# Tinkering with the Olympics

This activity is suitable for an introductory exploration of the Tinkerplots environment. It is best handled in a full group "discussion" with an opportunity for participants to work through some of the explorations. In this activity, you will not be creating or manipulating data, but rather looking at various representations, reading the plots, and interpreting the information from the various display.

Activity 1 - Interpreting History

Open the Tinkerplots application. From the "Data and Demos", "Sports and Entertainment" folders, open the Tinkerplots file "Olympics.tp".
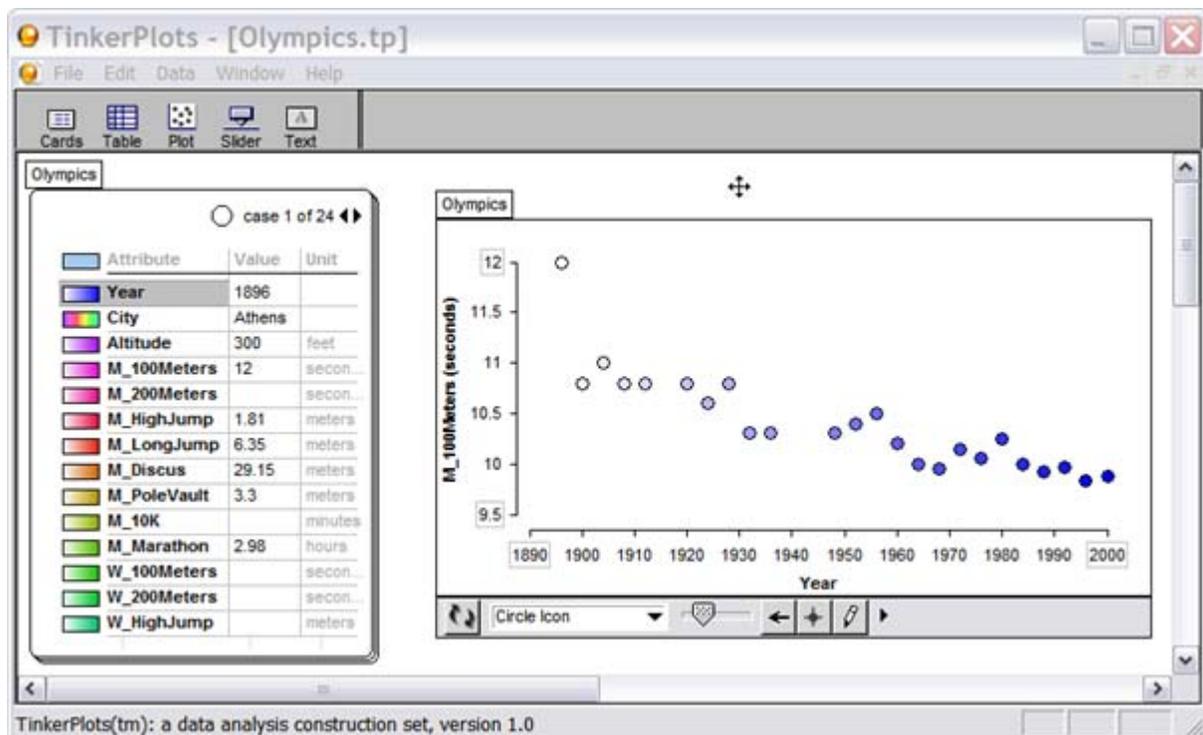
Note that the data is represented in data cards. Each case has a card. When you open the file, you're looking at Card #1 which represents the year 1896 when the Olympics were held in Athens. Reading the data, you'll note that Athens is 300 feet above sea level. The men ran the 100 Metres race in 12 seconds, and the Marathon took 2.96 hours.

In the plot, the data from the dataset is displayed automatically. In this case we are looking at a timeline in years on the x (horizontal) axis and the results from the Men's 100 Metres race on the y (vertical) axis. Clicking on any of the circles displays the corresponding data card where you can read the results.

Some activities to do:

1) The is a gap between the mid-1930s and the mid-1940s. Why?
2) Notice that the circles are progressively dropping along the timeline. Why?
3) The very first race was run in 12 seconds. It is noticeably out of proportion to the rest of the data. Why do you think this is the case?

