in endocrinological developments by offering talented medical students a chance to pursue an inquiry into the history of endocrine research. Further information can be obtained by addressing the Committee on the Schering Award, Association of Medical Students, 25 Madison Square North, New York, N. Y.

DISCUSSION

THE TERMINOLOGY OF THE COMPONENTS OF COMPLEMENT[1]

IT is well established that hemolytic complement is composed of four functionally distinct components which individually are inactive.[2-8] Treatment of serum with distilled water,[2] carbon dioxide,[9] or dilute hydrochloric acid[10] has been shown to separate complement into two thermolabile components. One globulin fraction has been designated the "mid-piece," and the so-called albumin fraction has been termed the "end-piece." In addition, it has been shown that yeast cells or an insoluble carbohydrate isolated from yeast inactivate a relatively heat-stable component of complement, the "third component."[3,7] It has also been shown that dilute ammonia and amino compounds capable of reacting with carbonyl groups destroy another thermostable fraction, the "fourth component."[4,6]

The two thermolabile components of complement owe their terminology to their action rather than to their nature. The two thermostable fractions were named "third" and "fourth" components after their order of discovery.

During studies on the separation and characterization of the components of complement,[11] electrophoretic diagrams were obtained of mid-piece and end-piece prepared by the carbon dioxide method, as well as of complement deprived of its third component (zymin-treated) and of its fourth component (ammonia-treated). The diagrams are presented in Fig. 1, and indicate that the so-called globulin fraction or mid-piece contains at least four distinct proteins, two of which have mobilities faster than any of those

Electrophoretic Schlieren Patterns of Normal Guinea Pig Serum and Guinea Pig Serum Treated With Various Reagents Which Separate or Destroy the Components of Complement

Descending Boundaries of the Proteins in Phosphate buffer of pH 7.7 of ionic strength 0.2. Scanning exposures made after electrolysis for 2½ hours.

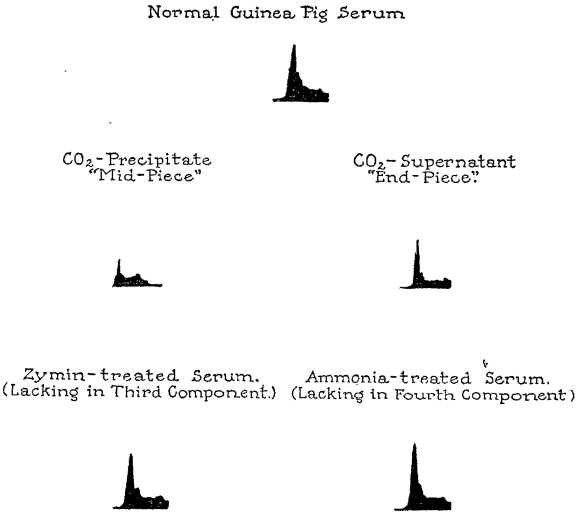

FIG. 1

originally present in whole serum; while the end-piece or so-called albumin fraction also contains at least four distinct proteins as judged electrophoretically, one of which appears to be γ-globulin. No significant difference is detected electrophoretically between normal serum and serum deprived of its fourth component. Serum lacking in third component shows a disturbance of the α-globulins.

It is evident from these diagrams that the terms "mid-piece," "end-piece," "albumin fraction," "globulin fraction" are misleading and unsatisfactory. Therefore, it is suggested that the four components of complement be designated by the following symbols:

C′1—mid-piece
C′2—end-piece
C′3—third component
C′4—fourth component

The terminology proposed for the complement components was arrived at after discussion and agreement with Dr. Michael Heidelberger.

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