

# Mystery of the Ancient Nazca Lines

PICTURE STORY BY  
LOREN  
McINTYRE

MAP  
PAGE 718



**R**ULER STRAIGHT and tack sharp, a curious marking more than a mile long etches the desert in southern Peru. Wandering mule paths that cross it only emphasize the precision of its design.

Throughout hundreds of square miles of arid plateau, other markings abound, most of them concentrated between the towns of Nazca and Palpa. Known as the Nazca Lines, they form a geometrical mélange of quadrangles, triangles, and trapezoids; spirals and flowers; narrow lines that extend more than five miles; and a desert zoo of giant creatures—birds, reptiles, and whales, a monkey and a spider.

Because some of the figures resemble those decorating Nazca pottery, archeologists attribute the lines to the Nazcas, a coastal people whose culture rose, flourished, and declined between—roughly speaking—100 B.C. and A.D. 700.

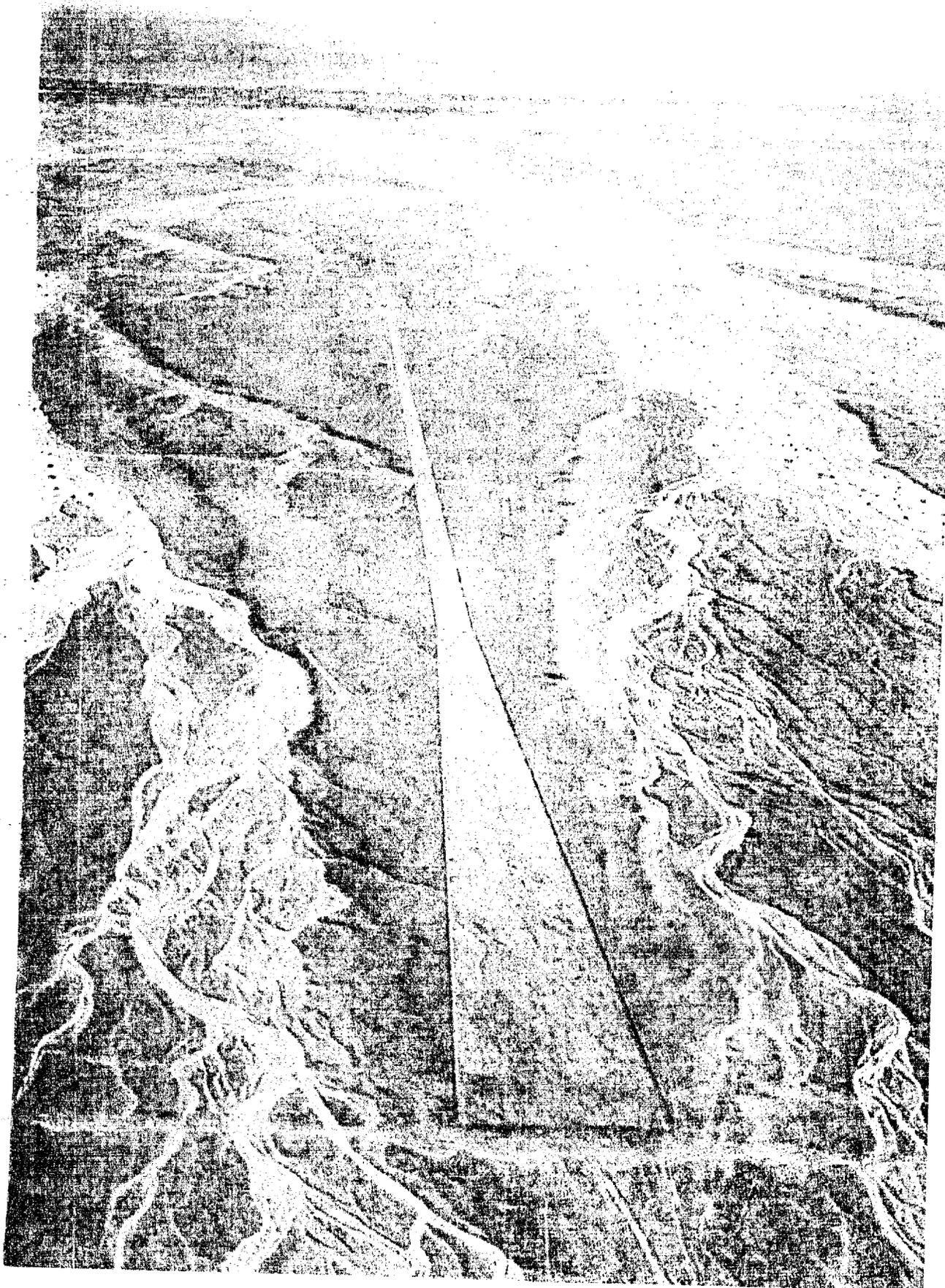
Making the marks must have been simple enough, though time-consuming. Clear away a few million rocks to expose the lighter ground beneath them, pile the rocks in rows, and you have designs that, in this nearly rainless region, can last thousands of years.

