

BOOK OF MORMON CENTRAL

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Type: Newsletter

U.A.S. Newsletter, no. 51 (July 16, 1958)

Editors(s): Ross T. Christensen and Dee F. Green Published by: University Archaeological Society, Brigham Young University

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Number 51

Editor: Ross T. Christensen Associate Editor: Dee F. Green

July 16, 1958

Published approximately every six weeks by THE UNIVERSITY ARCHAEOLOGICAL SOCIETY at Brigham Young University, Provo, Utah. The purpose of the Newsletter is to disseminate knowledge of recent archaeological discoveries bearing on the Latter-day Saint scriptures; also of the archaeological activities and viewpoints of the Society and its members. Subscription by membership in the Society: three dollars per year; or Life Membership, fifty dollars. (Membership also includes subscription to other publications of the Society and of the BYU Department of Archaeology.)

51. 0 ELEVENTH SYMPOSIUM WELL ATTENDED. More than 600 interested members and friends of the University Archaeological Society attended the Eleventh Annual Symposium on the Archaeology of the Scriptures. It was held on the BYU campus June 23-25 during the first three days of the annual BYU Leadership Week. The theme of the Symposium was "The 1958 BYU Expedition to Book-of-Mormon Lands."

The first lecture of the Symposium was given by Dr. Ross T. Christensen, director of the 1958 BYU expedition. He spoke Monday, June 23, on "Uncovering the Ancient Walled City of Bountiful,"

"Saving the Lehi Stone," was the topic covered by Dr. Welby W. Ricks, a member of the expedition, on Tuesday. Dr. M. Wells Jakeman, chairman of the Department of Archaeology, BYU, ended



Drs. Welby Ricks, M. Wells Jakeman, and Ross Christensen with the Lehi Stone.

The eleventh annual affair on Wednesday, with "The Film of the Expedition, with Commentary."

The Symposium was jointly sponsored by the BYU Department of Archaeology, and the UAS. The expedition has been previously reported in the Newsletter (46.0, 47.0, 48.0, and 50.0).

51, 1 ARCHAEOLOGISTS AS DETECTIVES, By Clark S. Knowlton. A review of Leonard Cottrell, Lost Cities (New York: Rinehart & Co., Inc. 1957).

Leonard Cottrell, a serious, well-informed popular writer on archaeology and author of a long series of books including The Anvil of Civilization, The Mountains of Pharaoh, Life Under The Pharaohs, and The Lost Pharoahs, has in this volume written a fascinating account of archaeological research. In it he relates the discovery and excavation of numerous cities and civilizations that have been lost to human memory for long periods of time.

This is not a comprehensive scientific report. It is rather a vivid detective story. In it the author reveals to us how archaeologists have been able, often from scanty clues, to reconstruct the fabric of life of many forgotten civilizations.

In the thirteen chapters of the book, the author first takes us through what was ancient Babylonia and Assyria. We visit first one site and then another, learning about their discovery, the life of their former inhabitants, and the tale of their decline and death. From the Middle East we travel to the ancient cities of India and Pakistan, newly recovered from the past. Then we are taken to the Roman cities of Pompeii and Herculaneum, entombed in lava and volcanic dust, and whose ways of life so closely resembled our own. And finally we are carried to the Americas to examine the Maya and Inca cities.

This book is a tribute both to the courage and endurance of the early discoverers and to the persistent work of later archaeologists. It is also a moving story of man's age-long attempts to find happiness and creative fulfillment in many parts of the world. And perhaps

it is a warning to us, in our pride and in the glory of our own civilization, about the ultimate end of all of man's material hopes. One wonders about those future archaeologists who perhaps will endeavor to discover the lost sites of our own great cities.

And finally, this is a book that everyone interested in history and in archaeology should read. One should be warned in advance that, once picked up, it is not easy to lay aside until finished.

51. 2 BACK ISSUES OF SOCIETY BULLETIN NEEDED. Certain back issues of the Bulletin of the University Archaeological Society are needed, and the UAS general secretary-treasurer has offered an exchange gift for every copy submitted in good condition.

Nos. 2, 3, and 5 of the Bulletin, issued in 1951, 1952, and 1954, respectively, are out of print. However, requests for these issues continue to come from libraries and learned institutions. For every copy submitted in good condition the general secretary-treasurer will return a copy of No. 4 of the Bulletin, 1953, which contains articles on the Tree of Life, particularly the Lehi Tree-of-Life-Stone.

