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Minute Amounts of X-Rays Determined To Cause Sterility

Washington–(Science Service) — Mothers given X-ray treatment while carrying unborn girl babies may have daughters who cannot themselves bear children.

The National Academy of Sciences here this morning was told by a team of Oak Ridge National Laboratory experts an atomic radiation this is indicated by experiments on mice.

If human beings react like mice, this has implications for the human race living in an atomic world.

In mice the effects of radiation vary tremendously according to the age of development of the mother mouse at the time she is exposed to the X-rays.

The Oak Ridge experimenters were: Drs. W. L. Russell, Liane Brauch Russell, M. H. Steele and E. L. Phipps.

Not Greatly Affected

The fertility of females that had received 300 roentgens of X-rays on the day of birth was not greatly affected, even when the amount burst at the acute dose rate of 80-90 roentgens per minute. These females commonly produced nine or ten litters when they reached maturity. Yet, adult female mice given the same acute dose never produced more than two litters. Even a dose of 50 roentgens of acute irradiation was considerably more damaging to the fertility of adults than 3000 roentgens given to newborn females.

Thus the ovary of the newborn showed high resistance to X-rays. However, the ovary proved to be extremely sensitive to low amounts of radiation during the second week after birth. Mice exposed to X-rays at this infant stage in their development became sterile after producing either a single litter or a second, smaller one.

Adult females that had been given the same low total dose at the same low dose rate as their two-week old counterparts showed no significant difference from mice that did not receive radiation. The mice produced an average of 13.3 litters.

Sensitive Period

Thus it is apparent that the second week of life is a radiation-sensitive period for the female. This period also coincides with the time when the immature reproductive cells have just reached the stage in which they will remain throughout most of their adult life.

The human ovary is suspected of being extremely sensitive at a comparable stage of development. This stage in the human is apparently attained, not during the second week after birth, but at some time before birth. This raises the unfortunate possibility that even quite a low dose of radium can cause sterility in a human fetus, the investigators said.

In addition, this dose may be much lower than would have been guessed from the effects of radiation on the adult ovary, they concluded.

What Is The Law?

This column is prepared as a public service by the College of Law, Willamette University, Salem, to explain basic legal principles, not to provide legal advice. The reader is cautioned not to apply these cases to his own problems without an attorney's advice, for differing facts may change the outcome.

Law Officers Cannot Dupe the Innocent into Crime

Sherman, while in a physician's office undergoing treatment for narcotics addiction, met a government informer apparently also there for treatment.

In the course of several "accidental" meetings, the two discussed mutual problems involved in getting off the "stuff." One day the informer told Sherman that he was not responding to treatment. He wanted Sherman to supply him with narcotics. Sherman at first refused but after the informer complained of his intense suffering, he obtained narcotics and sold them to the informer who in turn notified government agents of the transaction. Later, Sherman was arrested and charged with selling narcotics in violation of a Federal narcotics act.

'Entrapment' Grounds

At the trial, Sherman called no witnesses, but defended himself on the ground of "entrapment." He based his defense solely on the testimony of the prosecuting witnesses. Sherman was convicted but on review the United States Supreme court held that the defense of entrapment was established and that a reversal and dismissal of the indictment was indicated.

Entrapment occurs, wrote Chief Justice Warren, when the criminal conduct was "the product of the creative activity" of law enforcement officials, and that Congress could not have intended that its statutes be enforced by so tempting innocent persons into violations. The functions of law enforcement are the prevention of crime and the apprehension of criminals; they do not include manufacturing of crime.

Induced by Informer

The court said that it was "patently clear" that Sherman was induced by the informer, since the informer's undisputed testimony established the fact that numerous requests were required to overcome Sherman's reluctance to obtain the drugs and he had apparently aroused sympathy by pretending to be suffering pain from the lack of narcotics.

Law enforcement does not require the government to play upon the weaknesses of an innocent party to beguile him into committing crimes, the court stated, and Sherman's record hardly showed a readiness to sell narcotics at the time when the informer approached him, particularly since he was trying to overcome the narcotics habit at the time himself.

Dwarf Balsam firs, growing only about two feet high, are almost the only trees on St. Pierre, off Newfoundland.

SITE OF GIANT ATOM SMASHER—Artist's conception shows the two-mile long site of Stanford University's billion-dollar electron accelerator, to be constructed at Stanford, Calif. Tunnels will be two miles long, beginning at far right and ending in target area structures at left. Cutaway sections in middle and at lower right show how tunnels will look in cross-section. This will be the biggest scientific instrument ever constructed, and will require six years to build.

Sun Being Harnessed To Serve Industry on Experiment Scale

Editor's note: Following is the first of two dispatches describing man's progress toward converting solar energy into an everyday source of power more potent than nuclear fission and more plentiful than coal or oil.

By ROBERT G. SHORTAL
UPI Correspondent

New York –(UPI)– The sun – perhaps the world's most potent natural resource – is being harnessed today to serve American industry and its consumers.

Solar energy is being used experimentally or on a small scale to heat homes, cook food, operate telephones, run clocks, radios, cigarette lighters and barbecue grills and to operate hearing aids.

Industry is employing the sun's energy – caught in solar furnaces – as a research tool for aircraft, missiles, copper smelting, ceramics and atomic energy. Some day this energy source may be used to convert sea water into fresh water.

