J.E. Young present a theory of intermediate structure, i.e., the 2 particle – 1 hole states, to explain the resonances that appear in the low-energy neutron elastic cross-sections. For the description extensive use is made of the Green function formalism.

These states of intermediate structure – or 'doorway states' as they are called in a terminology that is more fashionable today – are also discussed by A.K. Kerman in his treatment of a reaction theory for nucleon-nucleus scattering below the inelastic thresholds.

This book ends with the excellent lectures by M.H. Macfarlane on shell-model theory. This last chapter contains a comprehensive survey of the techniques for the angular-momentum coupling and recoupling that are necessary for the construction of many-particle shell-model configurations. The treatment is restricted to identical particles, so that isospin is not considered. The antisymmetric many-particle states are given in the occupation-number representation for the seniority scheme, so that the quasi-spin formalism can be applied with much success (it is also indicated how the quasi-spin methods can be extended to many-shell configurations). This formalism allows a very elegant and instructive way of introducing the Bogoliubov-Valatin transformation to quasi-particles. Actual calculations for ^{62}Ni are performed in the Tamm-Dancoff approximation solely, as the much more complicated random-phase approximation only insignificantly improves the accuracy of the calculations of lowest-seniority states.

Of course it was inevitable that several of these twelve series of lectures show few or no points of contact. Reading is warmly recommended to those interested in low-energy nuclear physics and to the spectroscopists in particular. The more recent, and promising, developments of nuclear structure theory, i.e., on one side the quasi-particle methods that permit an estimate of the core-excitation contributions in shell-model calculations and on the other side the use of realistic nuclear potentials for the residual two-body interaction, are not yet mentioned.

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ERRATA

In Otto Schneider's paper 'Interaction of the Moon with the Earth's Magnetosphere' (*Space Science Reviews*, VI, 655–704) the following mistakes must be corrected:

On p. 661, in the right-hand side of Equation (4), $v_s\sqrt{4\pi m_p n/B}$, should read $v_s\sqrt{4\pi m_p n}/B$.

On p. 690, in the last factor of Equation (18), $\cos 2\pi f_0$ should read $\cos 2\pi f_0 t$.