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PROBLEM: THE MAXIMUM RATE OF DELIVERY*

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ction. The jeep logistics problem occurs when the destination is far from the jeep to transport itself without refueling. The problem arises in air transport operations, and may have application to interplanetary flights and interplanetary travel. Phipps [4] mentions the jeep problem having application to a space rocket with a multiple charge. The problem can be stated as follows. A jeep can carry a maximum load of m miles and can travel m miles per gallon. The jeep is required to travel x miles wide, where x is greater than cm . Thus, it is necessary to establish intermediate depots of gas. The problem, then, is to locate these depots so as to minimize the total amount of gas

J initially considers the problem where the objective is to travel a fixed distance. He then generalizes the problem to require that the jeep be able to return to the origin, and also considers the requirement that the jeep be able to return to the origin with a specific amount of fuel at the destination. In a second report, J considers the problem of delivering the maximum amount of fuel, given that at most one intermediate depot can be used. Fine [2] considers the same basic problem as does Helmer [1], using a somewhat different approach, and obtains similar results. Phipps [4] generalizes the problem to consider that more than one jeep may be used. Several cases are considered, namely, all jeeps will not return, all jeeps will return, and all jeeps will return. The equivalence between the "one jeep" problem and the "two jeeps" problem is established. Also considered is the requirement that the jeep be able to return to the origin with a specific amount of fuel to the destination. Franklin [5] considers the case where the vehicles have different fuel capacities and different fuel consumption rates. The jeep problem is also described by Bellman [6].

Further, a modified version of the jeep problem is considered, where the objective is to establish an optimal rate of cargo delivery at the final destination. Three cases are described. In the first case, the cargo is entirely delivered. In the second case, the cargo is only partially delivered. In the third case, the cargo is not delivered at all. The technique of dynamic programming is used to establish the results.

um rate of fuel delivery. In this first problem, the cargo is entirely delivered. The fuel load either may be used to propel the jeep or may be used to establish a depot.

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