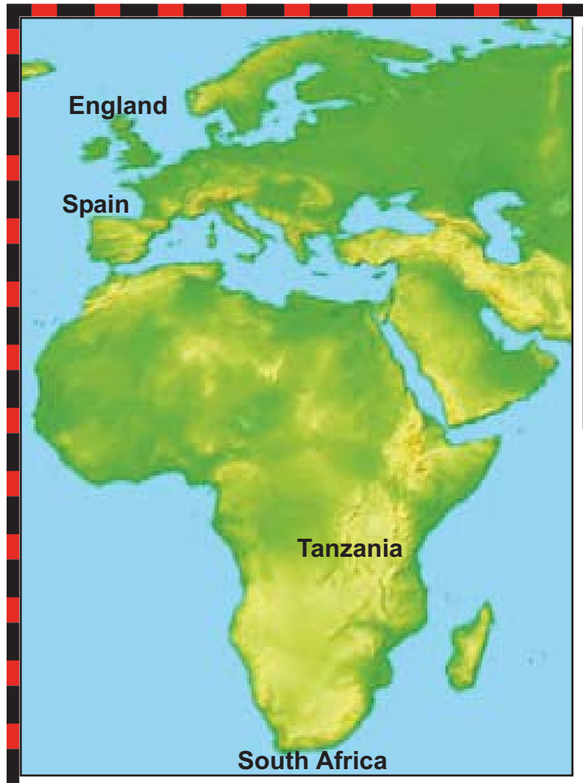

ANA'S HEROS

At University Ana became interested in the Paleolithic era and found new heros, including: **Charles Darwin** who wrote *The Origin of Species*, **Louis Leakey** who discovered some of the oldest bones of early man in Laetoli, Africa, **Don Johanson** who in 1974 found the 3.18 million year old skeleton Lucy an individual from the species Australopithecus afarensis, **Dian Fossey** who studied mountain gorillas, **Jane Goodall** who studied chimpanzees, **Lord Carnarvon** (1866-1923) the English Egyptologist who with Howard Carter discovered and excavated the boy Pharaoh Tutankamon's tomb in Egypt; and **Heinrich Schliemann** (1822-1890) who discovered the ancient city of Troy

ANA'S WORLD

Ana has been digging in South Africa, Tanzania, England, and Spain. She explores limestone areas searching for caves that have remains of prehistoric occupation. She has also worked in Arizona and London. Her base now is in the mountains of Asturias, Spain. (www.accuca.conectia.es)

ANA'S IMPORTANT WORK TODAY

I have continued to work in Spain and have surveyed large areas in the north looking for archaeological sites such as ancient villages and forts. Of course I also look for caves that have a much older history. While surveying I made my most important discovery, the Sopeña Cave in Austurias northern Spain. Now I live and teach in Spain and in the summers I lead expeditions to dig in Sopeña cave. During the winter I analyze all our finds. This is very exciting work. We have been making many important discoveries. Visit my webpage www.accuca.conectia.es to keep up to date on what we are finding. My current research area is the extinction of Neanderthals in Europe and the spread of modern humans who are thought to have left Africa some 40,000 years ago. It is believed that when modern humans arrived in Europe, the Neanderthals disappeared.

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ANA CRISTINA PINTO-LLONA

AN ARCHAEOLOGIST WHO EXPLORES CAVES TO LEARN ABOUT WHAT LIFE WAS LIKE 100,000 YEARS AGO

Ana Pinto is an archaeologist who studies the lives of early man in Europe. In 2002, while exploring caves in Sopeña in northern Spain, she made a unique discovery. She found a remote cave that had been lived in for at least 60,000 years by Neanderthals and early Homo sapiens. Ana also studies cave bears and her research on the paleoecology of cave bears has changed our understanding of how these extinct animals lived and interacted with prehistoric humans. Pinto is the director of The Sopeña Archaeological Project and was an Adjunct Professor at the Institute of Human Origins at Arizona State University.

imagine NOTES

At Work in the Sopeña Cave.
Archaeologists make grids so they can map where they discover artifacts.

HOW ANA BECAME AN EXPLORER

ANA LOVED TO READ ...

I was born and raised by my grandparents in Oviedo, Asturias, Spain. Because they expected children to keep quiet, I became a great reader. My favorite authors were Jules Verne and Herman Melville. I loved Melville's *Moby Dick* and the hero Captain Ahab because of the dogged determination of both the captain and the whale, Moby Dick, relentlessly following their life's path despite the impending threat of doom. Somehow I identified with this book when working on my thesis on cave bears.

When I was about 11 years old, I read a book by C.W. Ceram called *Gods, Graves and Scholars* which changed my life. It tells the story of the greatest archaeological discoveries, not just from the point of view of their scientific value, but also from the personal point of view of the researchers involved. I thought then that I would be an archaeologist.

