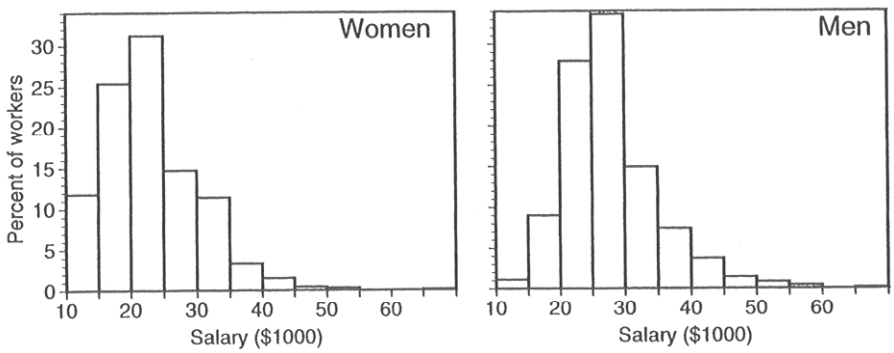
1.20 **(a)** Among the women, 200 appears to an outlier. Among the men, the two high scores would probably not be considered outliers. **(b)** The women's median is 138.5; the range is 99 (101 to 200). The men's median is 114.5; the range is 117 (70 to 187). Generally, women have higher scores.

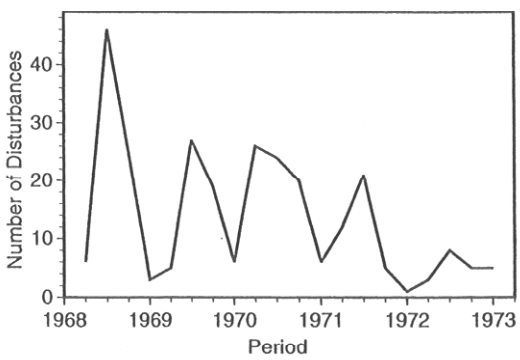
Men		Women
50	7	
8	8	
21	9	
984	10	139
5543	11	5
6	12	669
2	13	77
60	14	08
1	15	244
9	16	55
	17	8
70	18	
	19	
	20	0

Note: In part b) they ask about the midpoint. It's okay if they treat it as the median because the book doesn't define a midpoint.

1.32 Use relative frequency histograms, since there are considerably more men than women. The two histograms are both skewed to the right (as income distributions often are). Women's salaries are generally lower than men's.

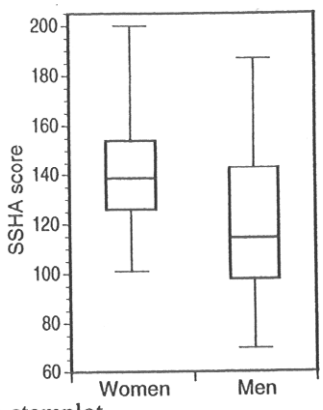


1.34 **(a)** Right. **(b)** The plot shows a decreasing trend—fewer disturbances overall in the later years—and more importantly, there is an apparent cyclic behavior. Looking at the table, the spring and summer months (April through September) generally have the most disturbances—probably for the simple reason that more people are outside during those periods.



1.43 **(a)** See solution to Exercise 1.20. **(b)** & **(c)** The right skewness makes $\bar{x} > M$ in both cases. The *IQR* for the women is 28, so the outlier test gives an upper limit of $154 + 42 = 196$—making the score of 200 an outlier.

	$\bar{x}$	M	Five-number summaries				
Women	141.06	138.5	101	126	138.5	154	200
Men	121.25	114.5	70	98	114.5	143	187



(d) All the displays and descriptions reveal that women generally score higher than men. The men's scores ($IQR = 45$) are more spread out than the women's (even if we don't ignore the outlier); this is fairly clear from the boxplot but not so obvious from the stemplot.

1.44 With the outlier: $\bar{x} = 141.06$ and $M = 138.50$. Without the outlier: $\bar{x} = 137.59$ and $M = 137$. Both drop, but the removal of the outlier has a greater effect on the mean than the median.

1.54 Details at right.

$$\bar{x} = \frac{11,200}{7} = 1600,$$

$$s^2 = \frac{214,872}{6} = 35,812, \text{ and}$$

$$s = \sqrt{35,812} \doteq 189.24.$$

x_i	$x_i - \bar{x}$	$(x_i - \bar{x})^2$
1792	192	36864
1666	66	4356
1362	−238	56644
1614	14	196
1460	−140	19600
1867	267	71289
1439	−161	25921
11200	0	214872