

ARCHAEOLOGY

Bible's Bad Boys Weren't Such Philistines After All

The discovery of an ancient shipwreck adds to archaeological evidence suggesting the Philistines were a worldly trading people

ASHKELON, ISRAEL—The discovery of two 8th century B.C. Phoenician ships loaded with wine amphoras off the southern part of Israel's coast, announced last week, was much more than a triumph for high-tech deep-sea archaeology (*Science*, 12 February, p. 929). It may also burnish the image of the Philistines, a people who occupied the territory of the Levant nearest to where the ships were found. Frequently portrayed as villains in the Bible—the giant Goliath slain by David was a Philistine, as were those who blinded Samson after he was betrayed by Delilah—the Philistines and how they came to the shores of the Middle East more than 3000 years ago are largely mysteries. Now the underwater discovery, together with years of painstaking excavations of Philistine cities on land, are beginning to reveal a picture of a cosmopolitan people who traded widely across the eastern Mediterranean.

"The Philistines have been defined mostly by their enemies," says Harvard University archaeologist Lawrence Stager, co-leader of the group that found the ships, which apparently sank en route to Egypt or Carthage. "We haven't really allowed them to speak

for themselves." Adds Seymour Gitin, director of the W. F. Albright Institute of Archaeological Research in Jerusalem, "There is a great body of evidence now to show that the Philistines were not philistines in the sense we define the word today."

At the height of their nearly 600-year-long civilization, Philistia consisted of five major cities: Ashkelon, Ekron, Gaza, Ashdod, and Gath, strung out along a swath of coastal plain that encompasses the sites of present-day Gaza and Tel Aviv. But although the Biblical accounts suggest frequent skirmishing

with the Israelites inland to the east, there is little real evidence that the Philistines ever tried to conquer their Biblical foe. Indeed, according to non-Biblical texts, they seem to have been more concerned with steering clear of the two real superpowers in the area—Egypt in the west and, in the east, first Assyria and later Babylon. And the archaeological evidence shows that Philistia put much of its energy into producing the kinds of goods that soon made it into a major trading partner of the surrounding empires.

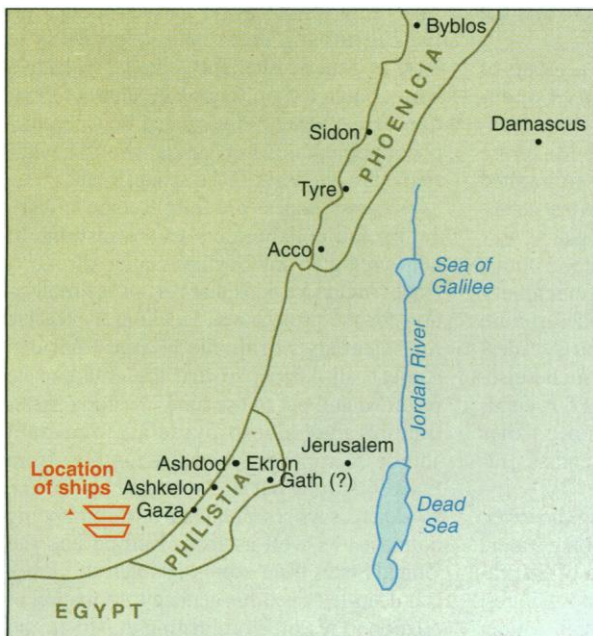
Since 1985, Stager's team has been excavating the extensive ruins of ancient Ashkelon, once Philistia's leading seaport. In the center of the Philistine city, the team found a large building containing wine presses, vats, and basins. These finds, combined with extensive remains of both Philistine and Phoenician wine jars uncovered at the site, lead Stager to conclude that Ashkelon was a major wine producing and exporting center. And at Ekron, an inland Philistine city northeast of Ashkelon,

major excavations by Gitin and archaeologist Trude Dothan of Jerusalem's Hebrew University uncovered more than 100 olive oil production facilities, making Ekron the largest known producer of this valued commodity in the ancient world. That the Philistines did not keep the wine and olive oil all to themselves was suggested by the considerable archaeological evidence of contact with Phoenicia and Egypt at Ashkelon, including masses of Phoenician pottery and a cache of bronze bottles depicting Egyptian gods, the latter found in the winery complex itself.

The latest discovery firms up those



Ancient vintage. Wine amphoras from the Phoenician shipwreck.



Where Goliath walked. Philistia was one of the Middle East's coastal trading powers some 3000 years ago.

clues. Searching for additional evidence of trade between Philistia and other regions, Stager teamed up with Titanic discoverer Robert Ballard of the Institute for Exploration in Mystic, Connecticut, to scan the seabed adjacent to Philistia with sonar. Last year this survey suggested the presence of offshore shipwrecks, which the team videotaped last month with the aid of the robotic JASON submersible of the Woods Hole Oceanographic Institution in Massachusetts.

Stager estimates that the Phoenician ships, which are stuck in the mud at a depth of 500 meters, date from between 750 and 700 B.C. based on the type of wine amphoras they were carrying. Located about 50 kilometers offshore, the ships are loaded with about 750 of the amphoras, possibly taken aboard at Tyre or some other Phoenician port, and may have stopped at Ashkelon before continuing onward. While the exact location of the ships is being kept secret, Stager told *Science* that they are roughly on a line between Ashkelon and the north Egyptian coast. Moreover, Stager says, their bows are both facing west. "This shows that trade from Phoenicia was coming across the Philistine coastal plain, on its way to Egypt," says Gitin. "It's magnificent." Another possibility, Stager says, is that the ships were headed for Phoenicia's colony of Carthage, near present-day Tunis. "It would have been a very nice cargo for

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the colonists," he says.

