Tracking the Maya after Classic crash

Archaeologists have known for some time that the collapse of Classic Maya society around A.D. 900 did not lead to the disappearance of the once-mighty civilization. Several sites in the northern lowlands of Yucatán and Belize remained inhabited until around A.D. 1100, and new dynasties arose in the southern highlands following the Classic collapse, although the majesty of the Maya's "golden era" vanished.

But the picture now emerging from excavations at several lowland sites, including Nohmul in northern Belize, provides "a totally unexpected sidelight on the nature of Maya society at the time of the collapse," says archaeologist Norman Hammond of Boston University. "A small number of densely populated centers developed while Classic cities were foundering. These sites flourished for decades or perhaps a century."

Hammond and his co-workers describe recent work at Nohmul in the just-released spring issue of JOURNAL OF FIELD ARCHAEOLOGY and suggest further work may reveal new insights into the Classic Maya collapse. Their investigations have extended from 1982 through 1986. The scientists mapped large areas of the settlement, surveyed artifacts and excavated public structures as well as private dwellings.

Nohmul displays an unusual "two-humped" settlement profile, Hammond says. A massive construction program took place in the first few centuries A.D. Two groups of buildings were erected and linked by a causeway. Structures include an acropolis, several pyramid-shaped temples and broad plazas laid out on large platforms.

Construction at Nohmul slumped after A.D. 400 and the site center was largely abandoned. "It became a ghost town," Hammond says.

But around A.D. 800, when the first rumbles of the Classic Maya collapse struck the civilization, Nohmul experienced a rebirth. Maya workers raised a number of large buildings in, on and between the earlier ruins. The new occupants lived in various types of dwellings, some built at ground level, some raised on low platforms and others grouped on large platforms. The wide range of living quarters points to a diversity of social levels in the community, according to the researchers.

In addition, a Maya ballcourt from the latter phase of development has been partially uncovered. Similar ballcourts are found in Classic-era cities beginning around A.D. 250. No records explaining how to play the Classic Maya ballgame have been found.

The peak population of Nohmul is difficult to estimate, Hammond says, but it was a medium-sized city of several thousand people. Pottery uncovered amid the ruins indicates settlers from northern regions in the Yucatán peninsula migrated to the site and became part of the population surge.

Nohmul's pyramids have yielded several human burials in limestone-slab crypts, Hammond says. One grave contains obsidian cores dated at around A.D. 1000. Individuals in the graves may have been among the Nohmul elite for whom the pyramids were built.

Several other cities being excavated in the northern lowlands underwent comparable building booms in the 9th and 10th century A.D. The Nohmul investigators suggest populous, densely packed communities arose in the northern lowlands during the decline of much larger Classic Maya cities to the south. A closer look at this phenomenon may shed light on the "perpetually vexing question" of why Classic Maya civilization hit a dead-end, they conclude.

For now, Hammond holds that overpopulation stretched Classic Maya resources and managerial systems to the breaking point, causing a political and economic collapse. Residents left the cities in the resulting power vacuum, some heading north to help found communities such as Nohmul.

Other researchers lay much of the blame on near-constant warfare during Classic times and a loss of faith in Maya kings as divine beings (SN: 6/7/86, p.360).

Whatever the case, investigators led by graduate student Dirk Van Teurenhout of Tulane University in New Orleans will return to Nohmul in 1989 to begin the first of two more seasons of fieldwork.

– B. Bower

Double trouble: Risks of psoriasis therapy

A widely used treatment for severe psoriasis, a chronic skin condition, carries long-term risk of several cancers, according to two reports in THE JOURNAL OF INVESTIGATIVE DERMATOLOGY.

A study of 1,380 patients at 16 U.S. medical centers now shows that high-dose treatment with a photosensitizing drug and ultraviolet light, an approach known as PUVA, increases the risk of two usually nonfatal skin cancers, according to a report in the journal's August issue. PUVA combines the effect of the drug psoralen with exposure to ultraviolet light in the A range (UVA) to retard the speeded-up maturation and shedding of skin cells characteristic of psoriasis.

"The important finding is that these patients continue to develop squamous cell carcinoma [five years after initial treatment] at a rate far higher than that seen in the general population," says Robert S. Stern, of Harvard Medical School in Boston, who led the research. The report of the Photochemotherapy Follow-Up Study confirms and extends the group's previous finding that after two years of treatment PUVA "could promote" the development of this skin cancer.

The risk for squamous cell cancer in high-dosage patients – about 60 times higher than for the general population – increased with dosage, the research group found, with the risk 12 times greater for those who received over 260 PUVA treatments than for those who received 160 or fewer treatments. In addition, the researchers noted a "modest" increase in risk for basal cell carcinoma, also dose related. More than 500,000 new cases of the two skin cancers occur annually in the United States.

PUVA is "clearly only for people with severe psoriasis," Stern concludes. He notes the trend is to reduce PUVA exposure by alternating it with other treatments, and that patients may have to accept less-than-complete clearing of their skin. Severe psoriasis, with red, scaly patches over more than 30 percent of the body, can cause dry, cracked skin, intense itching and swelling that interferes with movement.

In the second report, in the September issue, the research group reports that while the overall incidence of death and causes of death are "comparable" in the study group to rates in the general population, several concerns emerge that warrant further investigation. Seven PUVA-treated patients in the study developed primary central nervous system tumors, which is five times more than expected, and represents a "significant" number, according to Stern. (Six of the seven developed glioblastoma in the brain; one developed melanoma of the eye.) Whether this increase relates to PUVA or to other treatments many patients use for psoriasis, including tar shampoos and topical tar, remains unclear, Stern says. "And there was nothing to indicate any association between PUVA dosage and these tumors."

Although PUVA treatment can suppress the immune system, the incidence of other cancers that might be expected to develop in treated patients – melanoma, leukemias and lymphomas – does not appear to increase. But further follow-up will be necessary to eliminate the possibility of risk for such long-latency cancers, the researchers say. "For the most part, the news is reassuring," says Stern. "PUVA is quite an effective therapy that should be used judiciously."

– C. Eron