee in Salt Lake City recently, $1,303,400 worth of uranium ore was shipped from Dec. 6, 1952, when production started, to Nov. 1, 1953. At the same time, he estimated that Utex's ore reserves amounted to 1,300,000-tons. (The $1,303,400 was received on production of 37,000-tons.) Production now is at the rate of 4,000-tons per month.

FIRMS SHOW RECORD SALES:- The firm making nuclear-propelled submarines for the U. S. Navy, the General Dyanmics Corp., has now revealed that its consolidated sales and earnings for 1953 were the largest in the firm's history. John J. Hopkins, president and board chairman of General Dynamics, has now told shareholders that sales approximated $190,000,000, a gain of 40% over 1952, and that earnings should top those of the year before. The company's backlog, he said, is about $183,000,000. (Electric Boat, submarine maker, and Canadair, Ltd., aircraft manufacturer, are wholly-owned subsidiares of General Dynamics. Additionally, the firm owns 17% of Consolidated Vultee Aircraft Corp., whose earnings are about the same as those of 1952.).....Beckman Instruments, California manufacturer of nuclear and other instruments, has now reported that its sales and earnings reached record levels in fiscal 1953. The firm said that sales were $16.4 million, compared with $10.4 million for the previous 12-months--an increase of almost 60%. The company's net profit for 1953, before taxes, amounted to $2 million.

EARLY RELAXATION OF GOVERNMENT MOMOPOLY IN ATOMIC ENERGY IS URGED:- A report issued last week by the Atomic Industrial Forum, New York, has now called for early relaxation of the government monopoly in atomic energy to stimulate competition and speed technological developments for peaceful purposes. (The report is entitled "The Meaning of the Congressional Hearings on Atomic Energy." It describes a conference, held Nov. 19th, 1953, which was the Forum's first activity; stated purpose of the forum is to further the development of atomic energy for peaceful purposes. The report may be obtained from the Forum, at 260 Madison Ave., New York 16, at one dollar the copy.) Chairman of the conference, was Dean E. B. Stason, who is chairman of the American Bar Association's special committee on atomic energy and dean of the law school of the University of Michigan. In summing up the results of the conference in the report, Dean Stason said such points had been made as: 1.-There is a clear need for economically competitive atomic power. 2.- It is virtually certain that nuclear reactor technology can be advanced to the point where atomic energy will be competitive generally with other sources of power. 3.- The years immediately ahead should be devoted to intensive developmental activity.

NEW PRODUCTS, PROCESSES & INSTRUMENTS...for nuclear lab & plant...

FROM THE MANUFACTURER'S-New mobile adjustable radioisotope counter holder; Mark 8 Model 82. Designed in conjunction with physicians at a midwestern medical school, the holder provides a safe support for the counter and shield used in measurements of radioactivity. It was designed by the manufacturer specifically for this purpose; the maker feels that the holder will be particularly useful in the determination of I-131 uptake by the thyroid gland. The unit is readily adjustable, and the holder will fit either scintillation or Geiger counters. An enclosed gear drive positions the counter and shield. Friction fittings permit the shield to be positioned without disturbing the counter setting, while the base provides support for the shield and counter up to a weight of fifty pounds. Requiring a floor space of 36-in. by 43-in., the vertical columns of the stand are electro-filmed for smooth movement. --Radiation Counter Laboratories, Inc., Skokie, Ill.

New shielded isotope carrier for handling bottled radioactive isotopes used in medical or research laboratories; Model 3035-E. The isotope carrier includes a key operated locking mechanism to prevent unauthorized personnel from handling the isotope. A bottle containing a radioactive isotope may be lowered into the "well" of the shield, where it is fully surrounded by 1" of lead. A spring platform raises the bottle so that it may be easily lifted out of the "well" when the lock at the top of the shield is removed. The shield weighs 20-lbs., and may be moved with the handle provided. Overall dimensions are 3½"-diameter, by 6"-high. --Nuclear Instrument and Chemical Corp., Chicago 10, Ill.

Model "V" counter is a pocket-sized instrument recommended by the manufacturer for uranium prospecting. Its circuit uses low voltage counter tubes, and transister amplification; headphone indication is provided. Batteries for operation are contained within the case. The device uses what the maker calls "Varylytic" counter tubes; unlike Geiger tubes, their operating voltage is not critical. Background counting rate is said to be about 18 to 25 counts per minute at sea level. Maximum intensity limit is said to be about 5 to 8 milliroentgens per hour. Electrical circuits are tropicalized. --Western Radiation Laboratory, Los Angeles 7, Cal.

NOTES:- Arapahoe Chemicals, Inc., Boulder, Colorado, has now entered the field of manufacturing materials for scintillation counting. The company has released its sales bulletin No. 40, listing products available for such use.