Work Compared

Scientists say the amount of energy available from sunlight falling on a small roof on an average bright day would be sufficient to do the same work as 5.5 kilowatt-hours of electricity, 146 pounds of coal or 14 gallons of gasoline.

Solar energy reaches the earth at about 1,000 horsepower per acre. If it could be effectively harnessed, experts say, the amount that falls on 100 square miles of desert could run all U.S. industry.

Why are scientists striving to tame solar energy? A basic reason is that the demand for energy is expected to skyrocket in the years ahead, putting a terrific strain on the limited supplies of the fossil fuels – coal and oil.

Atomic energy has great possibilities but, again, the supply of uranium is limited.

Won't Diminish

Energy from the sun, however, is constantly being renewed and will not diminish for millions of years.

Actually, man has been using untamed solar energy down through the centuries.

Coal and oil are examples of how solar energy is stored up for future use. Plants, which derived energy from the sun, later became fossilized by time and pressure. The result was fuel.

The water cycle is another example. Water, evaporated by the light and heat of the sun, falls to the earth's surface as rain and snow and flows in rivers to produce hydroelectric power at waterfalls and dams.

Energy Released

When wood is burned, the sun's energy, stored up by chemical reaction in the growing tree, is released. The sun's energy, of course, plays a key role in plant growth.

But engineers long have dreamed of a less roundabout method than these for producing energy from sunlight.

About 30 years ago, scientists discovered that certain semi-conductor materials, such as selenium and silicon, can generate electricity directly from sunlight. This is the principle of the photoelectric cell – or electric eye – which is used to open doors, dim headlights on a car, or operate photographic exposure meters.

Solar batteries, which store light energy in the form of electricity, have been used to operate telephone relays or to power radios and clocks.

But in its present stage of development, conversion of sunlight to electricity through the use of semi-conductors is relatively inefficient, with only about six per cent of the energy being utilized.

Photochemistry Studied

In addition to photoelectricity, scientists also are studying photochemistry. Here man is trying to duplicate what plants do by themselves – use sunlight to bring about a chemical change. An example might be a chemical solid that turns to liquid in sunlight, with the absorption of heat, and returns to a solid state in darkness with the expulsion of heat.

Great strides are being made to harness solar energy, but it will be many years before it can play a major role in supplying America's energy needs.

The big problems still are finding an efficient method of converting solar energy into electricity and a method for storing the power.

However, a solution of the first problem will make it easier to solve the second.

(Next: Practical Uses.)

Chained Body Found in River

Haverhill, Mass. –(UPI)– The chained body of a six-foot man dressed in woman's clothing was pulled from the Merrimack River Friday. The legs and power part of the torso were wrapped like a mummy.

Medical Examiner John P. Creed said the man apparently committed suicide by downing, although police had theorized it was a case of murder.

"We have an idea of the identification," Creed said, "but official confirmation may take two to several days." Pathologists and dentists were due to examine the body yesterday.

Officials said the body might be that of a Lawrence, Mass., bachelor milkman who disappeared last March 6. His automobile was found abandoned in South Lawrence at the foot of the Merrimack river. The milkman was 28 years old and lived with his mother.

Small Worlds Around Us

By Lynn M. Watkins

IF PESTS DON'T GET YOU: PEST CONTROLS WILL

You can get books describing, in hundreds of thousands of words, along with pictures, the list of pests that you should control.

If you are just starting a garden or a lawn, or attempting to raise your first slip of a plant, or if you have included a fish aquarium in your interior or exterior decorations, you will have many questions in mind as to just what constitutes a pest.

It won't be long before you realize that a pest may be anything, large or small, animate or inanimate, animal, vegetable or mineral that annoys you, or you think annoys you. A pest is a nuisance, something you allow to crucify you. You can make yourself sick trying to combat pests. In fact, you can very easily makes a pest of yourself by trying to control another pest.

For Reading

Pest control can be far-reaching, and all-enveloping. It can cover anything and everything. In the garden, on the farm, or in a pool, or a flower pot, a pest-control problem usually means you have bugs in your plants. And there are usually more corrective measures than there are pests. Each and every one of them is supposed to be the very best way to correct the situation.

The range of the so-called "garden-pests" usually covers a wider field than does the garden itself. Even the milkman, the paper boy and the meter reader, as well as the neighbor's dog and cat from down the street, can all come under the general heading of pests. These are the uncontrollable ones, and are usually not discussed at all in the enlightening books on the subject.

Besides the various species of bugs, there is a long and discouraging list of weeds that come under the pest heading. There are snakes, gophers, moles, turtles and anything and everything else that happens to disturb you. To the small child, a rabbit hopping across the garden is adorable. To you it may be a pest.

Numerous Remedies

Most of the recognized pests have numerous remedies for their control. In fact, to develop confusion into absolute chaos, just spend a little time making a list of the control measures you are told to practice.

There are poisons, sprays, powders, capsules, traps, nets, liquids, solids and pastes; they come in bags, bottles, boxes and tubes; all suggested remedies to cure the pests.

We've almost arrived at the place where if the pest doesn't get you the pest control will.

(Released by The Register and Tribune Syndicate, 1959)

Puerto Rico is one of the world's most densely populated areas.

St. Louis was a town of only about 1,000 population in 1803 when President Jefferson completed the Louisiana purchase with France for a sum of $15 million.

The country's wettest state in terms of average annual rainfall in 1957 was Louisiana with 57.34 inches. The driest state was Nevada, with 8.60 inches of rain a year.