Activity 2 - Some More Plots

Let's investigate some of this further. Right now, the plot shows the Men's 100 Metres versus time. Suppose that we want to plot the Marathon versus time. Move your cursor over the data card and the cursor turns to a "grabbing hand" when you move over the Marathon attribute. Click and hold your mouse button and drag that attribute to the y (vertical) axis. When you are at the appropriate spot, the attributes will be highlighted by a thick black bordered box. Release your mouse button and the attribute drops into place. Tinkerplots will reorder the plot to reflect the newly selected data.
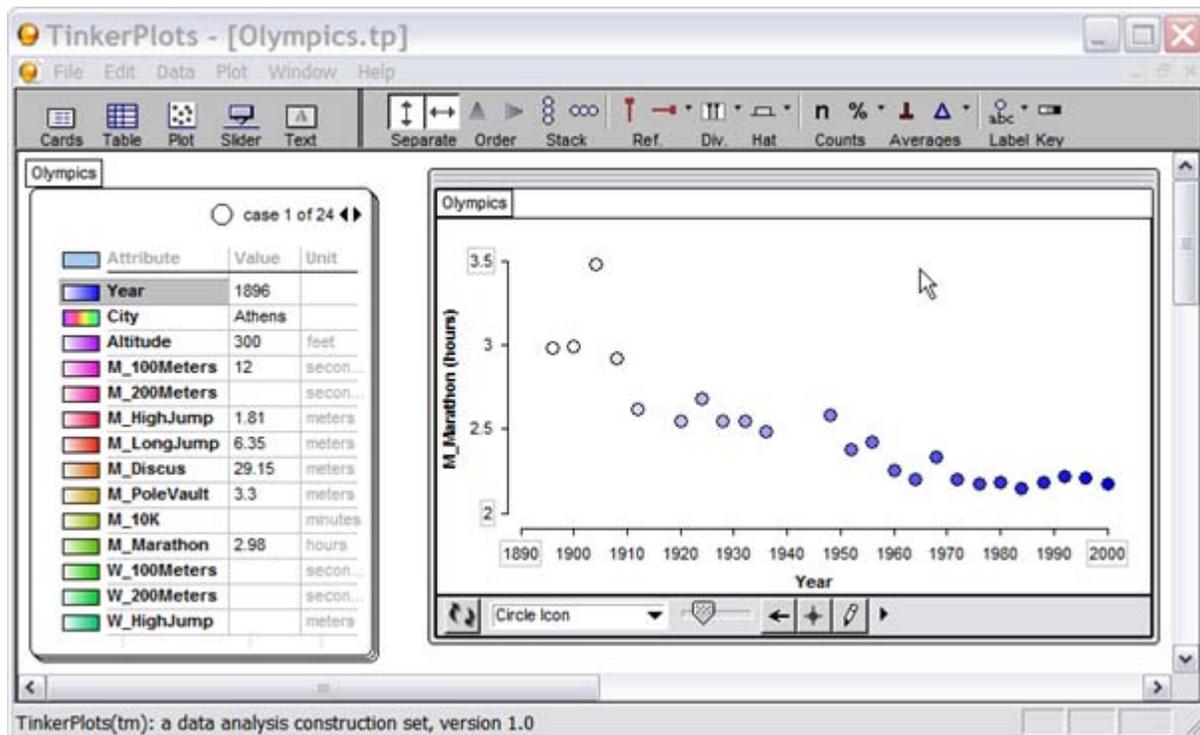
Note that the performance of the athletes follows the same progressively improving performance of the Men's 100 Metre data. You'll also notice more clearly the gap in the early 1940's.

