

RADIO

Television Transmitter Is Carried on One Man's Back

► TELEVISION has gone pickaback. A camera and a portable transmitting station, designed as a one-man back-pack unit, was described to the Institute of Radio Engineers.

This back-pack station is planned to function with its own battery-power supply, stated L. E. Flory of the RCA Laboratories where the equipment was developed. It has a range of approximately one mile. The transmitter operates in conjunction with a control station which may be located a mile away.

Signals corresponding to the scene being televised are transmitted to the control point on an ultra-high frequency with a power of two watts. In addition to acting as a monitor for the televised picture, the control point sends out a stream of pulses which stabilizes the camera and can also be used to issue vocal instructions to the cameraman.

The back-pack is carried knapsack fashion, with sending antenna extending from the top. It is an adaptation of the RCA industrial TV camera using the vidicon tube. The equipment contains 42 tubes which, with their associate circuits, provide all frequencies for a standard 525-line, 30-frame interlaced television picture. A single battery operates the station for about one and a half hours.

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RADIO

Radio-Guided Lifeboat Rescues Ocean Survivors

► UNMANNED lifeboat, that under remote radio control rushes around to survivors in the sea, has been developed at the Wright-Patterson Air Force Base, Dayton, Ohio. It will be standard equipment in some types of Air Force planes in less than a year.

It is designed for air transportation and is dropped from a plane by parachute. After it hits the water, its engine is started and its direction determined by radio signals sent by an operator in its mother plane.

The boat is of all-metal construction, measures 30 feet in length and is designed to carry 15 men. It is powered by a four-cylinder, water-cooled engine, housed in a water-tight compartment. A massive 100-foot parachute is used in the dropping.

When the boat hits the water, the chute is jettisoned by an explosive charge. A sea anchor goes out with the chute and holds the boat in position. After the chute is jettisoned, the operator in the plane takes over. He uses a five-frequency transmitter which is matched by a five-frequency receiver in the boat.

His first signal releases the stabilizing fins which hold the boat steady in descent, frees the rudder, opens the engine's air vents and cranks the motor. When the motor is running at a fast idle, the sea anchor is released. The boat then travels forward and to the right or the left under radio control by the operator.

The operator stops the boat when it comes to the survivors' raft, and idles the motor while they board. The boat itself is equipped with duplicate controls which enable survivors to break off the radio control and take over when ready. The system was developed by Air Force scientists and built by Westinghouse Electric Corporation.

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NEUROLOGY

Tickling Tadpole's Back Aids Study of Nerves

► TADPOLES that scratch their bellies when their backs are tickled are giving scientists more knowledge about the action of the nerve fibers in the skin that are responsible for feelings of touch, heat and the like.

The reverse action tadpoles were reported by Dr. Nancy Miner of the University of Chicago at the meeting of the American Association of Anatomists, Detroit.

Dr. Miner cut a narrow strip of skin from near the mid-back to near the mid-belly lines of the tadpoles. These skin strips were then rotated 180 degrees and replaced. The grafted strips developed typical coloring of their original location, in spite of being in reversed positions.

After metamorphosis Dr. Miner touched the white belly skin on the tadpole's back. By reflex action the tadpole rubbed its belly with its forelimb. When she touched the back skin which was now on the belly, the tadpole aimed its hindlimb at its back to rub or scratch the place touched.

When the skin on the sides which had been left in its original place was touched, the tadpole aimed correctly to rub the touched spot.

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ZOOLOGY

Rabbits Don't Necessarily Have Gallbladders

► RABBITS DO NOT necessarily have gallbladders. This organ was lacking in more than 10% of rabbits in one family line of New Zealand Whites and in about 6% of 1,275 hybrid bunnies selected at random, Dr. Paul B. Sawin of Jackson Laboratory, Bar Harbor, Me., reported to the American Association of Anatomists, Detroit.

When they do have gallbladders, the size of the gallbladder may vary from very small to longer than the length of the animal's liver lobe.

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IN SCIENCE

GENERAL SCIENCE

Cod Liver Oil Rivalled By Vitamin A Manufacture

► A NEW two-million-dollar factory to rival the cod, the shark and other fish has been built by Chas. Pfizer and Co., Brooklyn, N. Y., chemical firm, in Groton, Conn.

The plant will be used to produce crystals of vitamin A. This is one of the two vitamins for which generations of children have taken cod liver oil and other fish liver oil. Vitamin A is particularly important for health and normal growth in childhood and for eye health at all times.

Synthesis of vitamin A crystals was accomplished on a laboratory scale during the early part of World War II. Synthesis on a commercial scale proved difficult because the crystals were so sensitive to the destructive action of air and humidity.

This difficulty has been overcome by Pfizer's chemists. They make the vitamin crystals stable by coating them with gelatin. The gelatin-coated crystals will stand storage for three years under normal conditions.

Vitamin A has been available in soft gelatin capsules. But many people prefer swallowing a tablet, or pill as it is popularly known, to swallowing a capsule. The new dry form of the vitamin will make it possible to put it up with other vitamins in multi-vitamin tablets, instead of capsules.

The new plant, John E. McKeen, Pfizer president, said, will be able at full capacity to produce one-half the total U. S. civilian and military need for vitamin A.

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INVENTION

Patent Cigarette Pocket For Swimming Trunks

► THAT desire for a cigarette next summer—when the swimmers are on the diving float—may be satisfied. Swimming trunks with a waterproof pocket have been invented.

The pocket, made of rubberized fabric, can carry car keys, money and other small articles, as well as cigarettes and matches.

