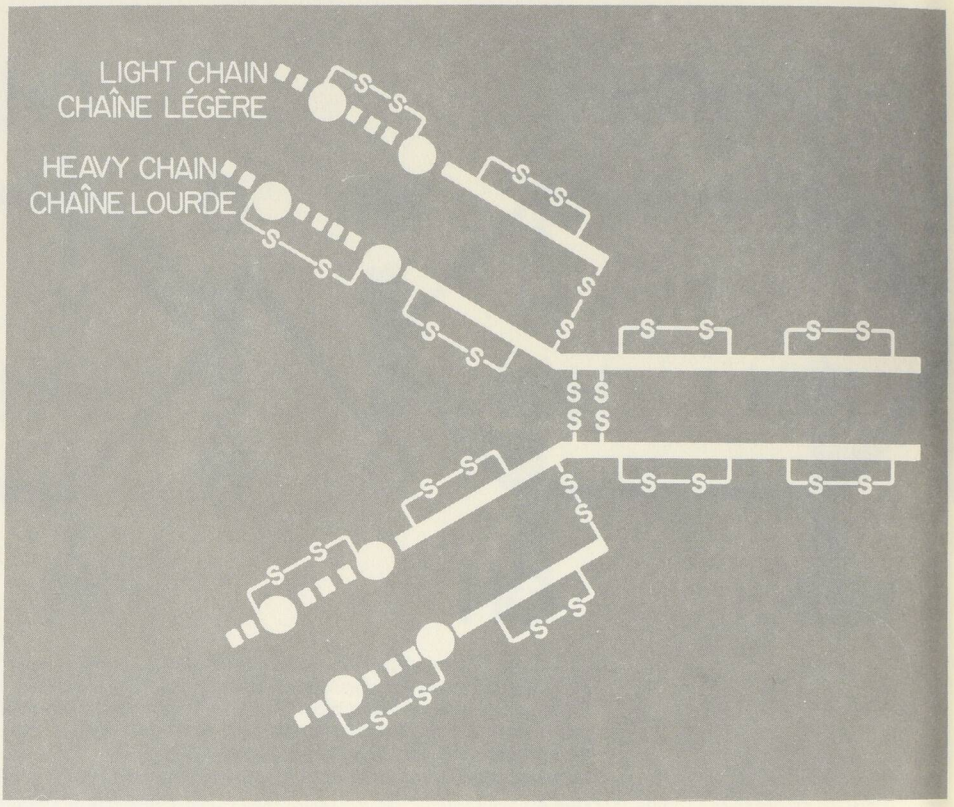

Structure of an antibody of the commonest type. Two light protein chains (about 200 amino acid units long) and two heavy chains (450-600 units long) are joined by disulfide bridges (S-S). Disulfide bridges are also spaced along the chains. The chains have variable (---), invariable (—) and short hypervariable (-•-) regions, the latter most probably being the binding sites.

En général un anticorps se compose de deux chaines légères ayant chacune environ 200 acides aminés et de deux chaînes lourdes (de 450-600 acides aminés) qui sont reliées par des ponts disulfures (S-S). Ces ponts se trouvent également espacés le long de la chaîne, qui, elle, a des régions de composition variable (---), fixe, (—) et extrêmement variable (-•-), celles-ci étant bien probablement les sites de liaison.

numbers of different antibodies of specific action.

Complementary studies to those on antibodies are being made on antigens. In particular, the program is directed towards the isolation of specific antigens from pathogenic fungi, yeasts and bacteria, followed by the determination of their complete chemical structures. Dr. Bishop and Dr. Perry together with Professor F. Blank of the Skin and Cancer Hospital of Philadelphia, Pa., have completed one study of a group of fungi causing skin diseases and are now investigating the capsule antigens of different types of Diplococcus pneumoniae, a causative agent of pneumonia in man. Dr. Bishop and Dr. Jennings, in collaboration with Dr. Baruch Diena and Dr. Paul Kenny of the Communicable Diseases Centre of the Department of National Health and Welfare, are involved in examining the antigens of Neisseria meningitidis and Neisseria gonorrheae, causative agents of meningitis and gonorrhea respectively. A group specific protein antigen has been prepared from one type of N. meningitidis which has been demonstrated to produce active immunity to other types of N. meningitidis. Dr. Adams has worked out the structures of endotoxic lipopolysaccharides found in the cell walls of many bacteria. These molecules are very complex in structure and are made up of a polysaccharide portion composed of many unusual sugars and a lipid rich portion.

Knowledge of the structures of antigens assist in determining what features make a 'good' antigen; it clarifies many of the complexities surrounding the classification of bacteria by serological methods; it leads to the preparation of purer antigens for use in immunization, and may possibly by chemical modification, lead to an increase in the effectiveness of natural antigens or even to the production of entirely synthetic antigens.