On a problem of Nathan Jacobson for Jordan algebras

A classical result proved by H.M. Wedderbun says that if B is an associative algebra with a unitary element, 1, and A is a finite dimensional central simple subalgebra containing 1, then B is isomorphic to the Kronecker product $A \otimes S$, where S is a subalgebra of elements of B which commute with every element of A. In 1951, I. Kaplansky proved a similar result for a unitary alternative algebra, B, and a subalgebra, A, of B containing 1 and having the structure of a split Cayley-Dickson algebra. N. Jacobson, in 1954, also proved a Kronecker factorization theorem for the case when B is a Jordan algebra with 1, and A is an exceptional simple 27-dimensional Jordan algebra of Albert. More recently C. Martínez and E. Zelmanov for Jordan superalgebras and V.H. López-Solís and I. Shestakov for alternative algebras have given similar results. In this talk we will explore what happens for Jordan algebras with unitary element having a subalgebra isomorphic to the algebra of the two by two symmetric matrices.