DOT GRIDDING AIR PHOTOS AND MAPS

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THE dot grid, consisting of 4, 9, 16, 25 or 36 dots per inch, is now widely used in this country in place of the time consuming planimeter to determine the area of forest types on air photos and maps. There is a definite reduction in measuring time if it is possible to use a grid with fewer dots per inch.

Grids with 16 or 25 dots per square inch are commonly used in Maine as they compare favorably with the planimeter in accuracy. The question has often been raised as to the feasibility of using grids with fewer than 16 dots per inch on area photos when a large area is involved. It is the purpose of this note to present data that will partially resolve this question.

Air photos at a scale of 40 chains to the inch (1:31,680) were available for this study. Five photos on which the boundaries of 19 forest and non-forest types had been drawn were selected at random. Grids with 4, 8, 16 and 25 dots per inch were employed to determine the area of each type. For comparative purposes the results are presented in terms of percentage of the total area rather than in acreage. These are listed in Table 1.

By examination of Table 1 it is apparent that (1) with a decrease in the total

TABLE 1. TYPE AREA AS A PER CENT OF TOTAL AREA AS DETERMINED BY FOUR DOT GRIDS

Number of dots/in.	Forest Type												Non-forest Type						
	C_3	C_2	C_1	S_3	S_2	S_1	M_3	M_2	M_1	H_3	H_2	H_1	*R*	*W*	*C*	*A*	*F*	*Bo*	*Ba*
Pictures 1 and 2 combined (57 square inches)																			
25	35.1	7.9	0.7	2.2	8.5	0.8	0.8	10.4	3.6	0.0	2.0	1.3	0.0	1.1	19.9	1.0	2.6	1.5	0.0
16	35.5	7.7	0.8	2.8	8.5	1.8	1.0	10.1	3.0	0.0	1.3	2.1	0.7	1.1	19.2	0.2	3.7	0.3	0.2
8	34.9	7.8	0.7	2.4	9.3	1.6	3.5	7.6	2.7	0.0	1.3	1.1	0.9	1.1	20.7	0.2	3.6	0.4	0.2
4	32.7	7.0	0.4	3.0	8.7	1.7	0.9	13.5	3.5	0.0	2.6	1.7	0.9	1.7	17.0	0.4	4.3	0.0	0.0
Pictures 3, 4 and 5 combined (90 square inches)																			
25	28.1	10.8	2.5	3.1	5.3	0.7	2.5	25.6	1.2	3.7	5.8	0.0	0.5	0.4	6.8	0.6	0.0	2.4	0.0
16	25.6	11.6	2.4	2.2	4.8	2.7	2.5	26.8	1.5	3.2	6.1	0.0	0.2	0.4	6.8	0.8	0.0	2.4	0.0
8	26.2	10.8	1.7	2.7	5.5	2.3	2.4	25.4	0.9	4.1	6.3	0.0	0.6	0.4	6.7	0.9	0.0	3.1	0.0
4	28.5	11.1	1.4	2.2	5.3	2.2	3.4	24.3	2.0	2.2	5.9	0.0	0.6	0.3	6.7	0.8	0.0	3.1	0.0
Pictures 1, 2, 3, 4 and 5 combined (147 square inches)																			
25	31.1	9.6	1.8	2.7	0.8	6.5	1.9	19.8	2.1	2.2	4.3	0.5	0.3	0.7	11.9	0.8	1.0	2.0	0.0
16	29.5	10.1	1.7	2.4	2.4	6.3	1.9	20.2	2.1	1.9	4.6	0.5	0.4	0.7	11.7	0.5	1.4	1.6	0.1
8	29.6	9.6	1.3	2.6	2.0	7.0	2.9	18.5	1.6	2.5	4.3	0.4	0.7	0.7	12.1	0.6	1.4	2.1	0.1
4	30.1	9.5	1.0	2.5	2.0	6.6	2.4	20.1	2.5	1.4	4.6	0.7	0.7	0.9	10.7	0.7	1.7	1.9	0.0

acreage of a particular type there is a decrease in accuracy with grids having 4 or 8 dots per inch and (2) that the variation between the results for the two groups of pictures (57 and 90 square inches respectively) is of the same order of magnitude as for all five pictures combined (147 square inches).

From these data we conclude that satisfactory results can be obtained with grids having as few as four dots per inch; however it would appear that the most practical application of such grids would occur when large areas are involved.

SUPPLEMENT TO ABOVE TECHNICAL NOTE

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Determination of area by dot grid is time saving, but it is still necessary to develop techniques to insure accuracy and to maintain high speed. Dot grids

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with 4 to 36 dots per inch prepared in a 12 inch square format can be purchased from a number of supply houses. These are placed on large maps and counted until the entire areas have been covered.

Normally this procedure is used to determine the total acreage of various forest, soils, culture, etc. types that have been delineated by photo interpretation. This can be accomplished in a variety of ways. We submit the following technique as one that appears to be satisfactory.

Place the acetate dot grid over the map. Select one of the types recognized on the map. Place a tally register in one hand and a wax pencil in the other. Simultaneously use the register and the grease pencil on each dot within the type. Cover all pieces of the same type before starting the next. This procedure will take about two hours per 12 inch square with an accuracy of 99.7 per cent or higher.

WHICH WAY DOES A RIVER MEANDER?

Dr. Erwin Raisz, Geographer, 107 Washington Ave., Cambridge 40, Mass.

LOOKING down from the plane upon a meandering river it is often important to make certain in which direction it flows, and thus locate ourselves on the map.

During my flights I have noticed a criterion which I have not yet seen described, although it would be strange if it had not been noticed by many. The rule is that a river flows in the direction looking toward which the majority of the whole meander loops appear convex. This is best understood from the sketch.

The rule does not hold true in braided rivers of aggradation. It often fails where a tributary enters the main river, and also near the mouth of a river. Tidal rivers which flow in both directions do not show this asymmetry. It would be interesting to hear an explanation of this phenomenon by a hydrographer.

NEWS NOTE

New Offices for Sargent-Webster-Crenshaw & Folley

The firm of Sargent-Webster-Crenshaw and Folley, Architect-Engineer Associates held an open house during the week of July 25, 1955 in their newly occupied building in Watertown, N. Y. They were honored with a visit from Mr. Kenneth E. Reynolds, Second Vice President of the Society. The new building, located along the main road entering Watertown from the south and at the southern edge of the city, was designed and built by the firm to house its architectural and photogrammetric activities in that city. Functional in design, it combines the simplicity of steel rigid framing, large glass areas and colorful paneling to provide simply arranged and well lighted space for the activities it houses.