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**1961 Advances in Science**

(Continued from p. 403)

effective in dating the recent and ancient past. A new early date for manlike creatures has been obtained by the potassium-argon method of atomic dating of the rock bed in which *Zinjanthropus boisei* was found. This possibly human creature lived about 1,750,000 years ago.

The discovery of bacteria-like cells that reproduced themselves in test tubes after being isolated from the Murray meteorite was a possible indication of life in space.

The rise of research and development in importance on the American scene was emphasized by new figures developed during the year. In 1959 about \$12.4 billion was spent on research and development, accounting for 2.6% of the gross national product. The estimate is that \$9.1 billion would be spent by the United States Government for scientific research and development during fiscal 1961. The National Science Foundation gave as its opinion during the year that an ideal rate of top quality scientific growth in the U.S. during the next decade should cost \$50 billion. Figures showed that there was a peak in 1959 of an all-time high of doctor's degrees in the awarding of 5,300 doctorates in the U.S. The average U.S. scientist in 1960 earned \$9,000 a year.

• Science News Letter, 80:402 December 16, 1961

**BOTANY****Slow-Growing Trees Lack Growth Hormone**

▶ A SMALL TREE struggling hard to become an adult in a crowded forest has a hard time because of a hormone deficiency.

Although a lack of sunlight-triggered food (carbohydrates) is commonly believed to be the major cause of a slow growth, Drs. T. T. Kozlowski and T. A. Peterson, research scientists at the University of Wisconsin, Madison, Wis., have found that auxin, a growth-stimulating hormone normally produced by new leaves and buds, is virtually absent in the suppressed trees.

• Science News Letter, 80:406 December 16, 1961

**AGRICULTURE****New Method Predicts Crop Harvest Dates**

▶ A NEW METHOD, more accurate than previous ones, for predicting the date when crops will be ripe for harvesting was reported to the American Meteorological Society meeting in St. Louis.

The new procedure to determine plant growth based on temperature and moisture measurements was developed by W. Russell Hamon of The Travelers Research Center, Inc., Hartford, Conn. It is called the Plant Development Index, or PDI.

When the method was applied to a 32-year record of the planting and 75% silked dates of corn in Iowa, the predicted dates were correct within 2.1 days, compared to 3.5 days by the best previous method.

• Science News Letter, 80:406 December 16, 1961

**GENERAL SCIENCE****Ten Top Science Advances Picked by Science Service**

▶ THE TEN TOP SCIENCE, medicine and technology advances in 1961 as selected by Dr. Watson Davis, director of SCIENCE SERVICE, are:

1. Two man-carrying spaceships placed in orbit around the earth by the USSR, the U.S. launching of two astronauts in sub-orbital flight, and proving of U.S. Saturn 1,300,000-pound thrust world record space rocket.

2. Discovery of chemical element 103, named lawrencium.

3. Plans to license measles vaccines from both live and killed virus were announced for 1962.

4. Advances in cancer treatment: methotrexate cure of placental tissue choriocarcinoma; use of Cytoxan, actinomycin D and methotrexate in treating eye cancer that had spread to bone marrow; 5-fluorouracil had some effect on cancer of the large bowel.

5. Brain radiosurgery without skull opening using proton beams.

6. Cultivation of hepatitis virus in laboratory, first step to vaccine against infectious hepatitis disease recently on increase.

7. A method of relighting solid rocket fuels was found.

8. Process to remove from milk 98% of strontium-90 from atomic explosion fallout.

9. Inexpensive freezing method converting salt to fresh water using butane gas as refrigerant.

10. Manlike creature, *Zinjanthropus*, dated atomically at about 1,750,000 years ago.

• Science News Letter, 80:406 December 16, 1961

**DERMATOLOGY****Diseased Skin Treated By Injection Technique**

▶ PATIENTS with certain types of skin disease can avoid the expense of taking large amounts of powerful medicines by mouth if their physicians inject some of the cortisone-like medicines directly into the skin.

Small patches of psoriasis, which is a stubborn skin disease of long duration, responds to injections, Dr. Leon Goldman of the University of Cincinnati reported at the 20th annual meeting of the American Academy of Dermatology in Chicago.

Also, certain types of baldness, some mouth diseases, and small patches of thickened skin have improved with injections.

Side effects are rare, Dr. Goldman said, and the possibility of their occurrence should not "interfere with the use of this important form of treatment."

The title of Dr. Goldman's talk was "Beta Methasone—Various Forms of Use in Dermatology." This is a new steroid drug, also called Celestone, which can be taken in smaller doses and with fewer side effects than other corticosteroids.

• Science News Letter, 80:406 December 16, 1961