IT AIN'T NECESSARILY SO

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This sort of thing can happen in any family, like yours or mine. I give three imaginary but typical examples:

Number one: Your young son says, "Dad, my teacher wants me to find out what countries border on Bolivia. Can you help me?"

Number two: Your wife says, "My committee is meeting tomorrow at Betty's house, and she lives clear across town, at Grove and Jefferson. What's the best way to get there?"

Number three: Your married daughter says, "This week-end we're planning to visit Jimmy at his camp, and it's way up in Trinity County. Should we take 101 through the redwoods, or would it be a lot shorter to go straight up the valley on I-5?"

I suspect that your answer to all three questions would be the same: "Let's look at the map." The map of South America that's in the atlas or the almanac right on the shelf. The street map that you got from your realtor when you bought the house. The road map that you picked up from the Triple A before your last motor trip. They're all handy and they're reliable. Those are the chief qualities that we ascribe to maps: availability and accuracy.

But it was not always so. Maps have been in use for thousands of years; the oldest one known, engraved on a clay tablet, dates from about 2200 B.C. in Babylonia. During most of that time, maps were both scarce and erroneous. Scarce by intention, for

often they were secret documents, used for military purposes or for highly competitive ventures in exploration and trade; to let one fall into unauthorized hands would have been at best folly and at worst treason. And erroneous because until correct surveying aided by aerial photography became universal, the mapmaker had to draw on rumor, speculation and guesswork to fill in the blank spaces. Hence, as Lloyd A. Brown says in his excellent book The Story of Maps, "Yes, the early cartographers, without exception, were wrong;" but he quickly adds "gloriously wrong."

To me, maps are endlessly fascinating; I like to pore over them, to read about them, to decorate my walls with them. And not just for the correct information that they impart, but equally for what is unintentionally revealed about the mapmaker and his times by what we now know to be his errors. Some of these errors are merely picturesque, but others have had consequences as momentous as any in history. This evening, I ask you to bear with me while I tell you about a few of them.

If I were to choose the cartographer whose monumental wrongness has had the greatest impact on history, I would unhesitatingly bestow the award on Paolo dal Pozzo Toscanelli, a distinguished physician and scientist of the fifteenth century in Florence. But for Toscanelli's map, Columbus might never have discovered America. How did this come about?

To begin with, we must disabuse ourselves of the myth that in the time of Columbus everybody else thought the earth was flat. As Samuel Eliot Morison puts it in Admiral of the Ocean Sea, "of all the vulgar errors connected with Columbus, the most

persistent and the most absurd is that he had to convince people 'the world was round.' Every educated man in his day believed the world to be a sphere; every European university so taught geography." The point in dispute was not the shape of the earth, but its size. What Columbus set out to do was to convince one of the European sovereigns, not that by sailing west one would ultimately reach China (they assumed that), but that the distance was short enough to make such a voyage a practical possibility within the means then at hand. For this he needed persuasive support, preferably from a respected contemporary man of learning.

Here is where Toscanelli comes in. He had written a letter for the use of the King of Portugal, expressing the opinion that a westerly route to the Indies would be shorter than the one being opened around Africa by His Majesty's subjects. Somehow the existence of this letter came to the attention of Columbus, who wrote in great excitement to Toscanelli asking for more information. Toscanelli replied courteously, sending along a copy of his former letter, with a copy of a world chart showing the details of the proposed route. That was the ammunition Columbus used in his ten-year campaign that finally won the backing of Isabella of Castile.

Toscanelli's actual chart has been lost, but close adaptations of it are extant. From them we can learn how Toscanelli piled error on error, to reach the extraordinary conclusion that the distance from the most westerly of the Canary Islands to the most easterly point in Japan would be only 3000 nautical miles. To that end, he greatly stretched the known breadth of Asia, added more for what Marco Polo had reported, and tacked on what Polo knew only from hearsay about Cipangu (Japan), placing it much

further away from China and making it much bigger than it is. This, plus some shrinking of the estimated width of a degree of longitude, brought Japan, in relation to Spain, to just about where the West Indies are. And so we come to the ironic result that in one sense Toscanelli was right after all. By sailing west for the distance Toscanelli had indicated, Columbus did indeed cross an ocean to the land on the other side. To be sure, it wasn't China, or Japan, or any of the islands offoof East Asia; but Columbus never found that out, or, if he came to suspect it, refused to admit it. Columbus was a proud man and a stubborn one. To deny that he had reached the Indies - to repudiate Toscanelli - would shatter the dream that had guided his life. The great discoverer could not claim the credit for his discovery.