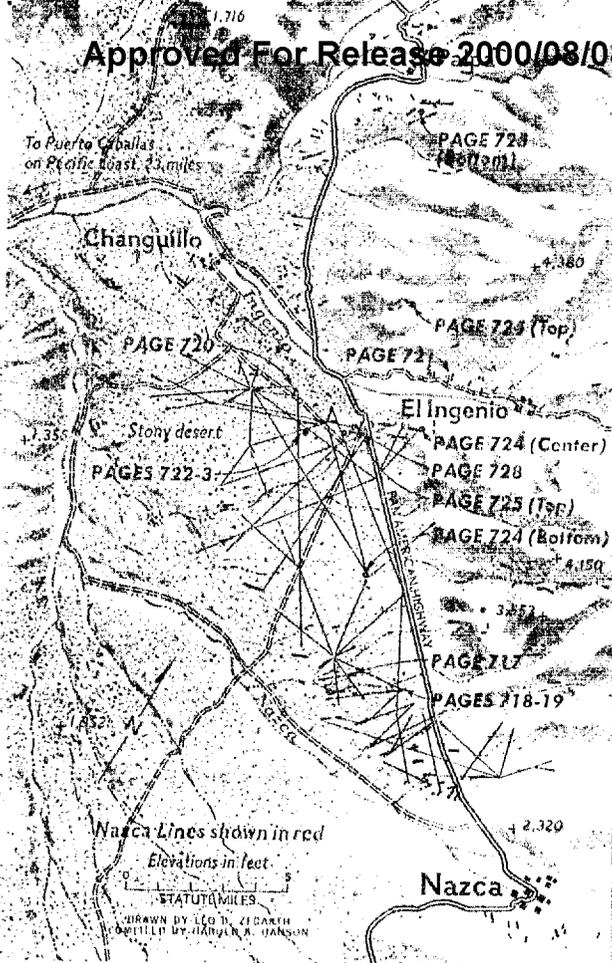
But why did the ancients construct them? Nobody really knows. There have been many guesses—that they were prehistoric roads, farms, or some form of signals or offerings to celestial beings.

Dr. Paul Kosok, the first scholar to study the markings after they were first recognized from the air in the late 1920's, speculated that they constituted a giant astronomical calendar, an almanac for farmers anxious to predict the return of water to valley streams.

A 1968 study, financed partly by the National Geographic Society, ascertained that some of the lines do indeed point to solstice positions of the sun and moon in ancient times, as well as to the rising and setting points on the horizon of some of the brighter stars. But, the study indicates, no more than could be expected by chance.

And so the mystery remains, including the most tantalizing question of all: Why did the Nazcas create immense designs that they themselves could never see, designs that can be seen only from the air?





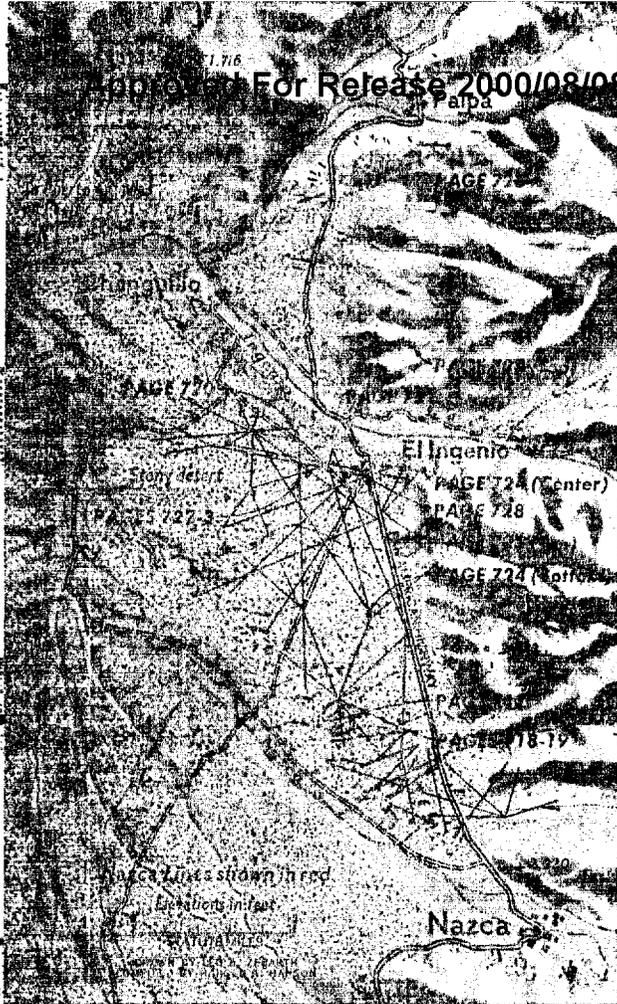
FOR MORE THAN 1,000 YEARS, Maria Reiche has photographed and charted the Nazca. Trying to complete a map of the ancient, 1,000-mile-long and 100-mile-wide road network, she has been joined by the Pan American Highway Group (upper left). A National Geographic Society grant (lower right) helps her work.

At her work in Lima (left), the German-born mathematician and map-maker charts sections of the Nazca. Part of it, almost all the directions of the compass. Two months ago, Mr. Reiche, deep in a canyon of red sand, her car on the rocks, made a "Puma" map, a map of the Nazca lines. It is a map of a road network, a road network, and a road network. The road network is the Nazca Lines, a road network, a road network, a road network.

