

MEDICINE

Responsibility for Drug Belongs to Developers

► THE FULL MORAL RESPONSIBILITY for the consequence to cancer patients of using Krebiozen has been placed at the door of Drs. Stephen Durovic, its developer, and Andrew C. Ivy, its scientific promoter.

Boisfeuillet Jones, special assistant to the Secretary for Health and Medical Affairs, U.S. Department of Health, Education and Welfare, answered Dr. Durovic's objections to the report of the Food and Drug Administration on Krebiozen as creatine point by point. (See SNL 84:12, Sept. 21, 1963)

"None of the reasons you give for denying that the sample of Krebiozen is creatine can be accepted as valid," Mr. Jones said. "The results are conclusive."

Saying that "we are fully sympathetic with those patients who believe that Krebiozen is necessary for the maintenance of their health and life," Mr. Jones went on to say that it is the responsibility of his department to assure the public of adequate health protection safeguards under policies established by Congress.

"You and Dr. Ivy," he continued, "have encouraged their belief; you made Krebiozen available to them with claims of benefit. Identification of the two samples of the drug that you have supplied to this department as creatine, naturally present in the body, casts strong suspicion on your claims of benefit in the treatment of cancer."

No exemption to safeguards applicable alike to all sponsors of investigational use drugs is foreseen by Mr. Jones, whose statement is tantamount to implied court action.

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BIOTECHNOLOGY

Off-Beat Hearts Get Back in Step

► WHEN THE LUB-DUB-DUBBING of the heart gets off beat, scientists can restore its rhythm with tiny pacemaking devices.

These lifesaving techniques—some of them still being tried out on dogs, others working successfully on humans—were discussed at the Conference on Cardiac Pacemakers, jointly sponsored by the New York Academy of Sciences and the American Heart Association in New York.

Pacemakers are tiny power plants that send electrical signals to the heart muscles. They are man-made substitutes for the body's natural pacemaker, called the sinoatrial node, and they coordinate the beating of the chambers of the heart.

One type of pacemaker is a miniature radio broadcasting system. A transmitter outside the body sends waves to an antenna taped to the skin.

A capsule under the skin receives the radio frequency signal and converts it to an electrical signal which is led to the heart by a pair of electrode wires.

This pacemaker was developed and tested by Drs. Warren D. Widmann and William W. L. Glenn of Yale University Medical School, Alexander Mauro and Lawrence Eisenberg of the Rockefeller Institute.

Other scientists, such as Dr. P. M. Zoll and his colleagues of Harvard University School of Medicine, prefer a pacemaker with no external parts. These pacemakers are implanted in the body, batteries and all.

Both types of pacemakers are being used successfully, but scientists still are searching for a permanent power source.

A possibility, discussed by Dr. V. Parsonnet and his colleagues of Seton Hall College of Medicine, is to convert mechanical energy into electrical energy.

In animal experiments these investigators used the expansion of a large blood vessel leading from the heart as the power generator. Translating this energy into the pacemaker stimulus has worked for only short periods of time.

Use of drugs as artificial pacemakers was suggested by Drs. J. Folkman of Massachusetts General Hospital and D. M. Long of the University of Minnesota. In dogs' heart muscles they put a small container of a drug that slowly spread through the tissue and stimulated heartbeat for several weeks.

Dr. Richard Ernst of Southwestern Medical School, Dallas, reported a technique, successful in animals but only recently tried on humans, of transplanting the heart's natural pacemaker from one chamber of the heart to another.

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PUBLIC HEALTH

Sewage Disposal Plan Seen Helping 56 Million

► AN ADEQUATE WATER SUPPLY and sewage disposal plan that would reduce the health hazards of 56 million Latin Americans is being promoted by health officials of the Western Hemisphere in Washington, D. C.

Dr. Stuart Portner, chief of administration, Pan American Sanitary Bureau, told SCIENCE SERVICE that he believed the proposed revolving fund would reduce the death rate of 40% of children under five years of age from diarrheal diseases.

"This is one of the highest death rates in the world," Dr. Portner said. A \$200 million loan fund, 80% of which would be financed by the Latin American governments and their local communities, would raise the life expectancy of these children.

Self-help in building waterworks and other needed facilities would reduce the overall cost.

Some of the Latin American Health Ministers and their representatives are empowered to commit their governments to support of the plan. Cuba at this time, although sending representatives, has her own health plans.

