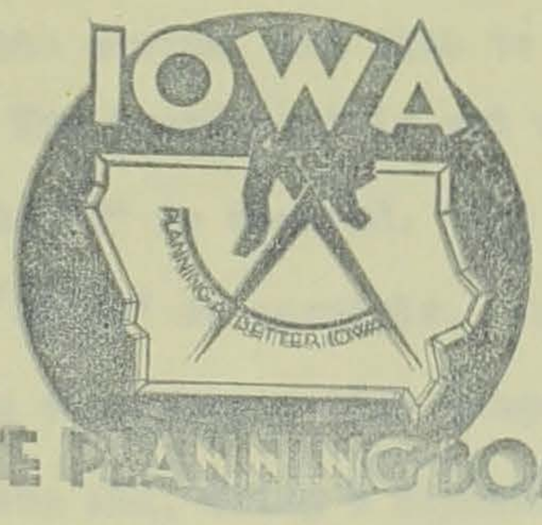
HORIZONTAL ANGLE MEASUREMENTS MANUAL

SECOND ORDER CONTROL

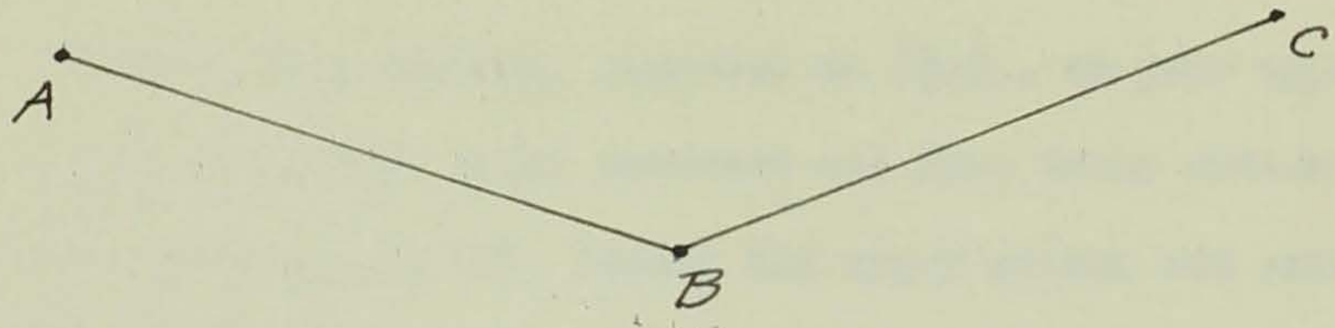


STATE PLANNING BOARD

URBAN ZONING AND PLANNING DIVISION

HORIZONTAL ANGLE MEASUREMENTS

The following instructions were issued for the measurements of horizontal angles:



"Refer to the sketch, and also to sample record sheets already furnished. The instrument is set up at station "B" and the angle from "A" to "C" is desired. Set the clamp of your upper plate as near 0°00'00" as possible. Point the telescope direct on "A", using the lower motion tangent screw and clamp. Loosen the upper plate and, using a clockwise motion, point and clamp the telescope on "C" (using the upper motion). Read and record this angle. Loosen the lower motion, and with the upper plate remaining clamped, again point on "A". Bring on with the lower tangent screw and clamp. Then loosen the upper plate and point and clamp on "C". Loosen the lower motion again and point on "A" etc. Repeat this six times, reading the measurements at the start (D-0), at the first (D-1), third (D-3), and sixth repetitions (D-6).

Now with the upper plate still clamped on the reading of the sixth repetition, plunge the telescope and point and clamp on "C" with the lower motion. Loosen the upper motion and point and clamp on "A". Loosen the lower motion and point and clamp

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on "C", etc. Repeat six times and read and record as (R-6). The reading on R-6 will ordinarily come back very close to the reading with which you started as recorded under (D-0).

Now with this reading, recorded as (R-0), on your upper plate, and your telescope still reversed and your lower motion loose, point and clamp on "C", loosen the upper motion and point and clamp on "A". Record this reading as R-1. With this reading still on the upper plate, loosen the lower motion and point and clamp on "C". Again loosen the upper motion and point and clamp on "A". Repeat this operation six times, reading and recording your values at the start, R-0, at the first repetition, R-1, at the third, R-3, and at the sixth repetition, R-6. Then with this value still on the upper plate, loosen the lower motion, plunge the telescope (it will now be in the direct position) and point and clamp on "A". Loosen the upper motion and point and clamp on "C". Loosen the lower motion and point and clamp on "A", etc. Repeat this operation six times and record the last reading as D-6. This reading ordinarily should be very close to that at which you started, R-0. All the operations and records so far constitute one set.

The sum of the two angles measured, should, of course, equal 360°. Closing errors should seldom exceed eight seconds. If this value is accepted as the maximum closing error, it can be reasonable assumed that the average closing error will be be-

tween two and four seconds. Such a number of sets of observations should be observed as will give the closing error mentioned above. Usually from three to four sets will be found necessary.

With the four sets the initial setting should be: for set No. 1 -- 0°00'00"; for set No. 2 -- 45°07'30". With three sets, the initial settings would be: for set No. 1 -- 00°00'00"; for set No. 2 -- 60°10'00"; for set No. 3 -- 120°20'00". With the initial settings such as these, the observations will be spread over the circle and any errors in graduation of the plate circle will be minimized."