



Hebrew University of Jerusalem

Eighth-century tower (rough-hewn stones), with later structure in front.

cities, but Josephus (who lived in the first century A.D.), insisted that the Hasmonean wall superseded one "from the time of David and Solomon and the kings thereafter."

Following the 1967 war, the Israeli government launched a campaign to re-

build this part of the old city, which had been largely destroyed, and archaeologists were brought in to salvage what they could of ancient remains. At the site of one condemned house, Avigad and his colleagues dug down nearly 36 feet and unearthed a sturdy Hasmonean watchtower with walls nine feet thick. Then came the surprise; adjoining the neatly cut blocks of the second-century structure were the rough-hewn stones of a far older tower.

This older structure, says Avigad, represents "the first authentic part of the 'First Wall' of Jerusalem, which fits the description of Josephus." The early fortification, he says, dates from the seventh or eighth century B.C. (It was during this period that Assyria carried off the northern tribes of Israel and besieged Jerusalem.)

The early fortifications apparently served the city well for at least two centuries, until the Assyrian empire declined and was replaced by Babylonia as the major power in the area. Though well documented in writing, the presence of Nebuchadnezzar's troops in Jerusalem has never been confirmed by direct archaeological evidence, because of the utter destruction that accompanied it. Now a pile of ashes and a few arrowheads add their mute testimony; in Avigad's words, "It all fits together." □

Shanidar: The cave with soul

High in the Zagros Mountains of Iraq lies Shanidar, a cave that continues to alter our concepts of Neanderthal society and humanity. Among the first human fossils found in Shanidar was the skeleton of a 40-year-old, one-armed crippled male who died more than 40,000 years ago. Examination of the skeleton showed that the man was probably a cripple from childhood (his right arm and shoulder had never fully developed) and that his arm had been amputated below the elbow. This man would have been of little help hunting and probably had to be cared for by his cave mates. The fact that he survived to manhood showed a degree of humanity not previously attributed to the Neanderthals.

Another fossil skeleton (Shanidar IV) from deeper in the same cave now yields further insights into the Neanderthal way of life. In the early 1960's, T. Dale Stewart of the Smithsonian Institution and Ralph S. Solecki of Columbia University described (separately) the discovery of several skeletons believed to be about 60,000 years old. The fossils appeared to have been buried. The grave contained an infant that had been laid in first, two women and, finally, an adult male. At the time of the find, Solecki took soil samples from around the male and set them aside for pollen analysis. A. Leroi-Gourhan of Paris examined the soil and found it to be rich in flower pollen.

"The recovery of pollen grains around

the Neanderthal burial was in itself unusual and without precedent to our knowledge," says Solecki in the Nov. 28 *SCIENCE*, "but to find flower pollen, and in quantity, was an added extraordinary dividend. The association of flowers with Neanderthals adds a whole new dimension to our knowledge of his humanness, indicating that he had 'soul.' "

After the specific flowers were identified, Solecki took the research one step further and found that seven of the eight flower species found in the grave are known in Iraq for their herbal and medicinal properties. Says Solecki: "It is extremely likely that, as practicing naturalists (and early-day ecologists?), the Neanderthals must have known and appreciated all of their environment, since their very existence depended on it." The buried man may have been an important individual or may have been some kind of medicine man, Solecki speculates.

Identification of the pollen adds other information, such as the time of year of the burial, calculated by when the flowers would have been in bloom. The amount of pollen found (especially the hollyhock, which grows in individual stands) suggests that bouquets were collected purposely for the burial. All of this may be coincidence, admits Solecki, "but the coincidence does raise speculation about the extent of human spirit in the Neanderthals." □

BOOKS

BOOKS is an editorial service for readers information. To order any book listed or any U.S. book in print please remit retail price, plus 25¢ handling charge for each book to **BOOK ORDER SERVICE**, Science News, 1719 N Street, N.W., Washington, D.C. 20036. All books sent postpaid.

THE BIOLOGICAL ACTIVITY OF THYMIC HORMONES—D. W. van Bekkum, Ed.—Halsted Pr, 1975, 272 p., photographs, tables, \$24.95. Symposium proceedings record present research data comparing 14 different assays performed with three different hormone preparations that established the biological activity of all three hormone preparations.

CROWDING AND BEHAVIOR—Jonathan L. Freedman—Viking Pr, 1975, 187 p., \$7.95. Studies in the psychology of high-density living, book presents background evidence to the author's conclusion that crowding does not generally have negative effects on people, that effects can be either bad or good depending on the situation.

THE ENDANGERED ONES—James A. Cox—Crown, 1975, 224 p., 250 color and b&w photographs and drawings, \$14.95. Describes more than 300 imperiled species among the birds, fishes and mammals of the world.

THE ENVIRONMENT OF EARLY MAN IN THE BRITISH ISLES—John G. Evans—U of Cal Pr, 1975, 323 p., photographs, drawings, maps, \$12.95. Non-specialist introduction to environmental history in the British Isles, incorporates the recent wealth of materials which archaeology has revealed.

THE FORBIDDEN GAME: A Social History of Drugs—Brian Inglis—Scribner, 1975, 256 p., \$8.95. Historical survey of man's use of drugs that alter mood or perception, the role of governments concerning drug abuse, and the effects of control and prohibition.

HANDBOOK OF HIGHWAY ENGINEERING—Robert F. Baker, L. G. Byrd and D. Grant Mickle, Eds.—Van Nos Reinhold, 1975, 9x11, 904 p., photographs, diagrams, tables, \$42.50. Authoritative, comprehensive volume provides concise data on planning, design, construction, maintenance and operation of highway systems, with emphasis on current trends and technological advances.

THE LIFE-GIVING SEA—David Bellamy—Crown, 1975, 320 p., 250 color and b&w photographs, drawings, \$15.95. Presents an integrated view of the sea, its origin, chemistry and energy, and the amazing variety of forms of life that fill the many niches of the sea.

MAN RE-ENTERS THE SEA: The Ocean World of Jacques Cousteau, Vol. 12—Abrams, 1974, 144 p., color plates, illus., \$7.95. A pictorial history of divers and diving, of the advances in science and technology that have given us minisubs, feats in underwater navigation and exploration.

MOUNTAIN SHEEP AND MAN IN THE NORTHERN WILDS—Valerius Geist—Cornell U Pr, 1975, 248 p., 25 photographs, diagrams, \$10. Beautifully written account of a field study observing the big-horned sheep of the Canadian wilderness, with focus on the subarctic conditions influencing animal behavior and its implications for man. □