From these investigations we have reached the following conclusions. (1) The proportion of bromide, iodide and thiocyanate in the gastric juice is higher than that in the plasma. (2) The relative concentration of these three anions in the gastric juice diminishes when the rate of secretion and the acidity increase. At the end of the effect of the histamine, the concentration of the above-mentioned ions increases simultaneously with decreasing acidity. (3) These anions replace chloride, but only neutral chloride occurring in the gastric juice. Thus, if the bromide or iodide concentration in the blood increases, the total halide concentration remains unchanged in the gastric juice. The excretion mechanism of these ions is probably the same as that of neutral chloride.

A detailed report on the different investigations on these ions and the mutual relation between the ions will be published later. This work was carried out with the aid of a grant from Wallenbergs Foundation.

ELEMÉR GABRIELI

Sahlgren's Hospital,
Surgical Service II
and Medical Service I,
Göteborg.
Sept. 15.

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Lysis by Complement of Erythrocytes which have adsorbed a Bacterial Component and its Antibody

POLYSACCHARIDE components of many pathogenic bacteria are adsorbed from solution to erythrocytes, which then become agglutinable by sera containing antibody for the appropriate polysaccharide. A protein constituent of *Hæmophilus pertussis*, and some closely related bacteria, itself agglutinates erythrocytes which have adsorbed it[1].

It has now been observed that erythrocytes which have first adsorbed a polysaccharide or protein constituent of bacteria, and then the corresponding antibody, are lysed by complement. The mechanism involved is presumably similar to that of bacteriolysis. The phenomenon is well adapted to quantitative measurements of a bacterial antibody, because of the ease with which hæmolysis can be observed and measured, and because a known component of the bacterial cell is used in the system.

Middlebrook and Dubos[2] have shown that the presence of antibody for *M. tuberculosis* is indicated by the ability of a serum to agglutinate erythrocytes coated with a polysaccharide fraction of the organism. During the examination of a number of bovine sera by this technique, anomalous results were encountered, at variance with those anticipated from tuberculin sensitivity tests, and autopsy findings. However, when complement was added to the mixtures of sera and sensitized cells, hæmolysis occurred in those tubes in which sera of tuberculous or vaccinated cattle were present, but not in those containing the sera of unvaccinated normal animals, irrespective of the prior presence or absence of hæmagglutination.

Assay of neutralizing antibody for pertussis hæmagglutinin is complicated by the fact that samples of serum vary in their content of a non-specific neutralizing substance, which is probably identical with the lipid receptor for pertussis hæmagglutinin of the erythrocyte surface[3,4]. If, however, antibody for pertussis hæmagglutinin is assayed in terms of its capacity to sensitize to lysis by complement erythrocytes which have first been coated with hæmagglutinin, this complication is avoided.

Most varieties of erythrocytes in common use in the laboratory are susceptible to lysis by this mechanism; sheep cells are sensitive and suitable. Sheep cell lysins must first be removed from the sera under test, and from the guinea pig serum used as a source of complement.

S. FISHER
E. V. KEOGH

Commonwealth Serum Laboratories,
Melbourne, N.2,
Victoria.

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'Whiptail' in Cauliflower

SINCE 1939, several workers[1,2] have shown that molybdenum is an essential element for crop plants, and in 1945 it was suggested by Davies[3] in New Zealand that a deficiency of this element was responsible for the condition in brassicas known as 'whiptail'.

'Whiptail' of cauliflowers and broccoli, characterized by severe restriction of the leaf lamina, death of the growing point and chlorosis, is endemic in south-eastern England, more especially on soils derived from the Hastings Beds, and occasionally severe losses are experienced. The trouble appears to be worst in dry seasons, and usually but not invariably occurs on acid or slightly acid soils; in such cases a dressing of lime often effects a partial or complete cure.

Following chemical evidence obtained in 1947 that 'whiptail' might be caused by low molybdenum status, field-trials were laid down in 1948 and 1949 to test the effects of a molybdenum salt and of lime on this disease. The 1948 trial proved unsuccessful due to the non-appearance of the trouble. The 1949 trial was carried out on a slightly acid (*p*H 6·0) soil derived from the Tunbridge Wells Sandstone and on a field where 'whiptail' had caused considerable losses in past years. Four replicated treatments were given, and the details of these treatments as well as the percentages of affected plants when the crop was nearing maturity are as follow:

1.	Control	69 per cent affected with 'Whiptail'
2.	Ground chalk at 2 tons per acre	31 ,, ,, ,, ,, ,,
3.	Chalk plus sodium molybdate at 10 lb. per acre	12 ,, ,, ,, ,, ,,
4.	Sodium molybdate at 10 lb. per acre	18 ,, ,, ,, ,, ,,

In this trial, therefore, it will be seen that liming has effected some improvement, while sodium molybdate has markedly reduced the percentage of affected plants.