If Phoenician ships did regularly stop at Ashkelon, as suggested by the Phoenician pottery found in the Philistine city, it would support the growing consensus that the Philistines were a major trading nation in the region. "Ashkelon was a crossroads, a port on the sea route between Egypt and Syria," says University of Vienna archaeologist Manfred Bietak, who for many years has been excavating the ancient Egyptian city of Avaris. "[The excavations at] Ashkelon will be an inexhaustible source of new surprises for many years to come."

Stager hopes they will also shed some light on where the Philistines came from—a question that is by no means settled. The Philistines are the best known of the so-called Sea Peoples, invaders who, beginning about 1200 B.C., swept eastward across the Mediterranean, sacking and pillaging as they went. Most scholars believe the invaders were originally Mycenaean, whose culture spread from mainland Greece to Crete, Cyprus, and the Aegean coast of modern-day Turkey from about 1400 to 1100 B.C. According to this theory, the Mycenaeans displaced some of the local Levantine inhabitants, referred to as Canaanites in the Bible. Thus the earliest Philistine pottery is painted in a "monochrome" style typical of Mycenaean ceramic ware, although later Philistine pottery takes on a characteristic "bichrome" appearance, usually consisting of red and black lines and designs.

At Ashkelon, Stager's excavation recently uncovered more evidence for this view: cylinders made of unbaked clay, which Stager thinks are loom weights designed to hold threads in place while they are being weaved, found on the floor of a 12th or 11th century B.C. building. "The Canaanites used pyramidal, pierced loom weights," says Stager. "No one we know in the Near East used these cylinders, which could be used to spool thread, but they are found in textile contexts in coastal Cyprus, in Crete, and later in Greece ... so it fits very nicely into the areas that we are considering for the [original] homeland."

To get a better fix on Philistine origins and the nature of the culture they replaced, the Ashkelon team is now excavating the Canaanite levels below the Philistine occupation strata. Last year, the archaeologists completed the excavation of a massive mudbrick gate and rampart apparently dating from the Canaanite era, and the excavations so far this season have penetrated a major Canaanite rock tomb from which the remains of at least 40 men, women, and children have been recovered. Somewhere between the well-defined Philistine and Canaanite levels, Stager says, "we think we will find the stage

where, if they came by sea, we will be within a generation of the [Philistines] landing here."

Wherever they came from, the archaeological evidence is growing that the long-maligned Philistines were at the center of the international cross-currents of the time. But these heady days did not last long: In 604 B.C., the Babylonians, led by

Nebuchadnezzar, put Ashkelon to the torch. Ekron suffered the same fate the following year and the other cities soon followed. In the winery at Ashkelon, Stager's team found smashed pottery, charred wood, and melted mudbrick, signs of the catastrophe that befell the once proud seaport.

—MICHAEL BALTER

CLIMATE

Lack of Icebergs Another Sign Of Global Warming?

Unlike the Titanic, the Queen Elizabeth II is the most conservative of cruise ships when it comes to icebergs, if need be, sailing far south to avoid the bergs that normally pock the North Atlantic. But this spring the luxury liner crossed the notorious Iceberg Alley without a second thought. For reasons no one understands—although global warming is a top suspect—the Grand Banks shipping lanes, which are located southeast of Newfoundland, were an ice-free zone.

For the first time in 85 years, the International Ice Patrol (IIP) issued not a single bulletin reporting lurking bergs. "The lack of ice is remarkable," says IIP Commander

the Labrador Sea—and push convoys of icebergs toward the shipping lanes. Low NAO years usually coincide with low iceberg frequencies. This year, however, the NAO was high, but the winds inexplicably blew in from the northeast. "Something is out of sync," says Ken Drinkwater, an oceanographer at the Bedford Institute of Oceanography in Dartmouth, Canada.

The northeasterly winds stranded many icebergs against the Labrador coast, and because of unusually warm water and air, fewer than usual had drifted south in the first place. John M. Wallace, a meteorologist at the University of Washington, Seattle, notes that since the 1980s, winter temperatures have risen at least 0.5°C poleward of 45° north, a line that runs through the Grand Banks. Until now, the chilling effect of westerly winds had masked this warming, which Wallace attributes to the general warming of the globe. This year, he says, "The decline of westerlies and global warming are working together."

The warmth melted sea ice, the frozen sea water that buffers icebergs from wave erosion and warmer water. This spring sea ice in the region was about as scarce as it has ever been, says Simon

Prinsenber, a research scientist at Bedford. Furthermore, water in the Grand Banks itself was 2°C above normal—warm enough to instantly melt any remnant ice that kissed its border.

Despite all the heat, nobody is totally willing to discount the possibility that some kind of natural climate fluctuation is at play, albeit in a more extreme form than usual. Will the icebergs return next year? "Without a doubt," Sielbeck says. "I just can't tell you how far south they'll get."

—BERNICE WUETHRICH

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In retreat. The iceberg season on the Grand Banks often lasts months; this year, it never opened.

Steve Sielbeck: The Coast Guard's IIP has been tracking icebergs that wander south of 48°N latitude ever since the Titanic sank in 1912. And by now the trackers thought they knew what to expect. In an average year, some 500 bergs drift down the Labrador Coast from western Greenland, where most are spawned.

But the number varies widely, depending on a quasi-decadal cycle of high and low atmospheric pressures known as the North Atlantic Oscillation (NAO). High NAO years typically mean strong northwesterly winds that bring cold Arctic air to