But someone else - an impostor and a braggart - could and did. Amerigo Vespucci, modern scholars believe, may possibly have made an early transatlantic crossing or two in a subordinate capacity, but he never commanded any of those expeditions, let alone the one that first reached the mainland, as he asserted. To his credit, however, he did recognize that what had been found was a new world, and he used that designation as the title of his Latin pamphlet Mundus Novus. He gave it no name beyond that, but perhaps he hoped that some gullible reader would swallow his story whole and decide that he deserved that honor. And indeed that is what happened.

The perpetrator of this mistake was a German geographer with the jaw-breaking name of Martin Waldseemüller, who was a member of a small scholarly institute at St. Dié in Lorraine. It fell

to him, on behalf of the institute, to prepare a new edition of a standard geographical work, and a map to go with it, taking account of recent discoveries. At just that moment, in 1507, he had been quite swept off his feet by Vespucci, hailing him as the discoverer of the New World, whose name in some form in ought to bear. So Waldseemüller wrote the word America across his map, which sold well and obtained a wide circulation.

Within five years, Waldseemüller had learned of his error, and he deleted "America" from later editions of his map. But it was too late. The name had been copied too often to be suppressed, even by the man who had originated it. In 1538 Gerard Mercator, probably the most famous cartographer of all time, not only labeled the New World "America" on his great world map, but subdivided it into Americae pars septentrionalis and Americae pars meridionalis (North America and South America); after that there could be no turning back.

An important mistake, then, but not one to be deplored. As our late colleague George Stewart tells us in Names on the Globe, considered purely as a name "America" is as suitable as any that could have been found. It seems continental, fitting smoothly into the company of Europa, Asia and Africa. It is euphonious and readily pronounced in the principal languages. Its four syllables give it dignity in speech, while its seven-letter brevity makes it easy to write. We can happily call ourselves Americans even though we owe the term to a liar and his dupe.

Americans, then, we irrevocably are; we are also Californians. And California too has been the subject of a curious and protracted

cartographic mistake. Let me tell you about it.

By the year 1540, the Spanish navigators had definitely ascertained that California - by which they meant what we know as Baja California - was a long peninsula jutting south off the west coast of Mexico. All the great sixteenth-century mapmakers so depicted it quite correctly and recognizably.

Then something very odd happened. In 1625 an English cartographer named Henry Briggs printed a map showing California as an island, and a huge one at that. It was meant to embrace not just Baja but the whole California coast and more. On it were noted such Alta California promontories as Point Reyes and Cape Mendocino, and even Cape Blanco in what is now southern Oregon. Surrounding this vast region there appeared a gulf cutting it off entirely from the mainland.

Now Briggs of course realized that this was a departure from the previously accepted belief, and he felt impelled to justify it by an explanatory notation on the map itself. Here is what he wrote: "California sometymes supposed to be a part of ye western continent but scince by a Spanish Charte taken by ye Hollanders it is found to be a goodly Ilande the length of the west shoare being about 500 leagues."

But the explanation only pushes the mystery one step further back. An apparently authentic Spanish chart turning all of California into an island? Who would have drawn that, and why?

At this point the trail becomes obscure, but it seems to trace back to Sebastian Vizcaino's expedition of 1602-1603. He had been sent out from Acapulco to explore the coast to the north and specifically to try to find the mythical Strait of Anian,

supposed to be the western entrance to the greatly desired Northwest Passage through the continent. He went as far as Cape Blanco and back, but of course failed to find the strait. The Spanish viceroys were stern taskmasters; he may well have feared censure or even punishment. But suppose he were to report that California was an island, and that the strait connected with the inner gulf? Then he could not be faulted for not finding it on the coast. So why not concoct a protective hypothesis?

That may sound fanciful, but it has some foundation. R. A. Skelton, former Superintendent of the Map Room of the British Museum, tells us in Explorers' Maps that the "Spanish Charte" mentioned by Briggs is thought to be one by Vizcaino's own cartographer. It should have been easy enough to persuade him to join in a harmless but prudent deception. There is also a provocative statement in the monumental Life of Captain James Cook by the eminent New Zealand historian J. C. Beaglehole, who writes: "Vizcaino reached the latitude of 42° or 43° N, found no strait, and returned to Mexico with a theory that Upper and Lower California formed a great island, and that the strait opened up from the gulf inside." That falls short of a direct accusation of the deliberate trickery that I have suggested, but it conveys at least a sly hint that Vizcaino's island theory was not unrelated to his expedition's failure to accomplish its main purpose.

Perhaps, then, we have here a parallel to the "America" story, with Vizcaino assuming the role of the mendacious mariner and Briggs that of the credulous cartographer. But this error was not permanent, though it did persist for almost a hundred years.

Through the rest of the seventeenth century California, in the cartographic world, was an island. Finally, in 1702, it became known in Europe that the Austrian Jesuit Father Kino (originally Kühn) had made repeated missionary journeys between Sonora in Mexico and California without having to cross any intervening body of salt water. Thereupon we Californians abruptly ceased to be insular, though there are some who still call us provincial.

