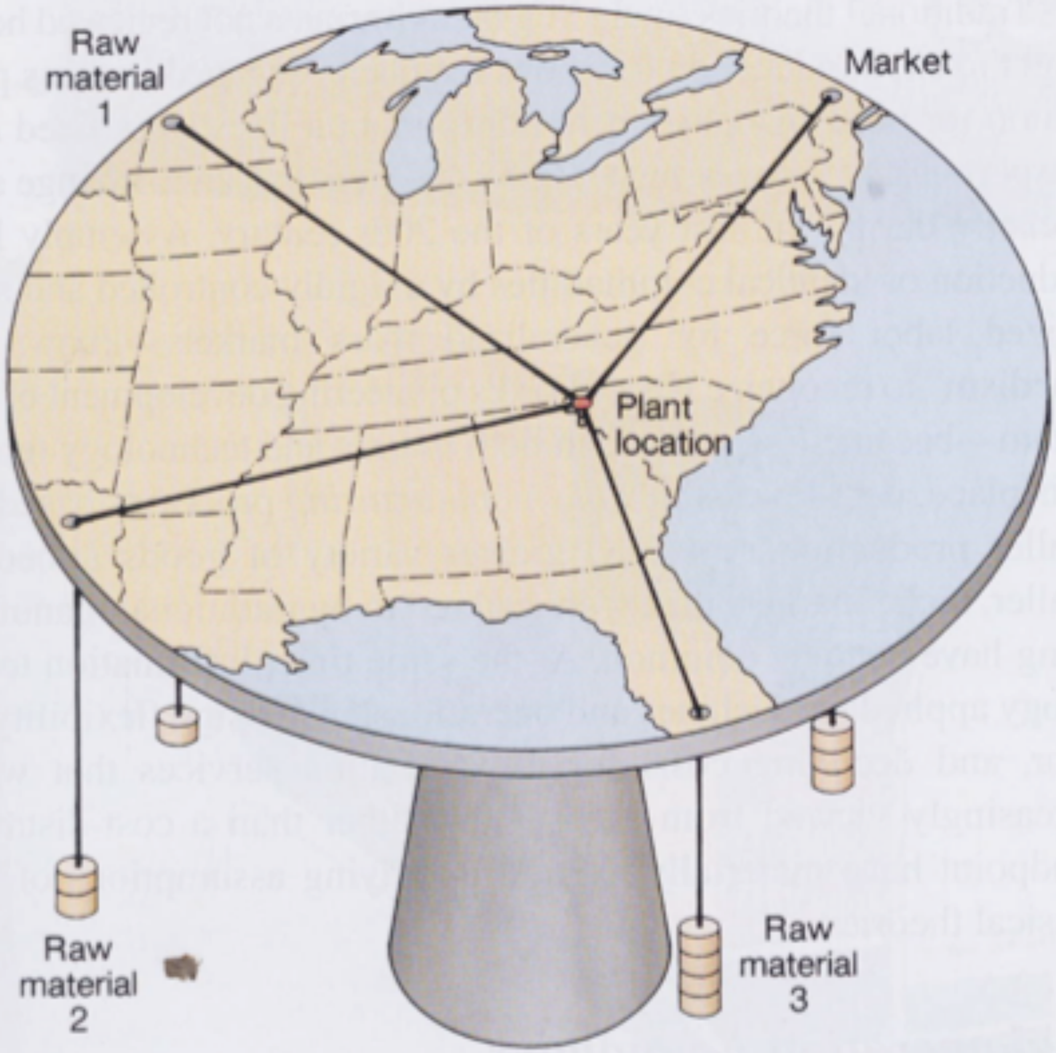


Figure 9.11 Plane table solution to a plant location problem. This mechanical model, suggested by Alfred Weber, uses weights to demonstrate the least transport cost point where there are several sources of raw materials. When a weight is allowed to represent the "pull" of raw material and market locations, an equilibrium point is found on the plane table. That point is the location at which all forces balance each other and represents the least-cost plant location.

