

GENERAL SCIENCE

Red "Moons" Over-Rated

The most important scientific events of the past year were not the launching of the sputniks, but rather more basic research in other fields of science, many scientists believe.

► THE SPUTNIKS are not the most important scientific and technological advances of the year in the opinion of many of some five thousand scientists that gathered for the 124th meeting of the American Association for the Advancement of Science.

Dr. Wallace R. Brode, president-elect of this largest of general science organizations in the nation, feels many advances being made in biology, human relations and phases of physical science unrelated to missiles, rockets and satellites are far more important than the sensational Russian satellites. Dr. Brode, who is associate director of the National Bureau of Standards, Washington, rates as the prime 1957 achievement the demonstration that the conservation of parity or the "invariance of spatial inversion" is not rigorously true at the nuclear level.

Just as the Einstein theory of relativity, which was also difficult for the non-scientist to understand, had a profound influence upon the progress of science and philosophy, so this Nobel prize winning reversal of a previously accepted law of matter is expected to influence the future.

The retiring AAAS president, Dr. Paul B. Sears of Yale University, a leading conservationist, discussed space in his address to the Association. But it was not the kind of space concerned with rockets and satellites. It was space on the surface of the earth, the terrestrial space in which man lives. Our future, in his opinion, depends far less upon outer space than upon the land we use.

The quality of the space on the earth's surface rather than the area is the prime consideration, Dr. Sears points out.

One of the most significant things about modern science, Dr. Sears feels, is that demography and ecology or other science specialties have given us the means of projecting the future utilization of our resources and the ability to form an estimate of the direction of the future of our human adventure. This allows man to make adequate arrangements for the centuries to come.

Artery Disease

► A NEW CAUSE, hormone imbalance, has been found for polyarteritis nodosa, a usually fatal disease that creates dangerous lumps or nodules inside artery walls.

This was reported by Dr. James C. Perry, Marquette University, Milwaukee, Wis., to the Association.

Polyarteritis nodosa is a disease in which there is first an inflammatory reaction in the smaller arteries. This reaction continues to become worse and later spreads to the

larger arteries. The thickened artery walls break down and become plugged with dead cells, forming the characteristic nodules. Extensive damage is done to many of the body's organs and when the arteries of either the lungs, heart, kidneys or abdomen are hit, recovery is rare.

The disease was accidentally produced in male rats by giving them female sex hormone first to eliminate their sperm production, and then a hormone from the pituitary gland, follicle stimulating hormone (FSH), in an attempt to speed up the normally slow recovery of sperm cell production. The results of giving FSH revealed an entirely different reaction than expected, the development of polyarteritis nodosa, Dr. Perry reported.

Further studies of the animals showed that when the disease developed large tumorous cells appeared in the pituitary gland at the same time. Although these tumors never spread, other tumors were also found in the adrenal glands. These adrenal tumors increased in size as the disease progressed. If the pituitary gland is removed either before or after treatment with the two hormones, the polyarteritis does not develop nor do tumors appear in the adrenal glands.

It appears that the tumorous pituitary causes the tumors in the adrenal glands, and these in turn cause polyarteritis, Dr. Perry concluded.

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MEDICINE

Chest Movements Used To Record Heart Sounds

► HEART murmurs that have gone unnoticed before are now being "heard" by a device that records tiny movements of the chest wall.

The device is known as a capacitance heart sound pickup and was developed by Dr. Dale Groom, Medical College of South Carolina, Charleston, and Yro T. Sihvonen, General Motors Corporation, Detroit, Mich. Its use may enable heart researchers to spot defects in heart valves at an earlier stage than has been possible before.

The capacitance device is contained in a small bell-shaped housing similar to the "bell" of the physician's stethoscope. It converts chest wall vibrations directly into electrical signals.

These are then amplified and reproduced with a clear trace on an oscilloscope where they can be photographed, or they can be recorded on tape.

The main advantage of the device is its greater sensitivity. It brings out many "normal" murmurs and sounds produced by the flow of blood through the heart and blood vessels that are not audible on ordinary stethoscopic examination.

The heart sounds of an unborn child can also be picked up and recorded at an earlier stage of development than before.

The capacitance principle has been known and used throughout industry for many years. It utilizes the variation that occurs in electrical capacitance between two charged conductors as the relative distance between them is changed.

With the device, the skin on the chest serves as one electrode and the other electrode is suspended a fraction of an inch above the skin surface, inside the pickup.

Science News Letter, January 4, 1958



HEART SOUND PICK-UP—To detect and record heart murmurs that may reveal heart valve defects earlier than was possible before, this device, in its small bell housing on the patient's chest wall, is being used for research in a soundproof room at Medical College Hospital, Medical College of South Carolina, Charleston.