In addition, the pocket is reversible and the wet bathing trunks may be put inside it for carrying after the swim. The inventor, Ferdinand Kowatsch, Chicago, has designed a slide fastener with handles on each side so that the trunks' pocket can become a carrying case. He received patent 2,544,840 for his invention.

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E FIELDS

DENTISTRY

Foresee Tooth Banks from Transplantation Attempts

► **TOOTH BANKS**, where a person who lost a tooth could get a tooth bud that would grow in his jaw into a full-sized permanent tooth, are a possibility for the future.

The beginnings of teeth have been successfully transplanted in cats by Dr. Harry H. Shapiro, assistant professor of anatomy at Columbia University's College of Physicians and Surgeons.

The buds of developing permanent teeth in cats have been successfully transplanted from the jaw of one cat to the jaw of another as well as to a different place in the jaw of the same cat.

Dr. Shapiro makes it clear there is no assurance his results can be applied to humans.

However, dentists recall one case reported of successful tooth bud transplantation in humans. In this case a third molar, or wisdom tooth, bud was transplanted into the socket of a first molar tooth.

Tooth bud banks for humans would pose a supply problem. Presumably they would have to come from the jaws of children who died of accident or some sickness.

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GEOGRAPHY

For Success, Choose Birthplace Carefully

► **IF** you want to be a success in life, choose carefully the place where you are born, as well as your parents.

This advice was offered indirectly by Dr. Stephen S. Visser, professor of geography at the University of Indiana. Your present place in the community and economic status may be due indirectly to the geographical location of the town in which you were born, he told the Association of American Geographers meeting in Chicago.

Dr. Visser reported on a detailed study of leading Americans born and reared in Indiana, in which he found that more leading scientists were born in certain sections of the state than in other sections. Prominent persons listed in "Who's Who in America" and "American Men of Science" were selected for the study.

"The areas which yield the most notables are those which contain the most mentally alert, ambitious, persistent and energetic people possessed of high ideals," Dr. Visser stated. "Such people seek opportunities to use their abilities, they appreciate congenial

associates and therefore congregate in desirable towns and in choice residential districts or in suburbs."

He reported that the southwestern sixth of the state of Indiana possessing the longest hot summer yielded far fewer notables proportionately than the opposite corner of the state, which is the coolest.

Families of professional men, Dr. Visser reported, produce twice as many distinguished offspring as the families of business men; 20 times as many as farmers; 45 times as many as skilled laborers and 1,000 times as many as unskilled laborers.

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MEDICINE

Thyroid Cancer Responds To Hormone Treatment

► **FOR** the first time in medical history, a case of cancer of the thyroid gland in the neck has responded to treatment with male hormone.

The patient, a 53-year-old woman who had been sick with thyroid cancer for nine years, has left her sick bed and has been leading a routine normal life for the past eight months since the hormone treatment.

These good results do not mean that the patient has been cured, warns Dr. Henry M. Lemon of Boston University in his report to the American Cancer Society.

"The patient's bones still are shot through with cancer," he stated. "There is no telling whether any of this can be cleared up and, if so, how long the remission will last."

Large doses of X-rays had previously been tried without success. The cancer did not pick up radioactive iodine, as some thyroid cancers do, so that treatment offered no hope.

Scientific interest in this case, Dr. Lemon pointed out, centers on the opportunity to study just what effect the male hormone has on protein synthesis in thyroid cancer.

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METEOROLOGY

Water in Air Studied To Learn About Storms

► **THE WATER** in the air of North America is being investigated by a team of Baltimore meteorologists from Johns Hopkins University. The objective is to discover more about the birth and development of storms, to devise better methods of forecasting rain and clouds, and find out about the immense amounts of moisture in the air as vapor.

Because weather predicting is necessary for air and ground troop operations in war, funds for the research, directed by Prof. George S. Benton, are provided by the U. S. Air Forces.

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INVENTION

Sea Water for Irrigation By Chemical Treatment

► **WATER** suitable for irrigation purposes is claimed obtainable from the salty ocean by a chemical-treatment process on which William A. E. Hult of San Diego, Calif., received patent 2,546,071 from the government. The product is not suitable for household or drinking purposes because of the new chemicals formed.

Sodium chloride, the principal salt in sea water, is converted into sodium nitrate, which remains in the irrigation water and adds plant food to the soil. Also formed is silver chloride, a precipitate easily removed.

To bring about this chemical action in the sea water, silver nitrate is added to it in an agitator. Then, to recover the silver chloride, the water is passed through a "rifle barrel" type sluice pipe and into a settling tank from which it is drawn to the garden.

If desired the new water may be evaporated so that the sodium nitrate may be recovered as a commercial product. The silver chloride from the sluice pipe and settling tank may be refined, and it may have an enhanced value because it may contain some of the metals in sea water.

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EMBRYOLOGY

Embryos Show Prebirth History of Baby Cobra

► **HOW** a baby cobra looks before hatching out of its egg can now be seen in a series of embryos of the dread king cobra just added to the Smithsonian Institution reptile collection.

The prebirth history specimens were collected by Maj. Robert Traub and Lieut. Vernon Tipton of the U. S. Army Medical Center. They give for the first time a nearly complete account of the king cobra before birth.

The embryos were collected in connection with a survey of Malayan animals possibly concerned in the spread of tropical diseases. A nest of king cobra eggs was found soon after the eggs were laid.

The officers proceeded to open the eggs at intervals until they reached the hatching stage.

Also added to the collection by the Army medical workers were specimens of some of the world's weirdest reptiles, the "flying dragons" of Malaya. The flying dragons are really lizards.

They have several greatly prolonged ribs to which are attached membranous sheets of skin. When these are spread out, they enable the creatures to glide considerable distances from branch to branch of their forest home. They serve as parachutes, though they look like wings.

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