How did the women do? Let's plot the Women's 100 Metre data.
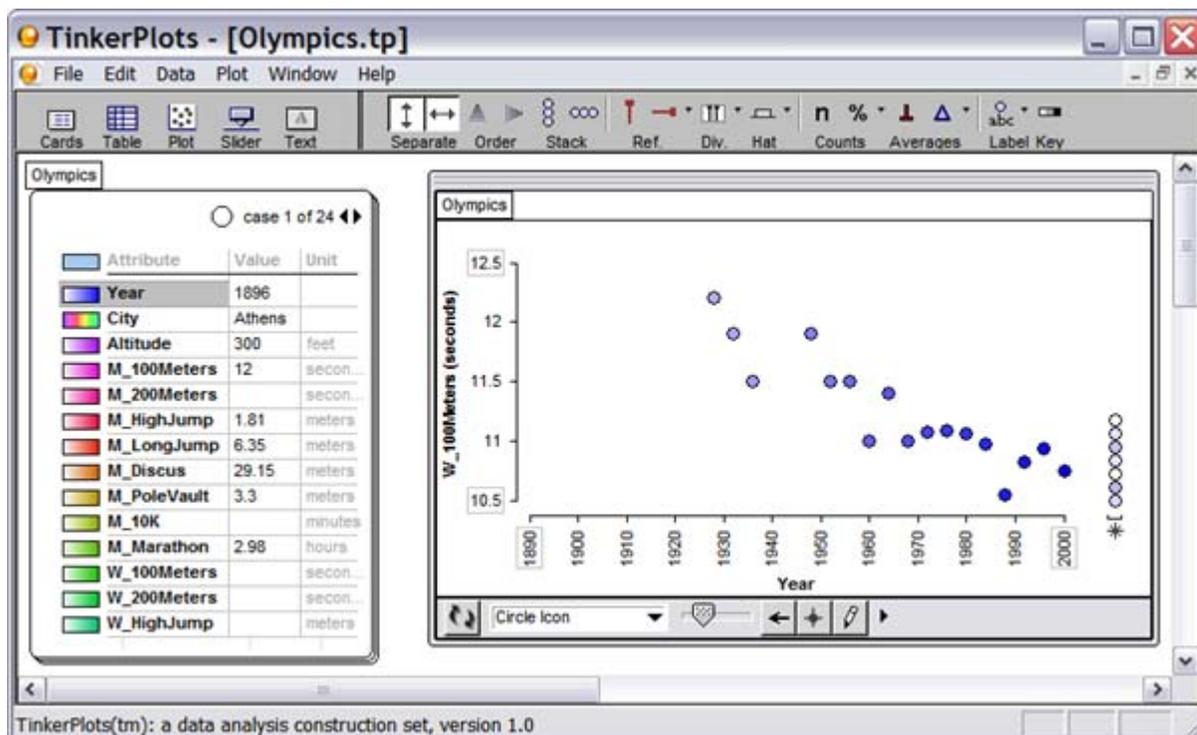
This is interesting. What can we determine from the stack of circles in the bottom right portion of the plot?

Let's compare the women's and men's results at the same time. From the toolbar, drag a new plot onto the workspace. Drag the year attribute to the x (horizontal) axis and the Women's 100 Metre results to the y (vertical) axis. Drag the plots so that you can comfortably view both.

