

data they had obtained previously. As for Stewart's application of their mass spectrometry methods on a pseudoscotophobin, they declare "it is a good example of what happens when mass spectra are interpreted out of the context of known chemical data. . . ."

In a telephone interview from Spokane, Wash., Ungar told *SCIENCE NEWS*, "I really don't know" what prompted Stewart to be so harsh in his criticism, nor why *NATURE* decided to print such a lengthy critique. "We probably made a mistake," Ungar admits, "in agreeing to these publishing conditions. On the other hand we will be coming out soon with new results that will change the whole situation."

Stewart told *SCIENCE NEWS* this week that he has not seen the new results, "but they could completely change my mind. I have a lot of admiration for anybody like Dr. Ungar, who has the courage to work on a tough, unfashionable topic. The main reason I wrote my article was in hopes that it would make people take his work more seriously, particularly since many people are skeptical of it and do not think it could be true. I would hope they would sit down and do experimental tests to test it out that way."

The controversy over the chemical transfer of learned behavior is far from over. In fact it is probably just beginning. Some peptide hormones from the pituitary gland of rat brains, as well as scotophobin, now appear to be involved in chemical transfer of memory (SN: 5/20/72, p. 334). Yet as the controversy in the July 28 *NATURE* illustrates, dialectics are probably as crucial to science as empirical experiments. Laboratory results distilled by peer scrutiny are what make science run. □

A 2,100-year-old Chinese noblewoman

Through a diplomatically negotiated breach in the Great Wall of China the Western world is gradually forming a more complete picture of the traditionally inscrutable Orient. The most recent piece in the puzzle came last week in the form of an archaeological find. Hsinhua, the official mainland China news and photo agency, reported that a 2,100-year-old tomb had been unearthed near the city of Changsha in southern China.

The discovery of the tomb is important, but even more significant is the extraordinary state of preservation in which it was found. The tomb contains what is believed to be the wife of a local feudal lord of the Han Dynasty (202 B.C.-220 A.D.). The woman, about 50 years old, was partially soaked in a preservative, wrapped in 20 silk garments and placed in the



Wide World Photos

innermost of six protective coffins—one inside the other. This, in turn, was covered by five tons of charcoal and sealed with a four-foot layer of clay.

These precautions protected the contents of the tomb from the decaying effects of the air and preserved the corpse in a clearly distinguishable state. The well preserved corpse, however, is not the most important part of the find. Buried with the woman were hundreds of artifacts that will be useful in recreating the life style of the Chinese nobles of the Han Dynasty.

In addition to the woman's well preserved silk garments the tomb contained a painting on silk depicting the life and legends of the period and 126 wooden figurines clothed in the style of the period. Various foods were also found in the tomb.

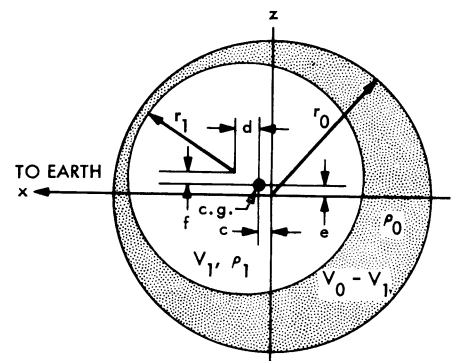
In 1937 the Chino-Japanese war put an end to much Chinese archaeology and since then China has kept many of her secrets to herself. This particular find, however, may be getting prominent play not only because of its historical and archaeological importance but because of its propaganda potential. Changsha is the capital of Chairman Mao Tse-tung's native province. The Han Dynasty was an important period in Chinese history when tyrannical rulers unified the country geographically, politically and philosophically. Describing the find, the Chinese Communist party newspaper *Jenmin Jih Pao* said, "These are the most important and extremely rare relics recently found. They are of great value to studying the history, culture, handicrafts, agriculture, medicine and preservatives of the age. . . . The great creations by the laboring people are now returning to their hands." □

The beauty of an offset lunar core

Laser-altimeter and gravity data from Apollo 15 and 16 orbital instruments revealed that the far side of the moon is on the average two to four kilometers higher than the mean radius and that the near side is two kilometers lower than the mean radius. Scientists interpret this to mean that the crust on the far side is thicker than on the near side. If there is a core under the crust, it would be closer to the near-side surface. Then as the thinner near-side crust is bombarded by meteorites, these impacts are more likely to weaken the crust, tapping lava beneath and causing upwelling to the surface (SN: 9/18/71, p. 194). This in turn could explain why there are more maria—low areas filled with lava—on the near side. The mascons can be explained this way too; but, says Farouk El-Baz of Bell Laboratories, extra mass such as a near-surface mantle is also needed.

Additional analysis of gravity data has also shown that the moon's center of mass is not at the geographical center of the moon. Instead, it is displaced from the center in a direction 37 degrees east of the direction of the earth (SN: 1/29/72, p. 73).

Now, Gary Ransford and William Sjogren of the Jet Propulsion Laboratory report in the Aug. 4 *NATURE* that a lunar model having an asymmetric core would explain the offset center of gravity as well as the maria, mascons and the moment of inertia. In their model the distance from the geographical center of the moon to the center of the core is 446 kilometers. This distance is much greater than had been expected. If the density differential between the core and the crust is 0.4



Proposed geometry of an offset core.

grams per cubic centimeter, the diameter of this core would be 700 kilometers. The crust would be 572 kilometers thick on the near side, and 1,504 kilometers thick on the far side. The model requires a molten moon at one time and that it have been in earth-synchronous orbit as the crust solidified. □