The United States, represented by the Public Health Service, is behind the plan in principle but would require Congressional action to contribute any funds.

The U.S., hopefully with the help of the Alliance for Progress, would be expected to contribute 20% of the \$200 million revolving fund.

An international technical committee is being appointed to work out details of plans.

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MEDICINE

Growing Up Only Cure For Bed-Wetting Habit

► THE ONLY sure cure for bed-wetting is to grow up. There are no miraculous mental or physical prescriptions for the habit buried in the black satchel, a team of British investigators has concluded.

Drs. R. F. Barbour, May M. Boyd, E. M. Borland, Ashton Miller and T. E. Oppe, all of the Bristol Royal Hospital for Sick Children, were looking for the cause of serious bed-wetting, technically termed enuresis. But all they could find was that the bed-wetter has "a weak bladder which he will grow out of."

Medical, psychological and social studies of ill bed-wetters, ages five and up, and interviews of 93 of them held five years later were reported in the British Medical Journal, Sept. 28.

The follow-up showed 60% of the boys and 74% of the girls had become "dry."

"Age was more strongly associated with the cure than any other factor," the investigators said. Psychological and physical factors may be involved in bed-wetting problems, but the part they play is "not clear," they pointed out.

The investigators encouraged doctors to help the bed-wetter learn to control his bladder to soothe the parents' anxiety or change parents' attitudes where necessary.

But, they said, there is no evidence that the doctor's "intervention" will be successful in speeding up the bed-wetters' development of self-control.

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BIOCHEMISTRY

Milk-Souring Substance Has Antibiotic Effects

► AN ANTIBIOTIC-LIKE substance is produced by the organism that makes lactic acid, which sours milk.

Until a few years ago, Dr. David B. Sabine of Yonkers, N. Y., reported in Nature, 199:811, 1963, the beneficial effects resulting from the administration of the *Lactobacillus acidophilus* in gastro-intestinal disturbances were attributed to its high rate of growth.

The antibiotic substance produced in Dr. Sabine's experiments at the U. S. Vitamin and Pharmaceutical Corporation in Yonkers is weak and unstable.

However, because it is being continually produced by the rapidly growing *lactobacilli*, it may account for the effects on humans as well as in test-tube experiments.

Isolation of the substance has not yet been accomplished, Dr. Sabine explained, but he reported his method for a visual demonstration of the phenomenon.

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CE FIELDS

ENTOMOLOGY

Death in the Back Yard From Bees and Spiders

► A MAN MOWING his lawn was stung by a bee and died in spite of pills taken immediately for his allergy. A bat in an old barn was rabid and his bite caused serious illness in a boy. Now comes a common brown spider found from Kansas south to the Gulf Coast and from Tennessee to Oklahoma that may be more dangerous than the black widow variety.

A research group from the University of Arkansas Medical Center, and the Veterans Administration Hospital, Little Rock, Ark., reported that this spider (*Loxosceles reclusus*) may probably be found in other areas of the United States.

Not only is the "recluse" spider found out of doors, it loves the dark corners of closets and storerooms. The hastily dressing person who reaches for clothing in the morning while half awake may wake up in a hurry when this little creature bites him.

The Veterans Administration in Washington, D. C., says the one distinguishing mark that differentiates it from other spiders is a dark spot shaped like a violin on its head. Its color varies from light fawn to dark chocolate brown, and its body is covered with short hairs invisible to the naked eye.

It does not attack, but if molested will sting. The person who is bitten may be completely unaware of the cause of the mild transitory stinging, and seldom sees the spider.

But young children have been killed, and doctors say other patients have had fever, chills, weakness and vomiting as well as a generalized itching eruption within 24 to 48 hours after the bite.

The research group, composed of Drs. Calvin J. Dillaha, G. Thomas Jansen, W. Mage Honeycutt and Carson R. Hayden, say prompt treatment by a physician usually is effective.

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INVENTION

Wheel Chair Patented, Can Climb Stairs

► A MOTORLESS wheel chair that can actually climb stairs earned a U.S. patent for a Los Angeles inventor, who was awarded patent 3,104,112.

Jesse W. Crail of 3802 Edenhurst Ave., invented a lightweight, collapsible wheel chair that operates without electric power or an auxiliary motor. A person of normal strength confined to the chair operates the stair-climbing mechanism by turning the wheel that normally moves the chair on a horizontal level.

