INTRODUCTION AND REVIEW OF LITERATURE.

The basic principle of progeny testing is that the breeding value of an animal can only be fully assessed by the quality of the offspring it produces. This has been realised by some since ancient times as is evidenced by references in Greek and Roman literature. Whether or not they practised any form of selection on this basis can only be speculated upon, but there is no doubt that a form of progeny test was used by Robert Bakewell and others in the late 18th century when they leased out young rams and bulls in order to test their value as breeders.

The work of Mendel on genetic inheritance which came to light in 1900 gave a scientific background to these early theories. Nevertheless it has taken considerable time to overcome the prejudices of the many breeders who insist on selecting an animal on mere "show points", rather than on an assessment of its true economic worth. In the words of Hagedoorn (1950), the influence of livestock shows "has taught us to regard the individual rather than the breed, the animal rather than the way it breeds." In recent years, however, much work has been done on progeny testing with various classes of livestock in an attempt to improve economic breeds, and a great deal of literature exists on the subject.

Hays (1947) says that "from the genetic standpoint progeny testing offers the most reliable method for evaluating breeding males", whilst Lush (1945) points out that its usefulness increases for characters only expressed by one sex and for characters only slightly hereditary. The chief weakness in the progeny test system is that the results are usually obtained so late in

the animal's life that most of the decisions about culling or using the animal for breeding would have already been made. In the case of poultry however, the time required to judge the value of the offsprings is relatively short and if used for mating in its cockerel year a male will still be available for service when the first year records of its daughters are known.

Poultry therefore are well adapted to progeny testing and research in this field has attracted the attention of many workers in temperate climates, particularly in America. Judging by published literature, however, no such work had been undertaken in tropical climates until the commencement of the progeny testing of the I.C.T.A. flock of Rhode Island Reds in Trinidad.

The work was started in 1952 and has been reported by Pitman (1953); Hoole (1953); Wheeler (1954) and Tait (1955). The object of the work was originally to improve and maintain fertility, hatchability, egg production, egg weight and shell quality and reduce mortality within the flock. At the end of the 1953-54 trials shell quality was considered to be satisfactory and eliminated from future tests.

The system used is that of producing a sire index. Lerner and Hazel (1947) after studying the value of progeny testing on White Leghorns for high fecundity showed it to be about two and a half times as effective in sires as in dams, this being attributed to having 4.7 times as many progeny from each sire. The sire index as defined by Lush (1945) is a means of expressing in a single figure a sire's progeny test, usually for characters he cannot express himself. The index is compiled by allotting a score for the average standard reached by all the daughters of a sire in each of the characters under test. The total score for each sire then provides the index on which the breeding value can be assessed.