With the tool of tape in her left hand, she has just completed one of the Nazca Lines, a road network, a road network, a road network. The road network is the Nazca Lines, a road network, a road network, a road network.

Mr. Reiche says the Nazca Lines are not man-made, they have been in the field for 1,000 years. "Once you remove the lines, the ground is quite soft," he says. "I'm afraid the spacemen would have gotten stuck."





FOR MORE THAN 25 YEARS Maria Reiche has photographed and charted *las líneas*, striving to complete a map of the hundreds of designs and figures that score a tableland some 30 miles long, threaded by the Pan American Highway (map, upper left). A National Geographic Society grant now aids her work.

At her desk in Lima (left), the German-born mathematician glances up from a chart, where azimuths of lines dart off in almost all the directions of the compass.

During fieldwork Miss Reiche sleeps on a camp cot behind her car on the rocky, grassless Peruvian "pampa," rising before first light for a breakfast of grapefruit and canned milk. Despite her 72 years, she then sets to work with a zeal as relentless as the noonday sun.

With the reel of tape in her left hand, she has just completed measuring one of the sides of a trapezoidal field (right). Seen from the air (above), it negotiates a hillock, then branches off octopuslike over the pampa.

Miss Reiche scorns the suggestion that such markings may have been airfields for outer-space visitors to earth in prehistoric times. "Once you remove the stones, the ground is quite soft," she says. "I'm afraid the spacemen would have gotten stuck."







**A**S IF DESIGNED AND DRAWN by a mad geometrician, markings great and small litter the pampa in configurations that defy explanation. They sometimes ignore topography as well.

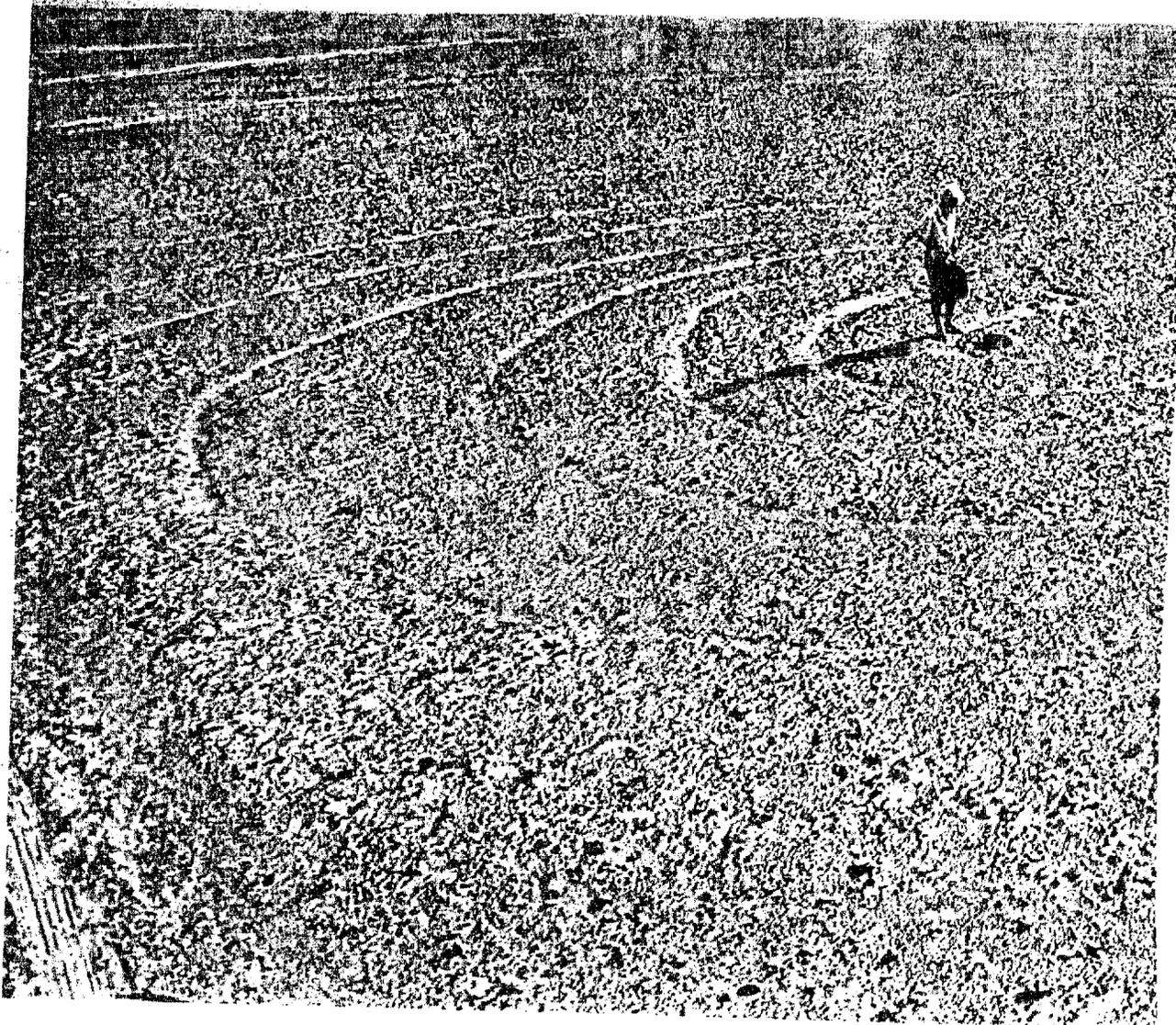
Trapezoids congregate on a plateau that overlooks the Ingenio Valley (above). Others march up—or is it down?—the slopes of an old wash beside farmers' fields (right), accompanied by platoons of lines that appear to go nowhere. The looped pattern below them lacks the precision of

