quickly form a strong attachment to its own kind if it is to survive. If this process is found in human infants and if it persists into adult life, it will explain many previously puzzling relationships.

Two areas of further research are needed, Dr. Scott said. One is the collection of information on critical periods from as many social species as possible to determine whether or not such a period is a basic law of behavior.

The other is to obtain additional information about human development in relation to education, where the possible existence of critical periods for learning has great practical importance.

• Science News Letter, 83:3 January 5, 1963

MEDICINE

Arthritis Pain Affected By Change in Weather

➤ AT LEAST one type of weather change makes the pain of arthritis worse. When the humidity goes up and the barometric pressure goes down, as happens before a rainstorm, arthritic pain actually does increase.

Many other combinations of weather changes may also affect arthritic patients, Dr. Joseph Lee Hollander of the University of Pennsylvania School of Medicine, Philadelphia, told the American Association for the Advancement of Science meeting in Philadelphia.

Arthritic patients have claimed for years that they could predict weather changes because their pain became worse before storms and cold snaps, but it took scientific tests in a controlled climate chamber (Climatron) to give credibility to what was believed to be an "old wives' tale."

The first studies Dr. Hollander and his assistants made were with changes of one climatic factor at a time. None of the 14 patients tested felt any worse after the change of any single climatic variable. But 10 of 11 arthritic patients who endured the synthetic storm conditions felt worse most of the times such changes were made.

In 29 out of 40 trials, these patients felt worse although they were completely unaware of the timing or type of climate changes arranged by the researchers.

During a four-hour period, the barometer went from a high of 31.5 inches down to a low of 28.5 inches, while the humidity rose from a low of 25 per cent to a high of 80 per cent with a constant temperature of 76 degrees.

In all, 30 arthritics lived in the Climatron for periods of two to four weeks. This study is the first part of a long-range program to discover effects of climate not only on arthritis, but on chest diseases, bronchial asthma and other illnesses. Dr. Hollander's team is working under a grant from the National Institute of Arthritis and Metabolic Diseases, Bethesda, Md.

• Science News Letter, 83:4 January 5, 1963

TECHNOLOGY

Tough Plastic So Good Almost Discarded

➤ WHEN IT WAS discovered a quarter century ago, it was almost discarded because it was unaffected by any chemical, so slick nothing stuck to it, hot irons would not melt it, electric arcs would not char it and moisture would not rot or swell it.

Now this flourocarbon resin plastic has won for the Du Pont Company the Industrial Science Achievement Award of the American Association for the Advancement of Science. After the discovery, millions of dollars were spent on research and development. Now, Dr. Samuel Lenher, Du Pont vice president, told the scientists in Philadelphia that this Teflon fluorocarbon and its modifications are used for such applications as:

Artificial blood vessels and heart valves for the human body.

No-stick coatings on cookware.

Bearings and brushings that run for lifetime of machinery without lubrication.

Gaskets that withstand even nitric acid.

Airtight suits for rocket men that safely withstand flash temperatures of 1650 degrees Centigrade and sustained heat of 260 degrees.

Coatings for building materials that promise to last longer than the two decades so far experienced.

Hoses, seals, insulation and other components of bombers, satellites and industrial products.

In addition to the discovery of the group of fluoroelastomers, Du Pont chemists found how to limit the number of atoms that link together to form a long-chain molecule, creating telomers in contrast to the long-chain polymers of earlier plastics.

Other reports to the annual AAAS sessions included:

Fish are responsible parents, taking care of babies—Prof. George W. Barlow, University of Illinois zoologist.

Arid western America may have to change its ways of living because of a shrinking water supply—Dr. Terah L. Smiley of the University of Arizona.

Expansion of cities and living mostly confined to indoors create new health problems, including monotony that affects mentality, productivity and creativity—Dr. Igho Hart Kornblueh of University of Pennsylvania Graduate Hospital.

• Science News Letter, 83:4 January 5, 1963

SPACE

Magnetic Field of Venus Undetectable by Mariner

➤ VENUS does not have a magnetic field detectable at a distance of 21,594 miles from its surface, the closest point reached by the U.S. probe Marine II, or from anywhere else along the probe's path.

Dr. P. J. Coleman of the University of of California at Los Angeles reported this to the American Association for the Advancement of Science meeting in Philadelphia, the first official result of the Mariner II scan of Venus.

Dr. Coleman said that no rise in magnetic field higher than that of interplanetary space was found by Mariner II as it swept near Venus last Dec. 14. However, he reported that "interplanetary space is not

(Continued on p. 13)

Questions

ARCHEOLOGY—Where is an ancient worship site used by Joseph and Abraham located? p. 2.

CLIMATOLOGY—Where is the world's greatest rainfall in one minute recorded? p. 8.

COMMUNICATION—How many words per minute were transmitted in the world's fastest communication across television channels and telephone lines? p. 5.

PUBLIC HEALTH—What location in the U. S. has an excess of radioactivity in milk? p. 9.

TECHNOLOGY—What plastic is used for such diverse applications as artificial blood vessels and airtight suits for rocket men? p. 4.

ZOOLOGY—How long have beavers been in southeastern New England? p. 6.

SCIENCE NEWS LETTER

VOL. 83 JANUARY 5, 1963 NO. 1

Edited by WATSON DAVIS

The Weekly Summary of Current Science, published every Saturday by SCIENCE SERVICE, Inc., 1719 N St., N.W., Washington 6, D. C., NOrth 7-2255. Cable Address: SCIENSERVC.

Subscription rates: 1 yr., $5.50; 2 yrs., $10.00; 3 yrs., $14.50; ten or more copies in one package to one address, 7½ cents per copy per week; single copy, 15 cents, more than six months old, 25 cents. No charge for foreign postage. Change of address: Three weeks notice is required. Please state exactly how magazine is addressed. Include postal zone number.

Printed in U.S.A. Second class postage paid at Washington, D. C. Established in mimeograph form March 13, 1922. Title registered as trademark, U.S. and Canadian Patent Offices. Indexed in Reader's Guide to Periodical Literature, Abridged Guide, and the Engineering Index. Member of Audit Bureau of Circulation.