A modified gamma-ray well logging method has now been developed at Armour Research Foundation, Chicago. The new method not only measures the amount of radioactivity at various depths in a well to identify rock strata, but also measures quality by means of a scintillation counter.

Now being offered by High Voltage Engineering, Cambridge, is a low-priced, million volt Van de Graaff particle accelerator. The million volt model is priced at approximately one-third that of the two million volt model this firm makes.

RADIOISOTOPES & IONIZING RADIATION...news & notes...

Uses of tritium, or hydrogen-3 (which is the main constituent of thermonuclear weapons) in cancer work, were recently described before the southern regional conclave of the American Chemical Society, held at New Orleans, last month. Tritium, which is now available to researchers in quantity, has an extremely short range of radiation, and it is this property which may make it particularly suited to the selective destruction of cancer cells, Dr. Deitrich E. Beischer, U.S. Naval School of Aviation, told the meeting. If medications which are selectively absorbed by cancer cells are tagged with tritium, the short range rays will reach only the cells which take up the compound, leaving the neighboring cells undamaged, he said. The method used for detection and measurement of the dose of radiation emitted inside tritium-tagged tissue is the radioautographic procedure, Dr. Beischer reported. Tritium is particularly useful for investigations of biological systems where hydrogen plays an important part as a constituent, Dr. Beischer continued. He said that substitution of the radioactive form of hydrogen in such systems permits simple and effective radioautographic studies to be made of their properties. As standards for radioautographic measurements, Dr. Beischer has developed uniform films of radioactive material only one molecule in thickness. The use of these monolayers allows an absolute measurement of the radiation emitted by small areas of tritium-labeled specimens, he said.

RAW MATERIALS...radioactive minerals...

UNITED STATES:- Hite, Utah- The Vanadium Corporation of America's uranium processing pilot plant, here at Hite, will now be closed. Some 40 workers employed at the plant will be transferred to other company plants, or will be dismissed, L. Parker, plant superintendent, said: the machinery is now being dismantled. The mill was established in 1949 to process copper uranium ore found in the area. But, Parker said, transportation difficulties made operation of the mill unsatisfactory. He noted that the nearest railroad point is Greenriver, 110 miles away, with connecting roads generally being in poor condition.....A uranium claim in the Big Indian mining district, in eastern San Juan county, about 32 miles southeast of Moab, has been said to show up to 5% uranium oxide equivalent, from drilling results. The claim is known as the Richards claim, and is in the area where the Mi Vida mine of Utex Exploration Co. is located. (See BUSINESS NEWS, this letter, for information on Utex Exploration Co.)

CANADA:- More than $14,000,000 will be spent on expansion and development of the uranium find on Lake Athabaska owned by Gunnar Gold Mines, Ltd., according to Gilbert A. LaBine, president of Gunnar Gold. He said further shafts and drilling are scheduled for next Summer. Using open strip methods, unusual in uranium mining in Canada, production of semi-refined ores from the company's projected metallurgical plant will begin in 1955.....Lorado Mine's Alco group, on the southwest shore of Lake Athabaska, has now reported an ore zone 520-ft. long averaging some 0.437% uranium oxide across a width of 13-ft. This is based on the last seven holes that have been put down on this claim. The firm states that a regular production shaft will be sunk to develop the oreshoot.....Jesko Uranium Mines expects to have diamond drilling underway on its Car uranium prospect in the first week in February, it is reported by that firm. The 15-claim Car, which is one of the company's more recent acquisitions, is on the north part of Black Bay, Lake Athabaska area, northern Saskatchewan.....Recent metallurgical research work on the North Bay area columbium-tantalum-uranium deposits of Beaucage Mines indicates that an economic recovery process for the various minerals may be worked out, officials of that company state. The uranium content of the minerals has been separated and recovered by Batelle Memorial Institute, Columbus, Ohio.

NUCLEAR WORK OUTSIDE THE UNITED STATES...Poland:- Nuclear research in Poland will now be centralized in a new physics institute to be a part of the National Academy of Sciences. Prominent member of the new Institute will be Dr. Leopold Infeld, Polish-born mathematician, who resigned from the University of Toronto in 1950 to return to his native Poland. This reorganization of nuclear research in Poland follows the death of Prof. S. Pienkowski, who is reported to have headed nuclear research in Poland since 1947.

India:- Construction has now started on the new building in Bombay of the Tata Institute for Fundamental Research. The Institute, which is the gift to the Indian Union of the Tata family, will house the research facilities for nuclear energy work in India.

NEW BOOKS & OTHER PUBLICATIONS ..on nuclear energy subjects...

