

as the screen is entirely separate. On the other hand a single operator is in a much better position to control the adjustment for sun motion during signalling when using the British type than when using the American. This is because he can have both hands on the two adjusting screws constantly, as one of them is used as the key to elevate the mirror. This is important as the adjustment for sun motion is needed at extremely short intervals and is often a serious handicap to one man when using the American Army heliograph. The fact that an extra screen and tripod is required for the American instrument is of little importance in station use and is more than offset by the disadvantage of the greater number of small parts in the British models. The latter also are more subject to difficulties in signalling caused by vibration in high winds. This is serious, because most lookout stations are located where winds of considerable violence blow more or less constantly. It is believed that for the best possible results under all conditions a combination of the British type of instrument with the American form of screen will give the greatest satisfaction. The screen should be used only when vibration or other troubles render it necessary. It is to be noted, however, that this is a rather expensive equipment and would cost about twice as much as the Forest Service instrument alone, this last being considerably the lowest-priced heliograph on the market.

Heliographs cannot be successfully employed on lookout towers. The reason is that nearly all such towers vibrate excessively both as a result of wind and from the movements of the operator on the platform. This vibration makes it impracticable to keep a heliograph in adjustment. A platform on top of a lookout cabin or ranger station if rigidly braced may be sufficiently free from vibration to be successfully occupied for heliograph communication.

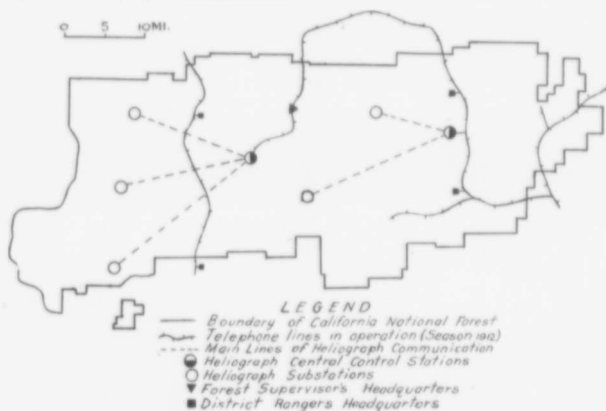


Fig. 104 Map of California National Forest, showing heliograph system.

Heliograph stations on mountain lookouts will generally be the most important in the forest, and this use of the station system should always be considered when equipping a forest with a lookout fire-detection system. Direct communication between as many stations as possible should be aimed at, and in addition one or more such stations should be arranged to communicate with important headquarters on the lower levels which may be joined to the telephone system. An example of this kind is shown in Fig. 104.