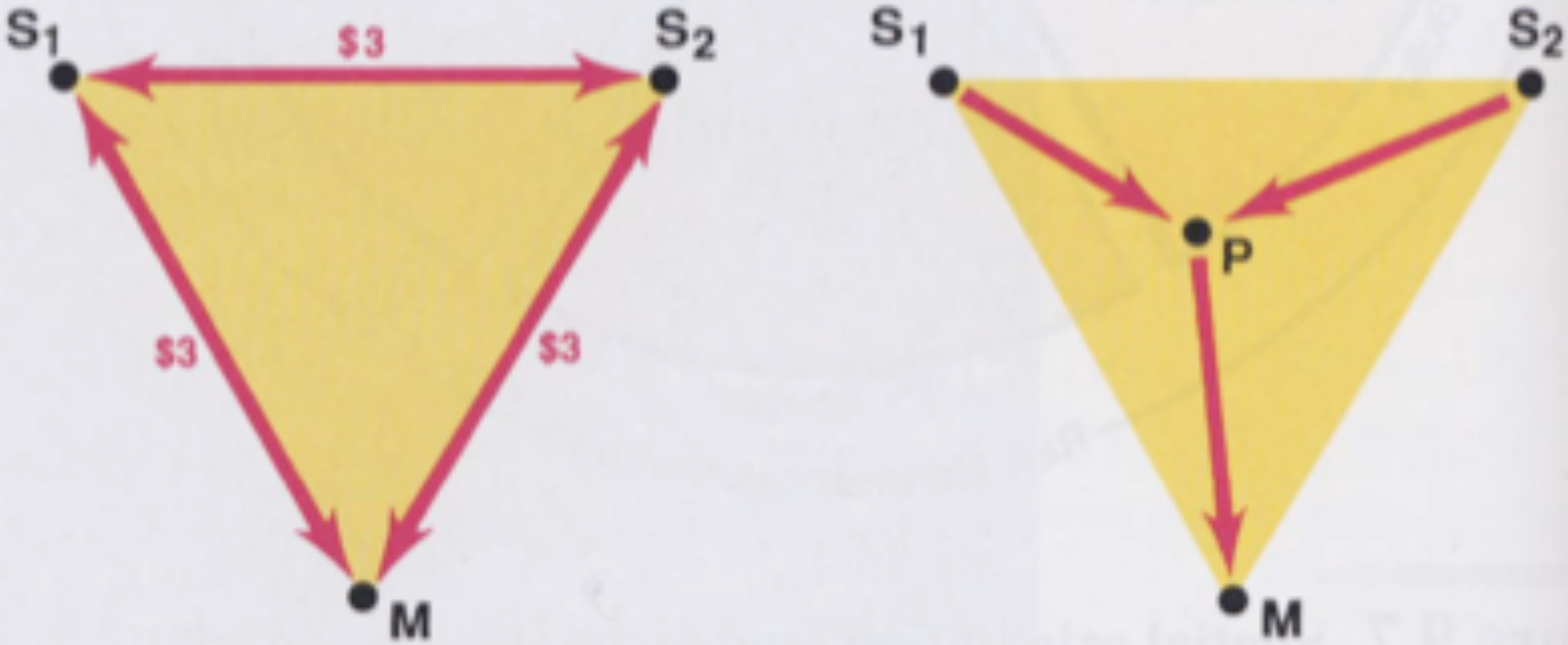
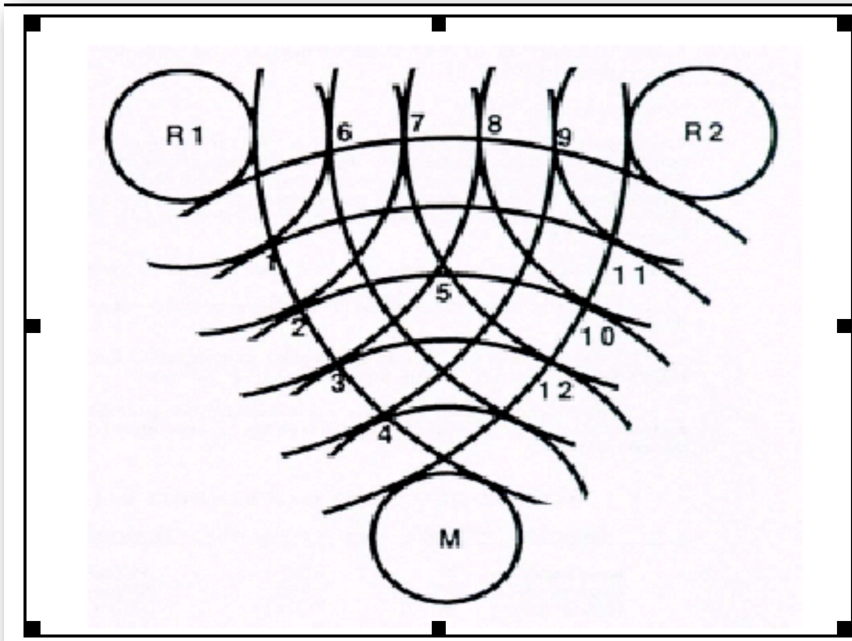


Figure 9.10 Weber's locational triangle with differing assumptions. (*a*) With one market, two raw material sources, and a finished product reflecting a 50% material weight loss, production could appropriately be located at S_1, S_2, or *M* since each length of haul is the same. In (*b*) the optimum production point, *P*, is seen to lie within the triangle, where total transport costs would be less than at corner locations. The exact location of *P* would depend on the weight-loss characteristics of the two material inputs if only transport charges were involved. *P* would, of course, be pulled toward the material whose weight is most reduced.

Material Quantities and Transport Rates			
Location	**Symbol**	**Amount Shipped**	**Transport Rate**
Raw Material #1	**R1**	**6 tons**	**$5 / ton-mile**
Raw Material #2	**R2**	**7 tons**	**$5 / ton-mile**
Market	**M**	**10 tons**	**$7 / ton-mile**



Example- #1 is 1 mile from R1, 5 miles from R2, and 4 miles from the Market

Chart 1. Transport Costs for Raw Materials or Finished Product/Mile

	Mile 1	Mile 2	Mile 3	Mile 4	Mile 5
R1	30				
R2	35				
M	70				

Chart 2. Total Transport Cost for Each Proposed Plant Site

Site	R1	R2	M	Total Cost
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				

13				
14				
15				

What would be three other locations that would be better than the twelve listed above?