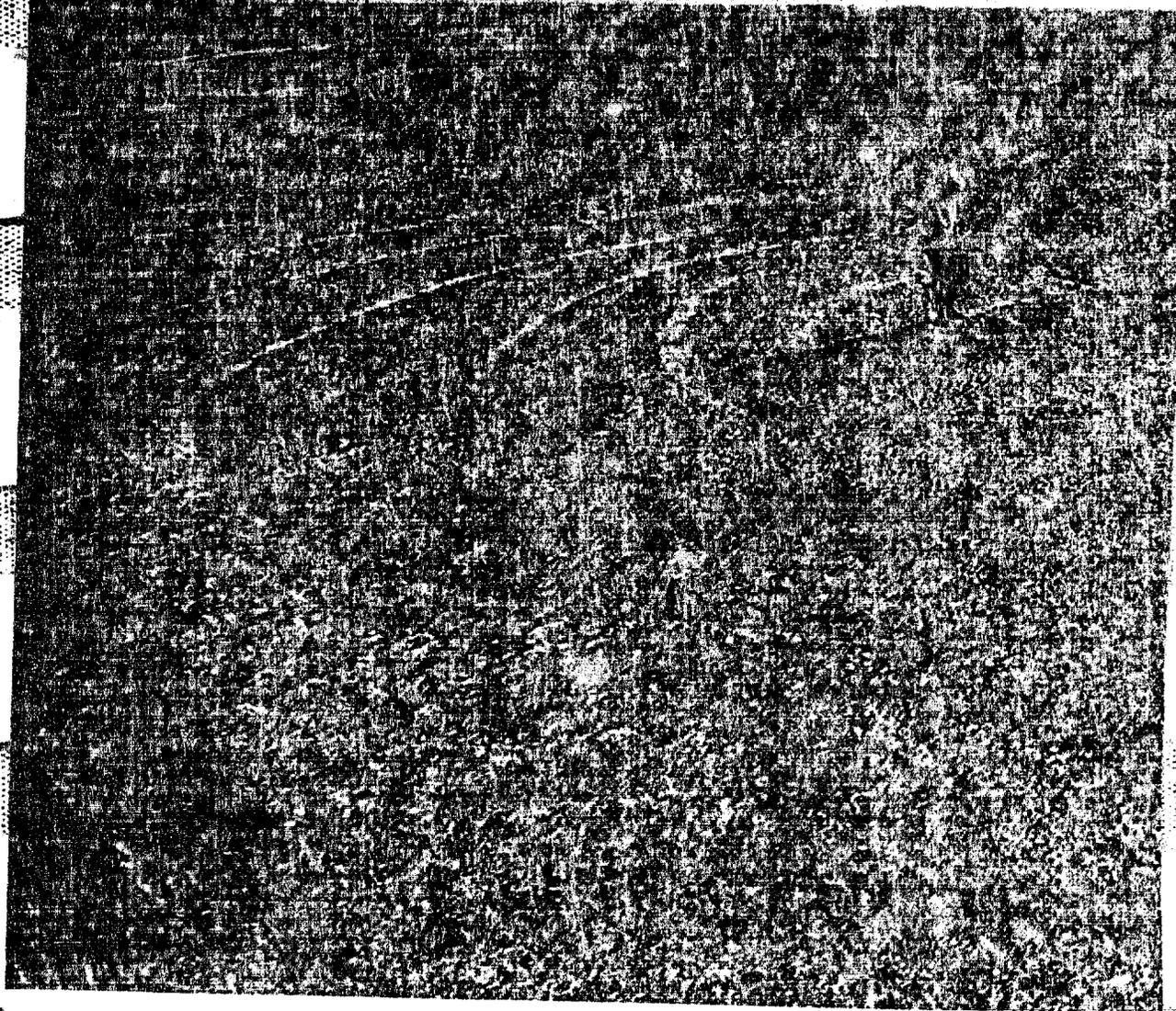
many ancient lines and may be the remains of an irrigation system.

"Throughout the pampa," says Miss Reiche, "lines stretch for miles, crossing valleys and traversing hills, never swerving from their courses. Surveyors have been astonished by their straightness."

