Some principles and major conclusions of classical immunogenetics:

1. Antigens exhibit species and individual differences (polymorphism).

2. Antigens are genetically controlled. The preponderant number of antigens are dominant to their absence or codominant to each other. But both recessive antigens and epistasis occur.

3. The genetic alternative for an antigen is usually another antigen (antithetical relationship).

4. Several genetic systems may be involved in controlling the phenotypic expression of one antigen.

5. A variety of immunological specificities may be elicited by one simple haptenic group.

6. The symbolism developed for antigenic factors cannot be related to the true character of the immunizing antigen. That is, the serological complexity does not imply the genetic complexity.

7. Species-specific and individual differences may be controlled by the same genetic system.

8. Species-specific antigens are seldom identical in two or more species; but related specificities (heterophil antigens) are often widely distributed in animals and will elicit cross-reacting antibodies.

9. The <u>pattern</u> of reaction of different reagents among different samples often implies the genetic control.

10. Tests with antigens in solution, such as serum, reflect very well only the larger taxonomic groupings such as families and suborders.

11. Antibody titers for particulate, cellular, antigens are <u>not</u> additive.

12. Interactions of alleles <u>and</u> non-alleles may yield new specificities, i.e. interaction products.

13. Cross-reactions may be non-reciprocal!

14. Many immunogenetic specificities occur in particular groups, phenogroups, which are inherited as a unit via the controlling genes; exceptions being of mutational-like frequencies.

15. The "same" (cross absorbable) antigenic factor in different phenogroups may exhibit quite different and characteristic strengths of reaction, titer and antigenicity in immunizations.

16. Tissue antigenic differences are responsible for tissue graft rejections.

17. Developmental (ontological) differences occur for some antigens and not for others.

18. Immunogenetic systems may be medically important, and may be used for parentage analysis.

19. In some diploid microorganisms the expression of one antigenic type may be switched to another (phase variation) by environmental changes.

20. In vertebrates heterozygous for allotypic phenogroups only one allele in one immunocytic cell line may be expressed (allelic exclusion).

21. There may be several reasons why membrane antigens exist, but none yet have been generalized unequivocally.