Tinkerplots will try to categorize new data with guides. To remove the guides, click and drag the circles to have Tinkerplots remove the guides, or de-select the Separate buttons.
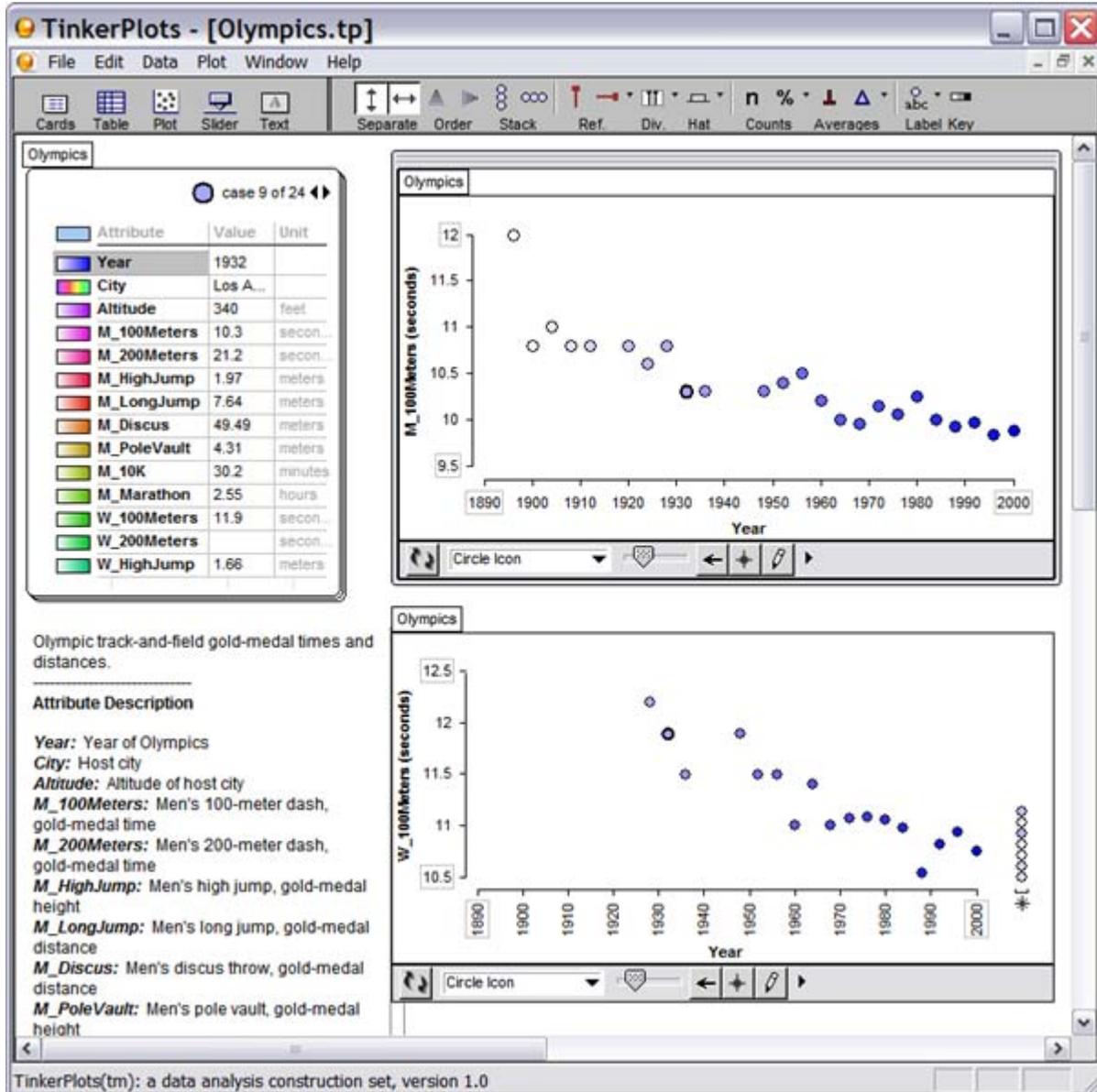

1) Why are there more results for the men than for the women?
2) Take a look at the results from the Seoul Olympics for the women. It is noticeably different from the rest of results. Why do you think this happened? If you have access to Olympics records, investigate this particular result further.
3) The results from these tables seem to indicate a pattern. The data set concludes with the Sydney Olympics. You do not have the results from the Athens 2004 Olympics. Based on the plots, predict what the results for the Athens Olympics would be. Check the Olympic records to see how accurate your prediction is.
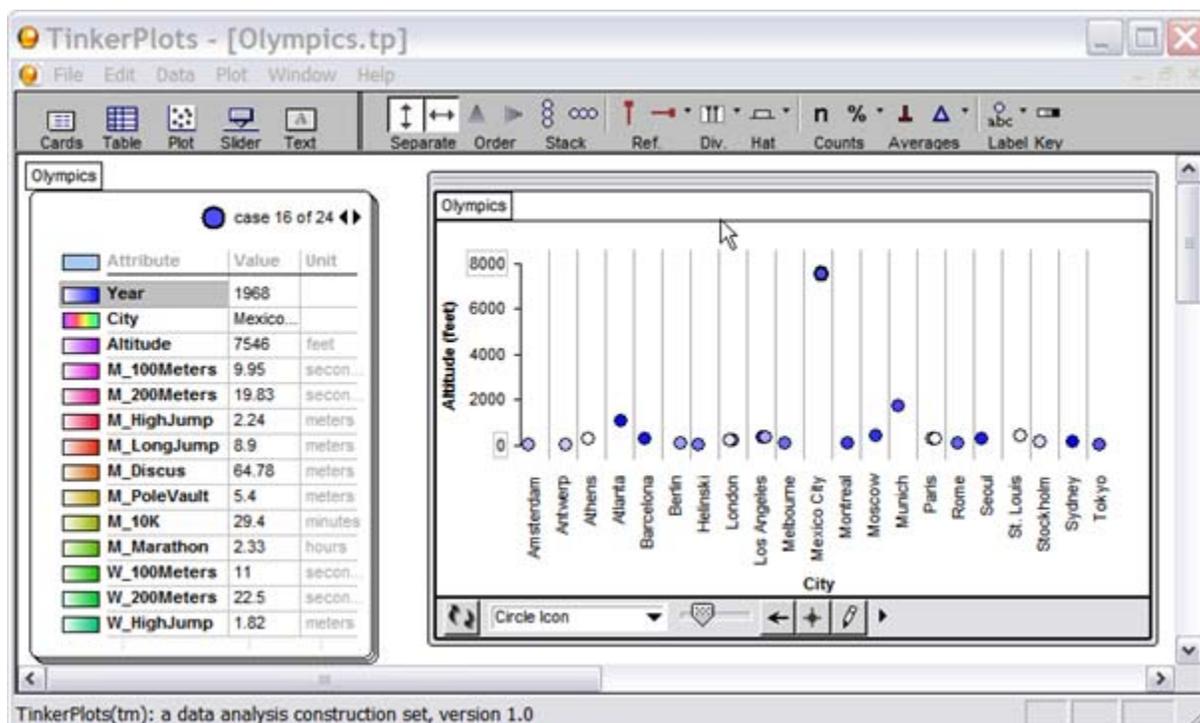
Activity 3 - Olympics at Altitude