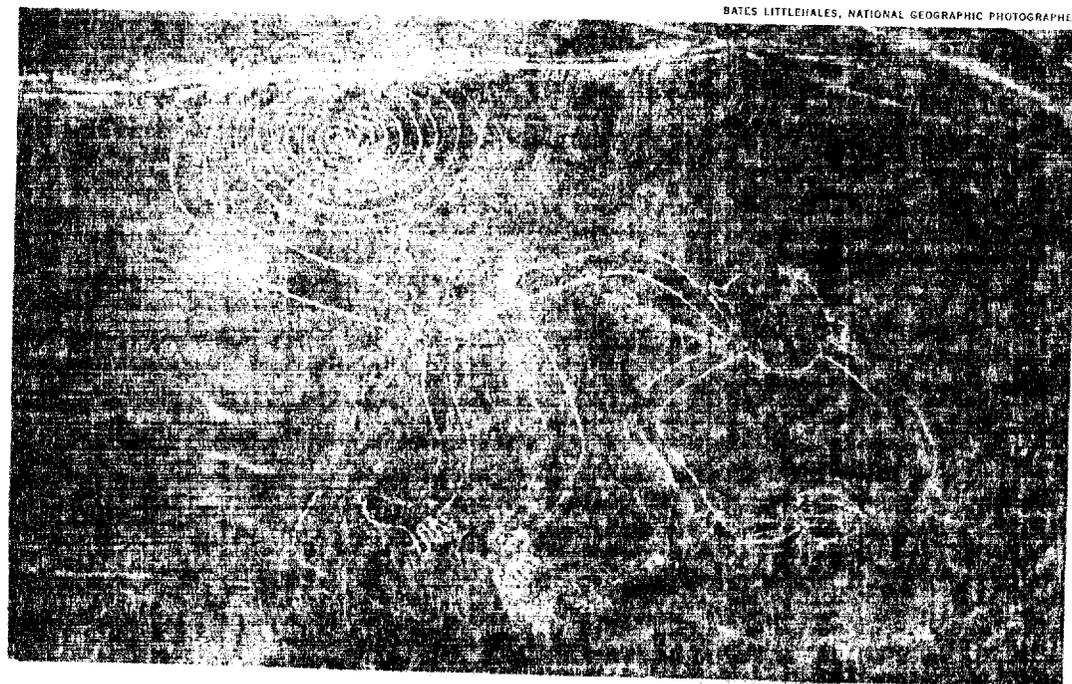
How did the Nazcas achieve such exactitude? Along some lines the remains of posts have been found at intervals approaching a mile. Perhaps sighting stations with men standing in line behind them? Perhaps.