FINDING THE SOPEÑA CAVE

Dr. Ana Pinto was driving past a natural outcropping in northwest Spain, and - screech! - she put the brake to her car. Pinto had just spotted a limestone cave that she sensed might have once been used by prehistoric humans. For the next six months she excavated the cave by hand, pushing through animal waste, bones, mud, and human artifacts. By the time she had dug some 9 feet deep, Pinto knew she had hit the archaeological jackpot.

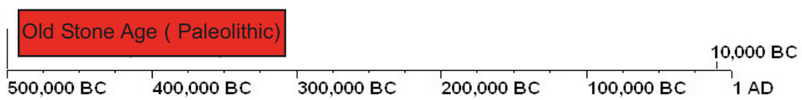
"This cave at Sopeña is almost unique because it has signs of continuous hominid habitation for at least 60,000 years," she said. "This is an incredibly rare find." The site is called Sopeña, which in Spanish means “under the rock”.

THE SIGNS MARK THE LAYERS

Descending into the earth each layer is an era in which the cave was used. Analyzing the dirt helps archaeologists understand many things about life at that period. They can date the layer using bone or charcoal; they can tell about the climate from pollen; they can see if the people used fire from ashes; and they can tell what people ate from the remains of food.

CAVE ARTIST TOOL KIT

shells to mix paints
sharp rock to carve
paints made of vegetable paste, animal fats, and minerals
ochre and hematite for red
charcoal, manganese, and pine sap for black
mica for white
animal fat for fixing the paint color
mortars and pestals to crush the minerals
hollow bird bones to blow paint onto the rock
brushes made of twigs, animal hair, feathers, or leaves
stone lamps lit with wicks and animal fat
torches made of branches and pine tar
ladders to reach the ceiling - (some paintings are 20 feet above the ground)
scaffolding to sit on while painting



ABOUT CAVE BEARS

Much of my work has focused on cave bears. The cave bear and Neanderthals shared the glacier-covered landscapes of Europe and both made use of limestone caves. Cave bear bones appear by the thousands in the sediments of caves throughout Europe, and many of these caves also show signs of Neanderthal activities. While we have discovered that ancient humans used cave bear bones in rituals, I suspect they probably did not share the same space at the same time. Cave bears were enormous and probably terrified humans.

Ursus spelaeus, the *Cave Bear* lived in Europe during the Pleistocene period or 1.8 million to 10,000 years ago. The main difference between the cave bear and the brown bear of today is the size: the cave bear was 30% bigger than the brown or grizzly bear.

The cave bear was both a herbivore: he ate grass, berries and the honey of wild bees and a carnivore; he hunted small animals. Cave bears hibernated in caves, maybe as long as 6-8 months during which time the bears neither ate nor urinated and probably gave birth there. Bear footprints are found in clay on the cave floors, and their claw marks are gorged into cave walls. Young bears often failed to get through hibernation, probably because adults excluded them from the best feeding areas, and they therefore didn't put on enough fat to survive the winter.

Cave bears became extinct at the end of the Ice Age, although some may have survived as late as 10,000 years ago. Bones of cave bears have been found in caves throughout Europe. It is thought that Neanderthals hunted them. Pictures of bears were painted on cave walls, such as the beautiful representations of cave bears in the Chauvet cave.

LIFE IN CAVES

All prehistoric Europeans liked living in caves. The caves had to be oriented to the southwest for sun and warmth. They needed a cave high up over a river. Why? Because the animals they hunted would come to the river to drink, and from above, they could make hunting plans. Plus they needed to be near a water source for themselves.

Over the years, I found a few caves that met this requirement, but none were continuously inhabited. Sopeña was rich with 16 layers of sediment, all with signs of the earliest humans. The cave's habitation spans Neanderthal times and the beginnings of modern humans in Europe. Because of this, Sopeña is like a book that has all the pages. There are no pages missing.

We look for remains like bones, charcoal from their fires, and tools. From this we can learn how their diet changed over time. It's like we're digging through prehistoric domestic waste. One thing we're learning through analysis of Neanderthal bones is that they were almost entirely carnivores.

Prehistoric Art such as the cave paintings in Lascaux, France, provide more clues about the conditions in which early man lived. Animals that were portrayed on cave walls can help identify the time periods when different extinct animals and primitive man lived.

Beginning about 35,000 years ago, humans began expressing themselves by drawing on cave walls. Almost anywhere you go in the world you can find some places where our ancestors engraved and painted on rocks. Some of the best and most colorful paintings were made in Europe from around 32,000 B.C. to 10,000 B.C. during a cultural period. The oldest known painted cave, Chauvet in France, is 32,000 years old. Archaeologists know of about 270 painted caves in France, Germany, Italy, Spain, and Portugal.