You'll notice that one of the attributes is Altitude.

Modify your plot to plot Altitude versus time.

One Olympic venue was held at an altitude considerably higher than every other one. Which Olympics was that?
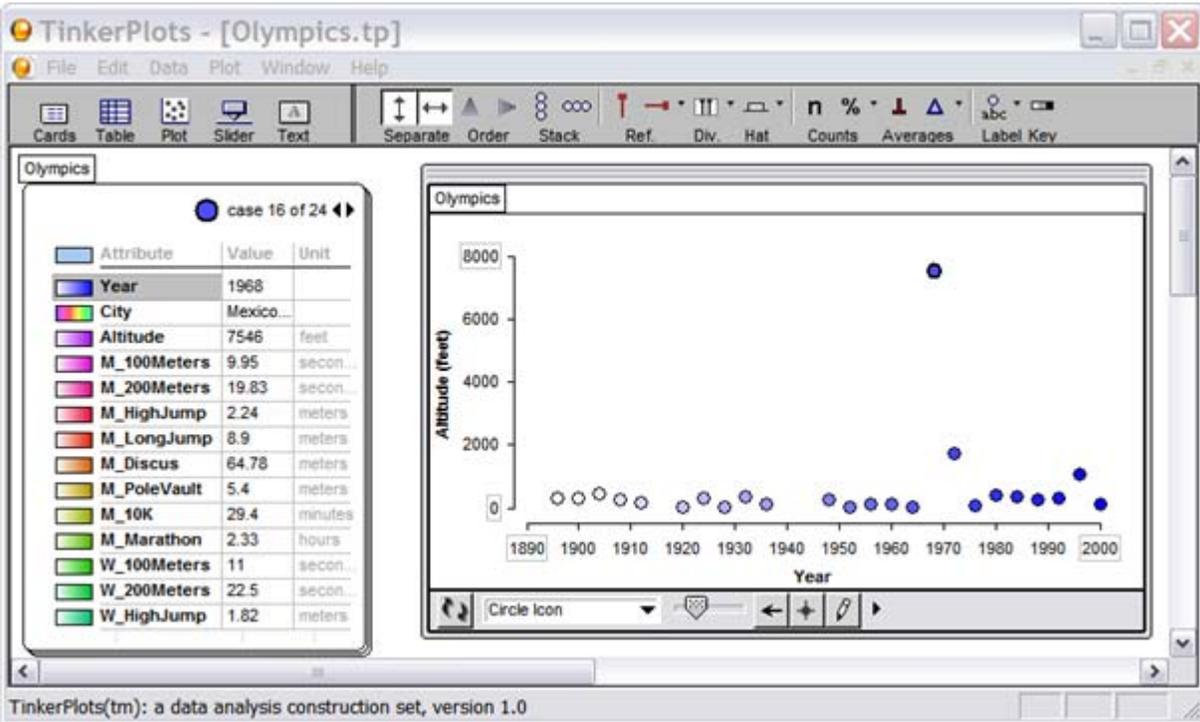
With the above plot, we can see Altitude versus time. But, if we really want to analyze altitude, create a new plot that shows altitude versus cities. Mexico City is easily identified.

