James C. Cadigan, 60, a retired special agent and laboratory supervisor at FBI headquarters here, died Wednesday at Providence Hospital after suffering a fall in his home in Hyattsville.

He had retired as a supervisor in the FBI laboratory in 1976. A recognized authority on document examination, he had served in the laboratory since joining the FBI in 1941.

Born in Medford, Mass., Mr. Cadigan was a graduate of Boston College, where he also received a master's degree in chemistry.

He is survived by eight children, David, Paul M. and John R., all of the home in Hyattsville, Marianne Godwyn, of Louisville, Ky., Susan J. Baker, of Hyattsville; Dennis M., of Cherry Hill, N.J.; James J., of Wheaton; and Anne L. Crouch, of Takoma Park; his father, John J., and a sister, Mary J., both of Boston; three brothers, John, of Weymouth, Mass., Vincent, of Providence, R.I., and William, of Shrewsbury, Mass., and seven grandchildren.