Supplement No. 2, to Volume No. 1: Political, Economic, and Social Aspects of Atomic Energy. This brings up-to-date volume no. 1, of this United Nations publication. The main issue was released in 1949. An earlier supplement, No. 1, added works in the English and Russian languages published between March 1949, and July 1950, which deal with the political, economic, and social aspects of atomic energy. Main issue: 50¢. Supplements, 50¢ each. --Sales Section, United Nations, New York, New York.

Nuclear Moments, by Norman F. Ramsey. As the only English volume published since World War II devoted exclusively to this field, the book covers both the experimental and theoretical aspects of measurement techniques and observed results. Part of Dr. Ramsey's work has already been published as a section in "Experimental Nuclear Physics", Vol. 1, edited by E. Segre. To this treatment, Ramsey has now added extensive material, originally omitted so that his contribution could conform to the specialized nature of the Segre volume. 169-pages. --John Wiley & Sons, Inc., New York 16. ($5.00)

ATOMIC PATENT DIGEST...latest U. S. grants...

Radiation-absorption type liquid level indicator, for a liquid-containing vessel within which liquid normally stands at an intermediate level. Comprises, in part, a radiator of sub-atomic energy, a signal generator including an ionization chamber, the radiator and ionization chamber being arranged at different elevations in the liquid-containing vessel corresponding to positions above and below the normal liquid level therein, and with the chamber positioned within the field of radiation emanating from the radiator. An infinitely variable indicator responsive to the rate of ionization is located in the chamber. A compensating ionization chamber is also arranged above the normal liquid level in the vessel and within the radiation field of the radiator, so that changes of vapor pressure in the vessel above the liquid may influence the rate of ionization in the compensating chamber. U. S. Pat. No. 2,662,985 issued Dec. 15th, 1953; assigned to Diamond Power Specialty Corp., Ohio. (Inventor: John A. Good.)

Transmission fluorimeter. Comprises, in part, a light-tight housing, an ultra-violet light source totally enclosed within this housing adjacent to one extremity of it, and a light-tight housing removably attached to an adjacent housing. A fluorescent-light-producing packet is mounted within this housing intermediate to the source, and intercepts all light passing from the source to the enclosure. A phototube, located in the enclosure, is adapted to measure the fluorescent light originating in the sample held in the sample holder, and transmitted through the filter. U. S. Pat. No. 2,663,801 issued Dec. 22nd, 1953; assigned to United States of America. (USAEC). (Inventors: Morris Slavin, Mary H. Fletcher, Irving May.)

Neutron detector. Comprises, in part, an electret for exposure to incident neutrons, means electrically coupled to said electret for detecting the changes in volume charge thereof induced by neutron bombardment, and means coupled to said detecting means for counting and indicating the time rate of occurrence of said changes, this rate being proportional to the rate of incidence of neutrons on the electret. U. S. Pat. No. 2,663,802 issued Dec. 22nd, 1953; assigned to United States of America (USAEC). (Inventor: Philip E. Ohmart.)

Dosimeter. A dosimeter for gamma radiation comprising a crystal, fluorescent to gamma radiation, and a coating of photochemically sensitive material, this material including agents chromatically sensitive to the fluorescent energy emitted by the crystal. U. S. Pat. No. 2,664,511 issued Dec. 29th, 1953; assigned to Patterson, Moos and Company, Inc., Long Island City, N.Y. (Inventor: Anthony M. Moos.)

Magnetic electron multiplier, for the detection of moving particles in a homogeneous magnetic field. Comprises, in part, an electrically conductive plate located in the magnetic field, and parallel to the lines of flux of this field, a plurality of secondary electron emissive dynodes located in this field, and means for establishing a uniform electrostatic field between these dynodes and the conductive plate. The electrostatic field is perpendicular to the magnetic field. U. S. Pat. No. 2,664,515 issued Dec. 29th, 1953; assigned to United States of America (USAEC). (Inventor: Lincoln G. Smith.)

Container for neutron irradiated material, adapted to be withdrawn from an expendible outer cylinder which is contaminated by contact with a nuclear reactor. Comprises, in part, a relatively thick-walled, cylindrical container having an externally threaded open end portion of reduced diameter connected to the outer cylindrical wall of this container by an annular surface extending normally to the axis of the container, an inner cylindrical container of small nuclear cross section closely disposed in the first container, with a portion of the inner container lying above the shoulder being formed with a conically tapered thin-walled inner bore, a puncturable cap located in the bore, and a hollow threaded cap engaging the open-end portion of the first container, and seating against its annular surface to hermetically seal the container. U. S. Pat. No. 2,664,998 issued Jan. 5th, 1954; assigned to United States of America (USAEC). (Inventors: John F. Gifford, and Nelson B. Garden.)

Sincerely,

The Staff,
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