Activity 5 - Does Altitude Matter?

The Olympics has had its share of controversies as athletes try ways to enhance their performance. But, a naturally occurring factor is the altitude of the venue. Let's explore some Olympic events to see if this is true. You'll recall that, generally, athletic ability increases incrementally over time.

Select Case 16. These are the results from Mexico City. Did altitude have any effect on results?

Drag a Reference Guide and point to Mexico City to easily identify results from that Olympics as you test various events results.
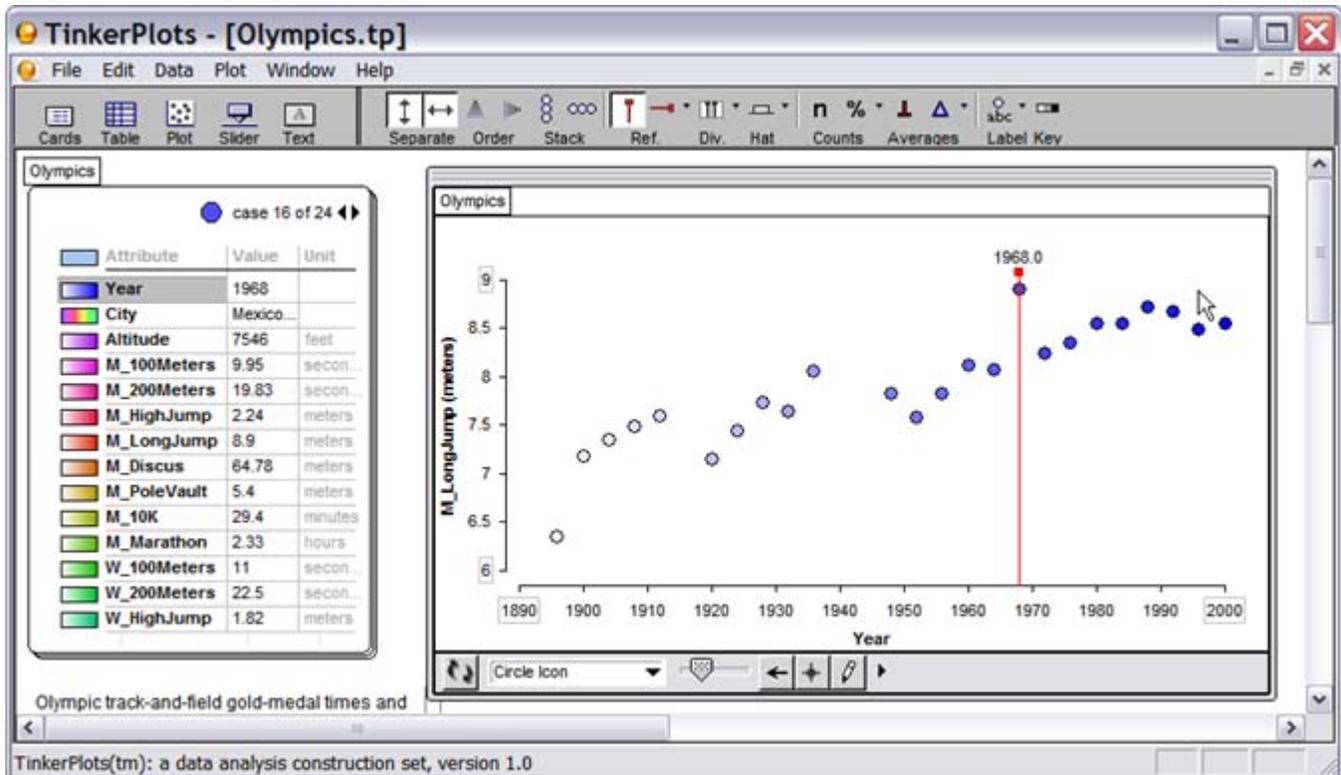
1) How can you explain the data for the Mexico City Olympics in the High Jump?
2) Do you notice any other events that are noticeable from the Mexico City Olympics?
3) Is altitude the only explanation?

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