

1,000 Balloons launched Adventure in science continued

An adventure in science that began in November, 1783 in a French cow pasture is continuing in Palestine, Texas, through the efforts of research engineers from TAMU's Texas Engineering Experiment Station (TEES).

The National Scientific Balloon Facility (NSBF) continues ballooning activities started nearly 200 years ago by the Montgolfier brothers, the first men to build and man-carrying objects.

While the more than 1,000 balloons launched by the Palestine facility crew in the past 11 years do not resemble the historic French balloons, they operate in a similar fashion except that they use helium with a lifting gas and a plastic film gas bag.

search to begin, in the near future, pending National Science Foundation funding.

The balloon center typically flies payloads of approximately 2,000 pounds, including equipment used in X-ray, gamma ray and infrared astronomy. Some optical astronomy and cosmic ray particle study is also involved.

The average balloon launched at Palestine contains a volume of about 11 million cubic feet, and the largest launched to date had a volume of 36 million cubic feet. To make a comparison, a balloon that size would

hold Kyle Field in its entirety.

While TAMU personnel are interested predominately in improving the balloon structure, they also hold interest in some of the experiments being undertaken at the facility.

"One of the areas our balloons are used in is the study of our solar system and other galaxies," Pavey said. "Our balloons attain an average altitude of about 25 miles. This altitude places about 99 percent of the earth's atmosphere—which tends to distort earthbound telescopic activity—below the payload."

According to NSBF engineers, the idea of using balloons for atmospheric research is appealing, especially since many of the experiments performed with the gas bags replace those done from satellites, at a fraction of satellite cost.

They estimate the average payload costs about \$150,000 which in itself is far less than a satellite. The 2,000-pound average weight payloads are typically used five or six times, representing a tremendous savings to taxpayers in research dollar expenditure.

One problem does present itself during the parts of the year that

prevailing upper-level winds drive the balloons eastward.

"When our balloons travel west, we don't have much of a problem, but when they travel east, the number of UFO sightings increases rapidly," Pavey said. "One possible explanation is that areas to the east are more densely populated."

Pavey, along with Al Shipley, NSBF facility manager, visited the TAMU campus last week, spending most of their time reviewing research done by TEES personnel for the Palestine center. Plans were also discussed for upcoming research which involves TAMU.

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300,000-year-old man

Study of preserved feces seeks Homo erectus diet

A 300,000-year-old relative of modern man will almost come to life at TAMU while under examination by a team of scientists.

The preserved feces (coprolites) of Homo erectus have been sent from their discovery location at the Terra Amata site near Nice in southern France to be analyzed by TAMU anthropologist Dr. Vaughn Bryant and Dr. Burleigh Trevor-Deutsch, who is a professor of biology at Laurentian University, Sudbury, Ontario.

They will work on the only existing coprolites ever found of Homo erectus that are still in their original organic form. The 495 samples arrived from France this week.

"They're the first to be released to the hands of science," Bryant said.

"The coprolites were found near the site of the earliest example of human architecture," Trevor-Deutsch began. "They made huts of boughs bent over to form a roof. This particular site was used for approximately eleven years by the nomads during the late spring and early summer."

"This is the only chance we have to determine what these early men ate," continued Bryant, standing among boxes of unpacked samples.

"We've never known for sure what he ate. We hope to know more about what his world and diet were like when we identify the undigested pieces of food in the coprolites."

"To give some perspective to time, it was two ice ages ago," said Trevor-Deutsch. "During that period in France there were all sorts of animals that are now extinct, such as the mammoth, woolly rhinoceros, ibex, giant stag and wild ox. We don't expect to find charred meat since it decomposes rapidly but, we hope to find hair samples which we can then examine and identify with the electron microscope."

Bryant, tossing comments over his shoulder while he unpacked the boxes of samples, said that in the four samples they've examined so far, there was hair, snail and clam shell fragments. So far they haven't

found any seed or plant fiber remains.

"The site was discovered while bulldozers were digging a house foundation," he continued. "It was about 300 yards from the commercial shipyard in Nice. During excavation of the site, archeologists uncovered more than 30,000 artifacts."

"We know from the pollen contents of these feces that they occupied the site in the late spring or early summer and that they probably chose the site for its nearby freshwater supply," Bryant pointed out. "It looks like they set up their huts, built a fire hearth, hunted for a few days, gathered seafood, made some tools and then left."

"It's worth noting that the hearths are among the oldest yet discovered in the world," Trevor-Deutsch added. "The Homo erectus visitors often dug the fire hearths exactly where the last year's had been and



TWO ICE AGES OLD—TAMU's Dr. Vaughn Bryant and Canada's Dr. Burleigh Trevor-Deutsch (left) have teamed up to examine the world's only samples of feces from 300,000-year-old Homo erectus.

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