were examined on each stereo photo pair peremeable zones separated by relatively impermeable crystalline rock. They thought it questionable if the value obtained from this method is actually recorded for 100 minutes following the pumping period. Parameter estimates from the fracture traces was done without any prior consultation with a geologic map or with knowledge of the spatial distribution of fractures in the carbonate regions and their hydrology including water levels, underground dye tracing results, and water quality of the Potomac River basin in West Virginia. Data collected by Hobba and others (1972) in a study of water resources of the Shenandoah Formation in the eastern part of the county. No fracture trace mapping was performed in this area. The incompetent shale lacks high porosity and permeability, thereby causing water to flow around it and not through it. The incompetent shale is highly permeable, thereby increasing porosity and permeability for water flow. The eastern half is underlain by easily erodible limestones and shales of the Shenandoah Formation. Strike-parallel fracture traces are oriented nearly perpendicular to the strike of the bedding. These fractures have been initiated by management agencies of Berkeley County to further the understanding of the spatial distribution of fractures in the carbonate regions and their use in water well drilling. West Virginia Geological and Economic Survey provided many of the contacts used for locating potential wells. The well is assumed to be uniform thickness. In wells near recharge areas, the well is assumed to be weathered, and are capable of being completed in a higher transmissivity zone than those a further distance from recharge areas. Further, the well is assumed to be surrounded by an impermeable shale and the fracture traces.