If preferred, a one-year membership in the Society will be exchanged for copies of all three of the out-of-print issues returned in good condition,

This offer will be in effect until December 31, 1958. It is hoped that all members who are not keeping complete files of UAS publications will avail themselves of this opportunity.

51. 3 SPECIMENS FROM 1958 EXPEDITION ON DIS-PLAY. A plaster of paris cast depicting the Lehi-Tree-of-Life Stone (Stela 5 at Izapa, Mexico) is now on display in room 205 of the Carl F. Eyring Physical Science Center on the BYU campus. Prepared by Dr. M. Wells Jakeman, chairman of the BYU Department of Archaeology, the cast may be viewed during summer months by contacting the custodian of the Eyring Science Center, if Dr. Jakeman is not in his office, (room 203).

Dr. Jakeman is presently preparing a special window display featuring the excavations being conducted by BYU at the ancient walled city of Aguacatal, Campeche, Mexico (identified as Bountiful of the Book-of-Mormon). The exhibit consists of large photographs, a map of the site, aerial photographs, and original artifacts from the site. Dr. Jakeman expects that the exhibit will be ready at the beginning of Fall Quarter at BYU and that it will go on display in one of the showcases in the main lobby of the Eyring Science Center.

Specimens for these exhibits result from the 5th BYU Archaeological Expedition to Middle America, winter of 1958 (see above, 51, 0). The cast of the Lehi Stone was prepared under the direction of Welby W.

Ricks, expedition member. Alfred L. Bush and Carl Hugh Jones, also members of the expedition, have assisted in preparing the exhibits.

51. 4 NEW RESEARCH PATRONS, LIFE MEMBERS, DEPARTMENTAL AFFILIATES. Since the last published report (Newsletter, 46.3), 19 UAS members have become, or continue as, Research Patrons, two Life Memberships have been issued, and two persons have become Contributing Affiliates of the BYU Department of Archaeology.

A Research Patron for the year ending June 30, 1958 is W. Ernest Young of Salt Lake City. Those for the year ending December 31, 1958, are: J. Clifford Johnson of Marysville, California; Francis W. Kirkham of Salt Lake City; Var Lindsay of Blackfoot, Idaho; F. Mary McAuliffe of Long Beach, California; Pleasant Grove (Utah) Seminary; John E. Taylor of Santa Ana, California; and Sheldon H. Welchman of Las Vegas, Nevada. For the year ending June 30, 1959: Marion Poulter of Oakland, California; Lorenzo H. Snow of Columbus, Ohio; Mary B. Wikoff of Cream Ridge, New Jersey; Donna Bigelow of Salt Lake City; Lois Leona Bigelow of Salt Lake City; Hester Devenport of Ucon, Idaho; J. Percy Goddard of Salt Lake City; Irene Thorell of Salt Lake City; John M. Goddard of Glendale, California; Mrs. John Daniel, Jr., of Rutherford, California; and Fred Olsen of Guilford, Connecticut. For a two-year period ending December 31, 1959: Richard K. Miner of Springville, Utah.

A new Life Member is Charles H. Stephens of Keams Canyon, Arizona, former archaeology student at BYU and former vice-president of the Campus Chapter, and currently engaged in a program of post-graduate studies in the Department of Anthropology of the University of Arizona involving archaeological reconnaissance in central and northeastem Arizona. Another new Life Member is Mrs. Ruth Howells of Salt Lake City. The Society now claims 15 Life Members.

Dr. Franklin S. Harris, Jr., UAS president, and Forace G. Green, both of Salt Lake City, have been Contributing Affiliates of the BYU Department of Archaeology for their donations of important collections of books and magazines (Newsletter, 48. 3). Dr. Harris was awarded this honor for life and Mr. Green for five years. These awards carry with them corresponding periods of membership in the UAS,

51. 5 UTAH LAKE EXCAVATION PUBLISHED. A preliminary report on the BYU excavation of an ancient house-mound west of Provo during the fall of 1956 (Newsletter, 38. 4) has been published in the June, 1958, issue of <u>Utah Archaeology</u> (Vol. 4, No. 2). The author is Carl Hugh Jones, member of the "Field Archaeology" class which performed the excavation in Puebloid remains

of about 1000 AD, and later a member of the 1958 BYU expedition to southern Mexico (Newsletter, 46.0). The article is entitled, "A Puebloid Site in Utah Valley."