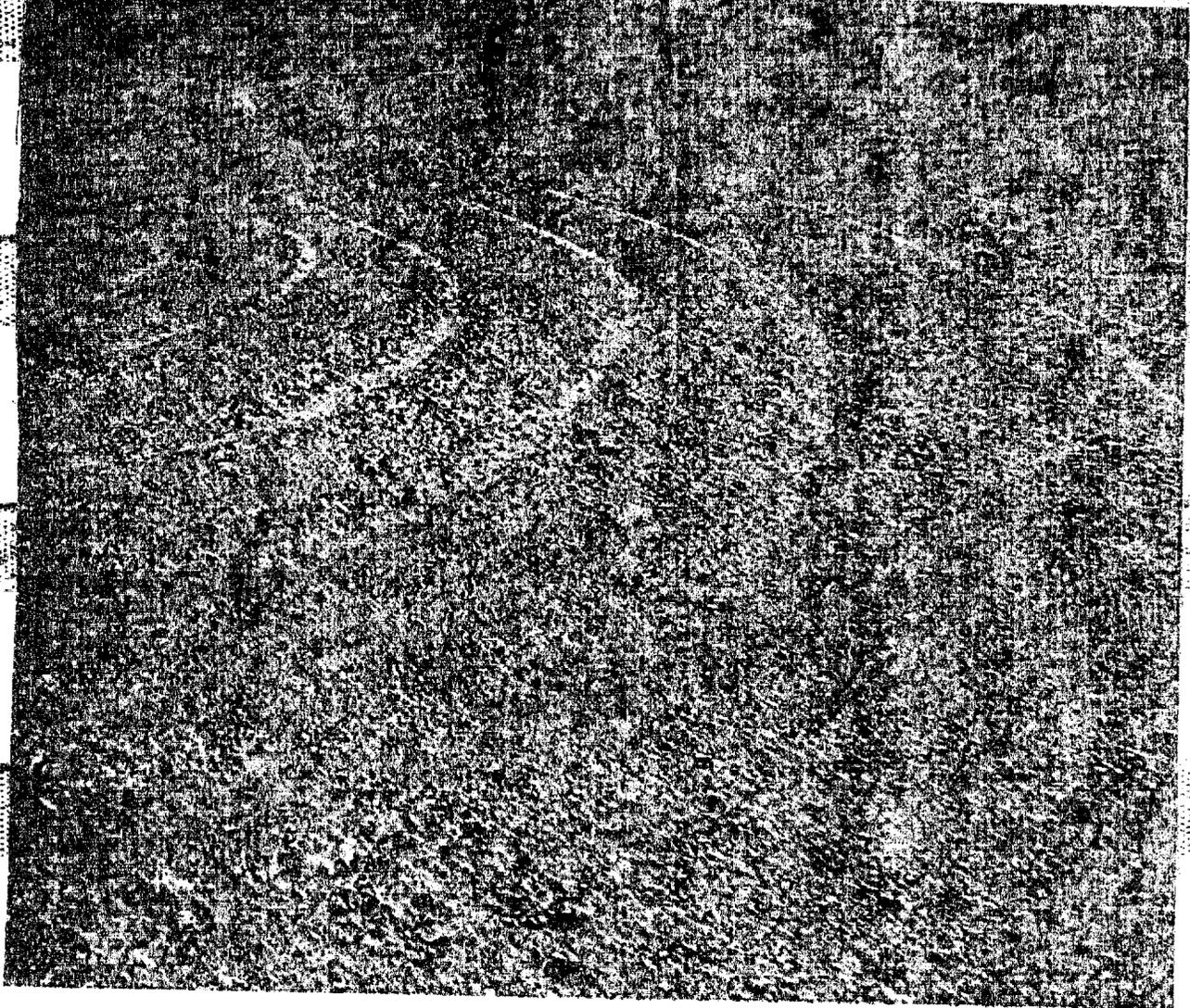






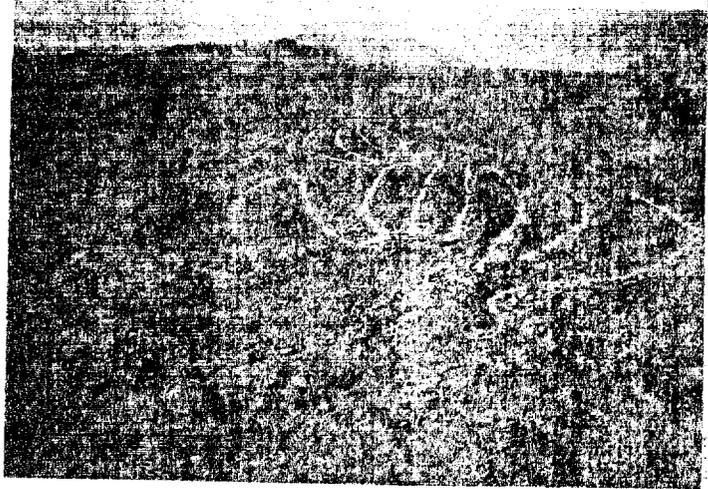
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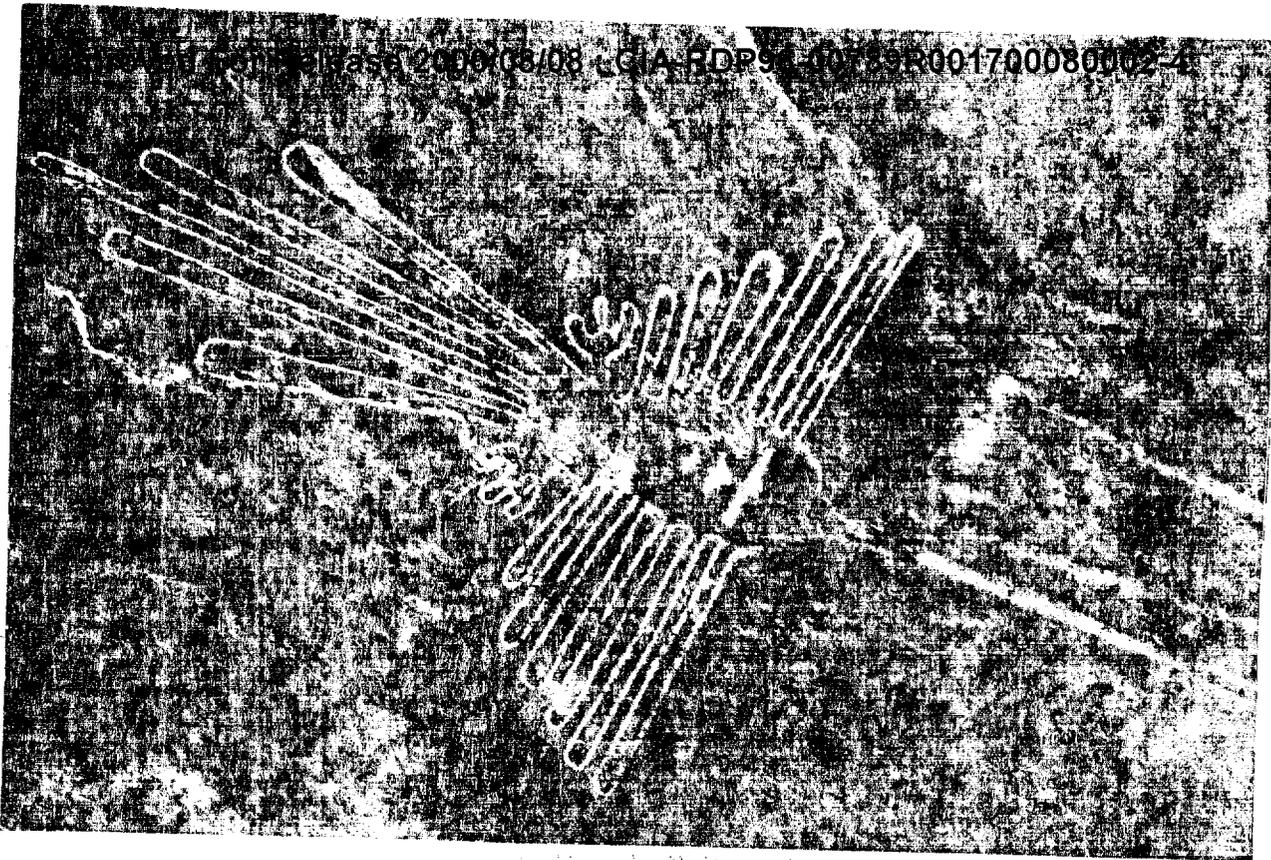


**L**ONGER than a football field and completely visible only from the air, a monkey (left) leans to grasp—nothing. Its left hand measures more than 40 feet across (right). Miss Reiche stands within the whorled furrows that comprise its tail (above).

