Multispectral Imaging and Ancient Khipus: A National Geographic X-Files Documentary

The ancient Inca did not have a written language, but rather used knotted-string devices known as khipus for communication and recording. Knowledge of how to interpret the information on khipu cords has been lost.

Recently Dr. Sabine Hyland, now at the University of St. Andrews in Scotland, discovered what is known as a khipu board. This is a wooden board with a hand written list of names and other information with a khipu cord corresponding to each entry. Some of the text on this board is illegible due to dirt, bat droppings and urine, faded ink, and other environmental damage. Dr. Hyland invited Dr. Ware to come to the village of mangas high in the Peruvian Andes and image this board using multispectral imaging (MSI) technology which may well serves as a “Rosetta Stone” to aid in the interpretation of khipu strings. This historic event was recorded by National Geographic in an X-File documentary which will be shown as part of the presentation. A brief introduction to MSI will be given.

Dr. Gene A. Ware received the B.E.S.E.E. and M.S.E.E. degrees from Brigham Young University in 1965 and 1966, respectively, and the Ph.D.E.E. degree from Utah State University in 1980. He has served as a Research and Development Engineer at Hewlett-Packard Company (1966-1970) and a Senior Research Engineer in the Electrodynamics Laboratory at Utah State University (1972-1978). He also served as an Associate Professor in the Electrical and Computer Engineering Department at Utah State University (1978-1987) and as an Associate Professor at Brigham Young University in the Fulton College of Engineering and Technology, and an Adjunct Professor in the Electrical and Computer Engineering Department at Utah State University. Since 1995 Dr. Ware has been active in the application of Multispectral Imaging (MSI) technology to ancient documents, artifacts and murals. He has imaged ancient documents and other artifacts in the Sackler and Bodleian Libraries at the University of Oxford, the British Library in London, the Vatican Library, the Bancroft Library at UC Berkeley, the Petrie Museum in London, the University of Pennsylvania Museum of Archaeology and Anthropology, the Smithsonian Freer Gallery of Art, the Austrian National Library, Dumbarton Oaks in Washington DC, the Thessaloniki Archaeological Museum in Greece, and the American Center of Oriental research in Jordan, among others. He has also imaged at many archeological sites in Mexico and Guatemala including Tepelmeme, Tepantitla, Monte Alban, San Bartolo, Chichen Itza, Xultun, Julija, Naj Tunich, Musseo Popol Vuh, Bonampak, and Cueva de las Pinturas.