Utah Archaeology is a quarterly news letter published at the Department of Anthropology, University of Utah, Salt Lake City, by the Utah Statewide Archaeological Society (Newsletter, 29, 5). Subscription is by membership, which is \$1 per year. Inquiries should be addressed to Mr. James H. Gunnerson, editor.

51. 6 UAS VICE-PRESIDENT LEADS TOURS TO MEXICO. Otto Done, vice-president of the UAS and professional photographer specialized in Mexican subjects, will conduct tours of Mexico during the coming winter and summer of 1959. Called "Camera Tours," they are keyed especially to photographers. Mr. Done is arranging for special shots and effects so that the amateurs and professionals alike can get their desired pictures.

Some of the places to be visited are Mexico City; the ruins of Teotihuacan, Palenque, Milta, and Monte Alban; and such quaint places as Oaxaca's native market.

Jose Davila, UAS member and licensed government guide, will assist Mr. Done. For complete details write to: Otto Done P. O. Box 3, Salt Lake City 10, Utah.

51. 7 A QUESTION FOR THE EDITOR. As a regular feature of the Newsletter, a selected question on an archaeological subject is answered either by the editor or a guest contributor. Questions should be sent to: Editor, UAS Newsletter, Department of Archaeology, BYU, Provo, Utah.

51. 70 Cement in Ancient America. Sir: Is the cement used by the Mayas and other civilized peoples of ancient America the same as our own?... NLT.

There are two main varieties of building cement in use in our present-day civilization: portland cement and lime cement. Ancient American cements definitely were not comparable to modern portland cement. But they were approximately equivalent to modern lime cements.

Portland cement is so named from the resemblance of the original product to stone from that place in England. It results from a series of inventions which have taken place largely in England during the last two centuries. So far as I am informed, it was unknown in ancient times in either hemisphere. The basic ingredient is limestone, which is raised to a clinker heat and the clinkers pulverized. The resulting powder, when mixed with water and inert materials, such as sand and gravel, and allowed to set, hardens into a monolithic mass of great strength and durability.

Lime cements of various formulas have been known in the Old World from Egyptian times. Once again, the principal ingredient is limestone, but in this case it is raised only to calcine heat, sufficient to burn out the carbon. When pulverized and mixed with water and allowed to set, it draws carbon-dioxide out of the atmosphere and hardens into calcium carbonate, which chemically is essentially identical with the original limestone. The chemistry of lime cement is thus very different from that of portland cement, and while the former is much used for plaster, mortar, etc., the latter is preferred for foundations, sidewalks, roadways, bridges, etc. (Excellent articles on "cement" and "concrete" may be found in the Encyclopaedia Britannica.)

Lime cement is found in pre-Columbian America only in Mesoamerica (central and southern Mexico and northern Central America), or in other words only in the area of the most advanced ancient civilizations (Book of Mormon area). I know of nothing discovered in the Peruvian area of South America, where otherwise advanced cultures flourished, that could be called cement. Portland cement is not found in the ancient New World at all.

In Mesoamerica lime cement was used as early as pre-Classic (Book of Mormon) times, as witnesses the example of Pyramid E-VII-sub at Uaxactun. In the later Classic and Militaristic periods it was much used for floors, sculptures, highways, walls of public buildings, and facing of pyramids. It seems to have been the principal building material at the ruins of Aguacatal (Bountiful), Southern Mexico, excavated by the writer during the past winter (Newsletter, 48.0). Ralph Roys discusses its chemistry and the engineering principles employed in connection with it in his Engineering Knowledge of the Ancient Mayas (Carnegie Publications, No. 134, 1936). Sylvanus G. Morley describes the manufacture of lime cement among the modern rural Mayas in his The Ancient Maya (Stanford, University Press. Second edition, March, 1947).

So far as I know, the use of cement in ancient America has never been comprehensively studied as to its antiquity, distribution, ehemistry, methods of manufacture, etc. Few samples seem ever to have been analyzed. It may be that various formulas were used which we have never guessed. Some examples do seem to be extraordinarily hard. Comprehensive investigation of ancient American cements ought to be very fruitful. --RTC.