Two wheels, retractable when not in use, about one-third to one-half the size of the larger wheels, are the key to stair-climbing

ability. A lever lowers the wheels below the chair's bottom frame as the chair climbs. A safety ratchet wheel and teeth provide protection against an accidental runaway, since no brake is included.

Only one such wheel chair exists—the one in which Mr. Crail demonstrated its safety by coming to a full stop while climbing stairs. He hopes to place his first invention on the market soon.

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CHEMISTRY

New Chlorine Compound Produced in Laboratory

► CHLORINE PENTAFLUORIDE, a chemical compound never seen before, has been produced in the laboratory.

Dr. De Forest F. Smith, physicist for the Oak Ridge Gaseous Diffusion Plant, Union Carbide Nuclear Company, Oak Ridge, Tenn., reported discovery of the new compound in *Science*, 141:1039, 1963.

He began the search for the chemical after studying the way in which compounds have been made with xenon, one of the inert gases that until recently were thought incapable of combining with any other element.

Chlorine pentafluoride was produced by heating its elder sister, chlorine trifluoride, in the presence of fluorine at high pressure.

The result was a compound with molecules shaped like square pyramids. The chemical has a lower melting point and higher vapor pressure than chlorine trifluoride and is considerably less reactive with water vapor.

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PUBLIC HEALTH

Air Pollution Caused By Affluent Society

► THE UNITED STATES, with the world's highest standard of living, is throwing an alarming amount of half-used gases, materials and dust into the air.

As the U.S. develops from a primarily agricultural economy to a highly industrialized one, it is filling the air with residues that read like a ledger of our various activities: half-burned fuels from individual and industrial furnaces; fumes from trains, planes and motor vehicles; gases from incomplete conversion of raw materials into finished goods; pesticides and fertilizers that are strewn over crops and forests; materials from nuclear energy experiments; ashes from burning trash; and dust from road and building construction.

The increasing per person production and consumption of goods and services require a vastly greater use of combustible materials which are polluting the air.

"The problem is getting steadily worse," stated Sen. Edmund S. Muskie (D-Maine), chairman of the Senate Public Works subcommittee.

"Efforts to solve the problem by the Federal Government as well as state and local governments are lagging far behind the need," he emphasized.

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ENTOMOLOGY

Apple Rust Mite Spotted For First Time in Maine

► FOR THE FIRST TIME, a rust mite is infesting the fruit trees in Maine.

Specimens of the tiny wingless pest have been collected in Winterport, Waldo County, the plant pest control division of the U.S. Department of Agriculture in Washington reported.

On the East Coast, the apple rust mite has been found in Connecticut, Maryland and recently in New York, U.S. officials said. On the West Coast they have been found in Washington, Oregon, California, Utah and Colorado.

These creatures are not insects. They are eight-legged members of the Arachnid family, with relatives such as spiders, ticks, chiggers and scorpions.

By infesting the surface of fruit leaves and bark of young trees, they cause a russeting or silvering of the leaves that looks like rust. During the winter these tiny pests sleep in a frozen state under the bud scales or bark.

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TECHNOLOGY

Laser Warning Symbol May Prevent Blindness

► A STANDARD DANGER symbol for warning people that there is a laser being used in the area has been proposed by Dr. Jack De Ment of De Ment Laboratories in Portland, Ore.

Consisting of a blocked-in figure resembling a flashlight with an arrow representing the laser beam coming out the end, it would be printed in glowing red on a white background and would accompany a caption reading DANGER—LASER LIGHT.

Use of the symbol would prevent persons from being blinded or burned by walking into the beam of intense invisible light emitted by a laser.

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TECHNOLOGY

Ships Now Built On Assembly Line

► GONE ARE the days when a ship was put together like a building—all in one place—and then pushed down a ramp into the sea.

The world's first assembly-line shipyard has been built at Arendal, Sweden. The ships are built indoors and assembled in chunks on an assembly line. By using this method, production time will be cut in half and quality improved, Nils Svensson of Gotaverken, designer of this ultramodern \$40 million shipyard, believes.

Ships as large as 150,000 tons dry weight are assembled in sections of up to 300 tons each, and then sent farther down the line to an outdoor dry dock for finishing touches. Upon completion, the dock is flooded, and away the ship goes. Total construction time for the average ship—20 weeks.

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