CHAPTER 9
PLANNING AND RECONNAISSANCE FOR NEW ROADS
SECTION 40-FACTORS TO BE CONSIDERED

0901. Tactical and administrative factors. Instructions laid down by the staff will sometimes be decisive in their effect upon road location. They should specify the required traffic capacity and period of use, and may include special conditions as regards protection and concealment, or designate localities which must be served. The most important factor is usually the time available for the completion of essential work. Tactical needs are commonly satisfied by hasty work on temporary tracks, improvements being carried out later (see Section 7).

0902. Engineering considerations:

a. Existing routes, such as tracks or paths, sometimes follow the best alignment, and their incorporation may save time.

b. Ruling points include:

(1) Obstacle crossings.
(2) Saddles and passes in hilly country.
(3) Water supply in arid country.

c. Geological formation and soil characteristics are of vital importance. The dip of strata and geological faults may govern location on hill-sides. A naturally stable stratum or sub grade saves a lot of work and may make an indirect and longer route more economical. Swamps and unstable soil of low bearing strength should be avoided.

d. Adverse features such as cliffs, gorges, rocky outcrops, marches, or areas liable to flood should be by-passed.

e. Heavy clearing delays the start of constructional work.

f. Drainage can absorb a lot of effort. The final road surface should be not less than 4 ft above the water table. Culverts are slow to contract: the number required can be restricted by keeping to ridges and easy side-hill slopes.

g. Standards laid down are the engineering specifications for the road. Some modification may be permissible if it will result in a considerable saving of time and resources, but the engineer is always responsible that the final plan is technically sound.

h. Availability of materials will often influence the type of construction, and in extreme cases may justify a change of alignment in order to save long hauls.

0903. Economic factors. Locations should be selected for economy of time and of resources in plant, materials, and labor. The greatest contribution to economy in construction in the balancing of cut and fill and the reduction of earthwork to a minimum.

Foresight in the original location of the alignment can greatly reduce the task of future improvement and maintenance.