The figure looks like any of several monkeys—woolly, spider, or capuchin—that live in tropical forests on the east slopes of the Andes, some 200 miles distant. But Nazca artists, who probably learned of these monkeys through trade contacts with forest peoples, weren't always accurate in anatomical detail. They gave their monkey four fingers on one hand, five on the other, and a prehensile tail that curves up instead of down.

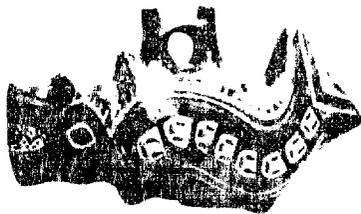
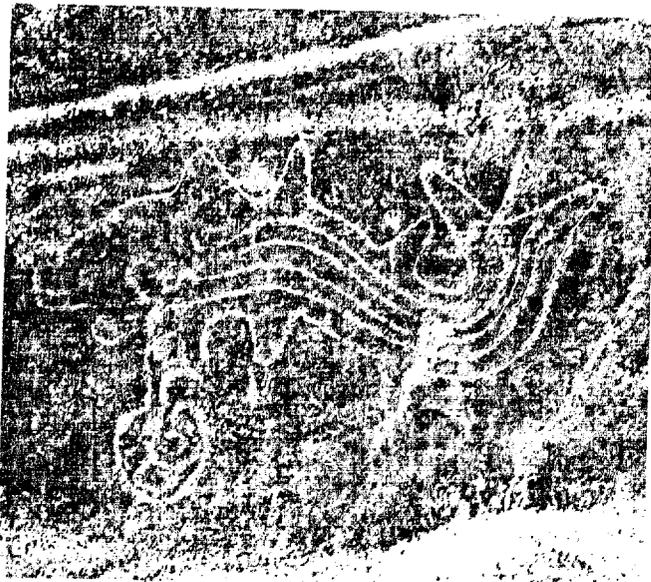






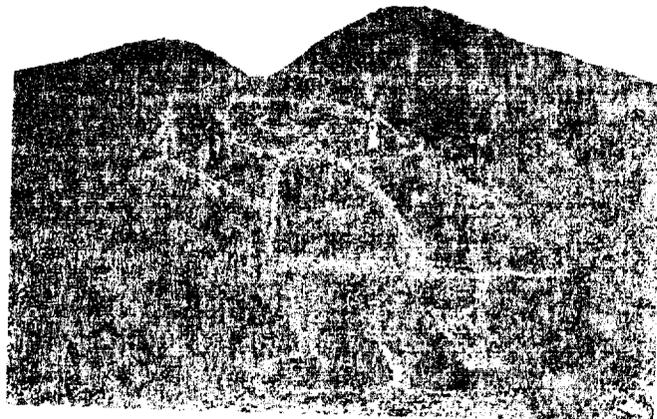
**O**N THE PAMPAS FLOOR birds fly, whales swim, and other creatures crawl and creep. Many of their forms closely resemble the figures on Nazca pots.

Ceramic representation of a little whale (below), created near the end of the third century, A.D., has the sinuous form of a figure described in the desert (right). Stylized human heads, trophies of a Nazca head-hunting cult, band the neck of the



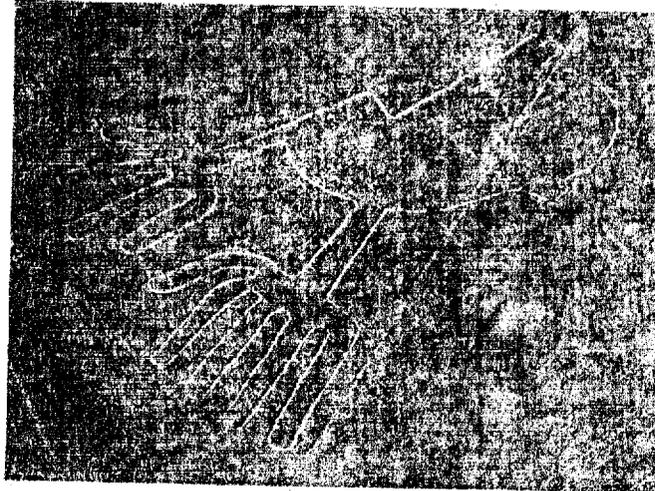
potter's whale. Other pots render the head dangling below the whale's body, as the drawing above.

A few of the figures have been identified as pre-Nazca. Miss Reiche walks the outline of a wide-eyed hillside figure (right). Pottery and textile similarities link it with the Nazcas' immediate predecessors, people of the Paracas culture.