The mistakes I have mentioned thus far are all of one kind. Each of them reflects an impression, distorted in one way or another, about something that truly exists - the earth itself, the New World, California. There is another class of cartographic error, consisting of the depiction on maps, no doubt in good faith, of places that had never existed at all, except in legends or other unfounded suppositions. Cartographers, after all, are no more omniscient than other people. They have naturally shared the misconceptions prevailing among their contemporaries. Raymond H. Ramsay has collected the stories of a number of these never-never lands in an enjoyable book called No Longer on the Map.

I have already mentioned one of these delusions - the existence of the Northwest Passage and its exit through the Strait of Anian. Another was a firm belief in what was called Terra Australis Incognita - the unknown southern land. This was not the presently known Antarctica within the polar circle, nor was it Australia. It was a vast continent supposed to extend from the South Pole far upward through the South Temperate Zone and even the tropics, almost to the Equator. The conception originated in the quaint idea that there had to be as much land in the southern as in the northern hemisphere, for otherwise the earth could not maintain

its equilibrium and would tilt out of position. For fully 200 years all the important maps showed that huge white blob at the bottom. It finally required Captain Cook's three voyages, conducted in the scientific spirit of the eighteenth century, to explode that curious notion.

Of these geographic myths, my favorite is that of El Dorado, partly because of its literary and its local associations. Originally El Dorado meant the gilded man; it referred to a ceremonial custom that may actually have prevailed at a time long past within a remote Indian tribe in what is now Colombia. When a new chief was to be installed, it was said, he was stripped naked, oiled, and covered from head to toe with gold dust, so that he gleamed like a gilt statue. He was then carried in state to a barge and then to the middle of a sacred lake, into which he dived to wash off the gold. Of course the Spaniards tried to find the place, and of course they failed. Meanwhile, that legend merged with others, and El Dorado came to mean a golden land or city, still connected with a sacred lake and still maintaining a practice of anointing nude men with gold, but now for drunken orgies rather than solemn ceremonies, and now in a different area surrounded by tribes of man-eaters and monsters.

At this point along came Sir Walter Raleigh, who led one expedition and dispatched another up the Orinoco River. He claimed to have located El Dorado in the Empire of Guiana, and wrote a fanciful account incorporating all the wild tales he had heard. He even started to draw a map that he never finished, but in 1599 its most sensational features turned up on a published map of

Guiana by Theodore de Bry. Here we see the lake, and on its shore a spot labeled "Manoa or Dorado, called the greatest city in the world." Above the lake is an entry "Canibales," and below the lake appears a drawing of one member of the tribe of monsters, shown as a man without a head calmly strolling along, with his eyes, nose and mouth located on his chest. This juxtaposition of cannibals and headless men must have been known to Shakespeare when he had Othello say, in recounting the marvels he had seen:

> "And of the Cannibals that each other eat,
> The Anthropophagi, and men whose heads
> Do grow beneath their shoulders."

We encounter El Dorado once more as a specific fictional place in Candide, where Voltaire makes it the setting for two delightful chapters of satire. In English and American literature, the name came to be used as a figure of speech for any place of great wealth; in that sense, it has worked its way into the dictionary and the thesaurus. By poetic extension, it was used in gold-rush times to denote California. Thus we obtained our own El Dorado County, which in turn first produced the Hangtown Fry, a golden concoction of eggs, oysters and bacon that you can still find on the menus of some of San Francisco's better restaurants. A productive legend indeed.

A mistake of still a third category arises when a mapmaker wrongly reads or wrongly copies something from an earlier map. An instance occurred during a British survey of the Alaska coast. Not knowing the name of a particular cape, a draftsman wrote on the chart a question-mark followed by the word "name". A copyist took the question-mark for a capital C and the a for an o, and

wrote "Cape Nome". Hence Nome, Alaska. This too I have learned from George Stewart's writings on names.

Finally, I cannot resist a passing mention of those maps that are wrong only in the sense that they were never intended to be right; they were conceived as parts of works of prose fiction. Two examples are of particular interest to Californians: Jonathan Swift's map for Gulliver's Travels, showing Brobdingnag, land of the giants, as a peninsula northwest of California, and Robert Louis Stevenson's map of Treasure Island, thought by some to have been inspired by the actual terrain at Point Lobos. Others of my favorite imaginary places, like Tolkien's Middle Earth and Baum's land of Oz, have been mapped with great care and precision, but not by their creators. I leave to you the philosophic question whether graphic fidelity to a fiction promotes truth or error.

I close this paper by harking back to its title, drawn from Gershwin's Porgy and Bess. The passage I had in mind is:

"The things that you're li'ble
To read in the Bible -
  It ain't necessarily so."

As the moral of the paper, I might adapt the passage to read:

The map shows it clearly
And yet, quite sincerely,
  It ain't necessarily so.