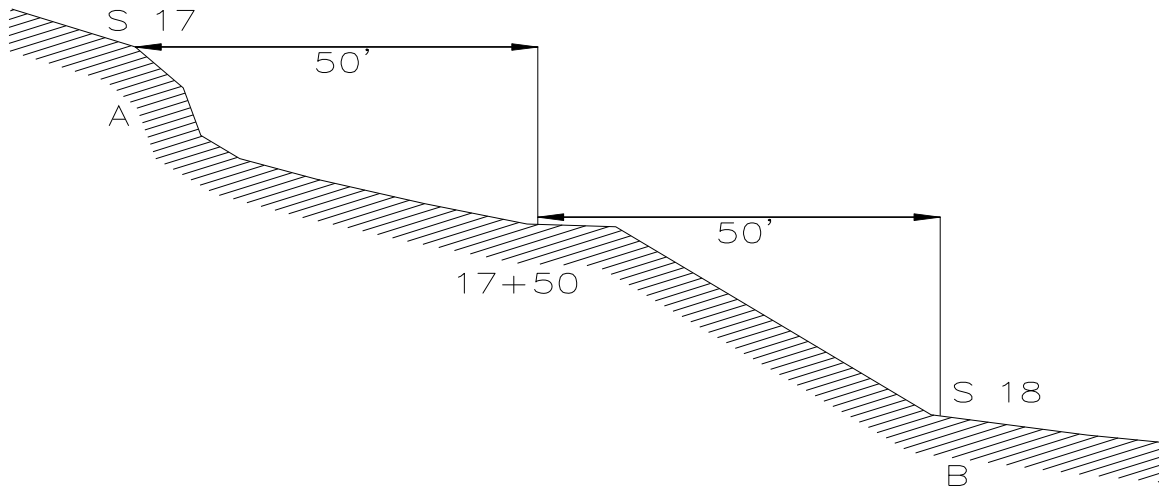


Organization of Party.

A well-organized compass party consists of a chief of party, compassman, two chainmen, one flagman, two or more axmen, if the country be thickly wooded, and one stakeman. If possible, provide stakes of light, well-seasoned wood. For preliminary lines where stakes do no permanent service, pine is best. A convenient size is two feet six inches in length by two inches in width and a half an inch in thickness. A strong, active stakeman will carry one hundred of these stakes, besides the ax with which to drive them. Provide both chainmen with marking crayons. The best crayon is of red chalk or German kiel. They are bought in a crude state, but with a little work will shape them. They make a deep red mark, which will stand exposure for years. Require chainmen to be always provided with crayons. Instances of their forgetfulness too often occur. Require axmen to keep axes sharp. A dull ax is little better than no ax. Check length of chain with standard steel tape, lengthening or shortening by means explained in Art. 1214. See that the compass is in perfect adjustment. If the line to be surveyed is of considerable length, a team of horses and driver with a strong spring wagon should be a part of the outfit.

Actual Work.

The party is now prepared to move. The compassman set up the compass at the starting point, which is marked 0. The chief of party goes ahead with the flagman, who carries a rod called a *flag*. This rod is from eight to twelve feet in length and is divided into alternate red and white bands, each one foot in length. The flagman sets this flag up at the direction of the chief of party, the compassman sights the instrument to it, and the chainmen commence measuring the distance. The head chainman marks the stakes and should always keep at least ten stakes marked ahead so as to avoid delay while measuring, and to insure consecutive numbering. Of these he need carry but five, leaving the remaining five with the stakeman. He must also carry a flag eight feet in length, and painted like the one carried by the flagman; this flag is used for ranging in. As soon as the line is indicated by the head flag, the axmen should fall to work clearing whatever obstacles lie in the way of rapid chaining. By a little attention on their own part and occasional direction from the chainmen, they can keep well on line. At each station, and the hind chainman has put the head chainman in line, the former should carefully note the number of the station at which he stands and call the number to the head chainman, who must answer by repeating the number next in notation. Thus, if the hind chainman stands at Station 25 he must call "Station 25," and the head chainmen must reply "Station 26." The chainmen must be required to hold the chain "taut" while measuring, and in as nearly horizontal a position as possible. When the line of measurement rises or falls abruptly, the chainmen must "break the chain," as it is called. The best method of breaking the chain is shown in Fig. 256.



Let AB be a sloping surface lying in the line of measurement. The point A is at Station 17. Stretch out the chain to its full length and in proper line. The hind chainman will be as Station 17. The head chainman here takes the chain at the 50-foot tag and raises it until it is practically level. The flag he carries for ranging in will serve for a plumb line to mark the 50-foot point on the ground. The hind chainman then calls the number of his station, 17, the head chainman replying 17+50. The former then advances to the 17+50 and holds the middle tag at the point marked by the rod. The head chainman then advances to the other end of the chain and repeats the operation, reaching Station 18. When the slope is steep, the chain must be broken into smaller sections. It is good practice for the flagman to carry, besides his flag, a number of light stakes at least eight feet in length and some strips of red flannel for targets. If the view for the compass is open, as soon as the compass is sighted and the flagman has a signal to that effect, he should replace the flag by one of the stakes with a piece of flannel attached and join the chief of party, who, unless the line is to be produced, has gone ahead to select another point for the flag. As soon as the compassman has recorded the bearing of the line, he should take the compass and walk rapidly to the next station, marked either by the flag or target, and if in full view of the chainman, remove the station mark and set up the compass and be prepared to take the next bearing the moment it is indicated by the chief of party. As soon as the chainmen reach the compass and have "taken the plus" from the last full station, the hind chainman calls out the full station and plus, which the head chainman marks on a fresh stake and which the compass man records as the length of the course run. If the same line is to be continued or "produced," the compass is set at the same bearing as the course just run and the chainmen are lined in by the compassman.

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