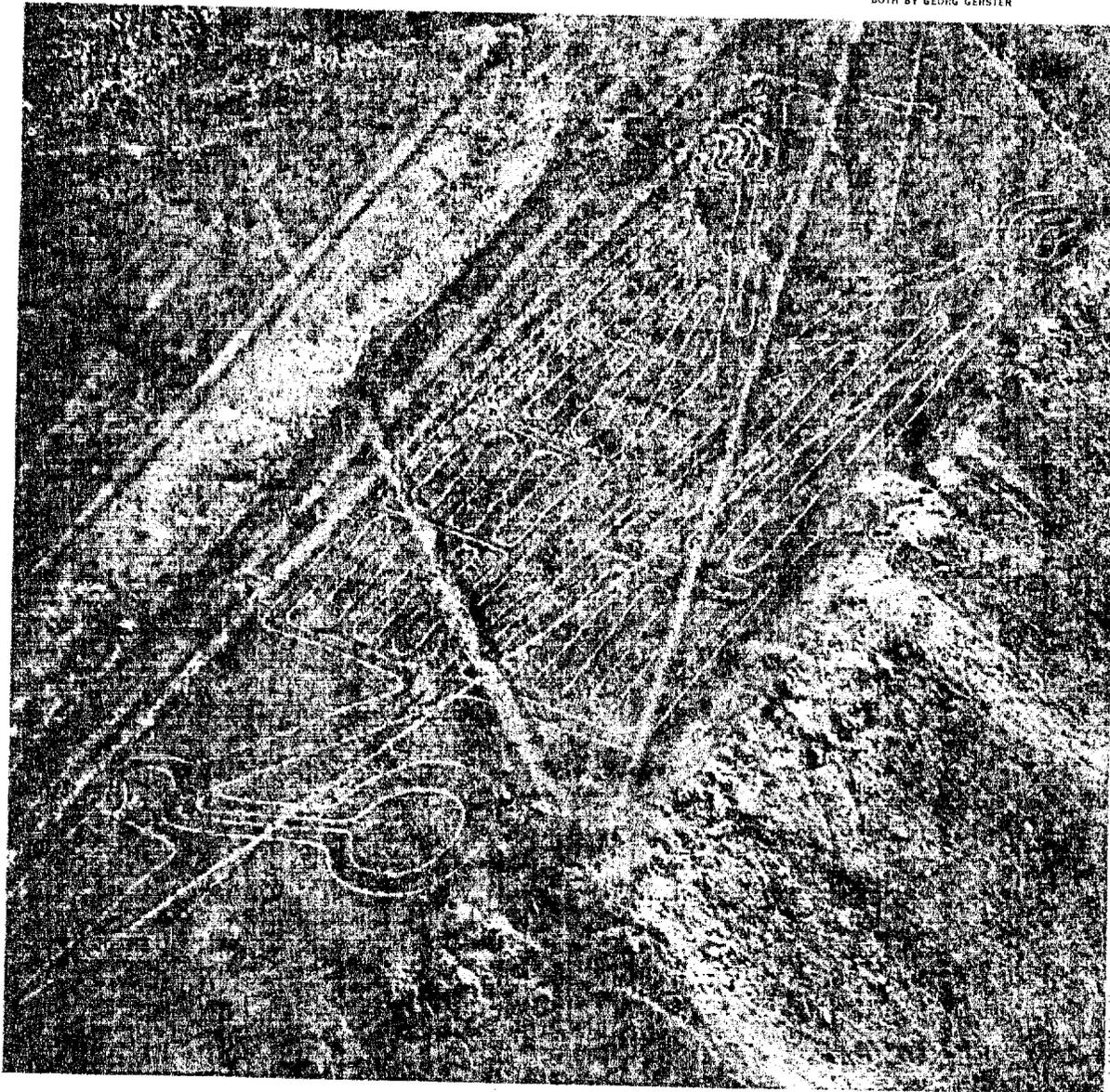


**D**ESERT AVIARY contains 18 bird figures, including that of a hummingbird (left), an apparent duckling (right), and a sea bird almost 450 feet long (below), whose beak is only partly shown.

"We can't be sure what their meaning was, but we can be sure they had meaning," says art historian Alan Sawyer. "Most figures are composed of a single line that never crosses itself, perhaps the path of a ritual maze. If so, when the Nazcas walked the line, they could have felt they were absorbing the essence of whatever the drawing symbolized."



BOTH BY GEORG GENSER



**C**RRAFTED with uncommon care, the Nazca Lines remained much as their makers made them. For perhaps two thousand years a spider 150 feet long lay clearly in the sand, its outline almost undisturbed in a photograph taken in 1963 (right). Now it bears the scars of dune buggies, jeeps, and sightseers on foot (below). A similar fate threatens many of the markings.

For years Miss Reiche has crusaded to preserve the lines, an effort acknowledged last January when the Peruvian Government allotted one million sols (about \$23,000) for the purpose.

"I would like to see a viewing tower erected near the Pan American Highway," she says, "so that visitors will not be tempted to walk on the lines. I used to direct people to the sites. Now I direct them away, before all the ruins are ruined."

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DATES LITTLEHALES, NATIONAL GEOGRAPHIC PHOTOGRAPHER,  
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