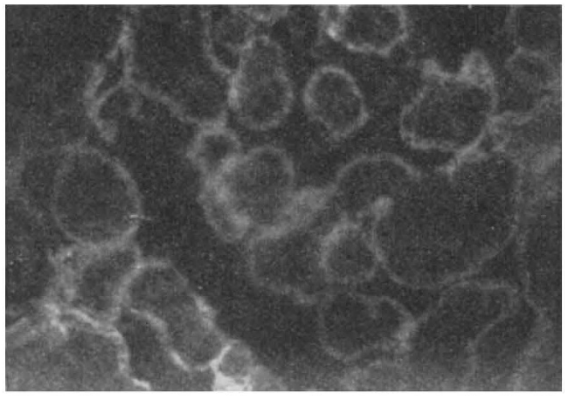

Fig. 1. Frozen section of human placenta treated with globulin from serum of a non-pregnant woman of blood group *O*, then stained with fluorescein-tagged globulin from the serum of the woman who delivered the placenta. Under ultra-violet excitation, only syncytiotrophoblastic cytoplasm fluoresces. (× 90)

the syncytiotrophoblastic cytoplasm as an immune phenomenon. An investigation designed to delineate the time of origin of this reaction with respect to possibly related events such as labour, pre-eclampsia and abortion is under way.

This work was partially supported by a grant from the Population Council, Inc.

J. F. Hulka*
K. C. Hsu
S. M. Beiser

Department of Microbiology and the Department of Obstetrics and Gynæcology, Columbia University College of Physicians and Surgeons, New York, 32.

* Josiah Macy, Foundation Fellow.

[1] Douglas, G. W., Thomas, L., Carr, M., Cullen, N. M., and Morris, R., *Amer. J. Obstet. and Gynec.*, **78**, 960 (1959).
[2] Bardawil, W. A., and Toy, B. L., *Ann. N.Y. Acad. Sci.*, **80**, 197 (1959).
[3] Hildeman, W. H., and Medawar, P. B., *Immunology*, **2**, 44 (1959).
[4] Thornes, D. R., thesis, University of Dublin (1958).
[5] Olivelli, F., and Ruggieri, P., *Minerva Gin Tor*, **10**, 953 (1958).
[6] Stavitsky, A. B., *J. Immunol.*, **72**, 360, 368 (1954).
[7] Coons, A. H., and Kaplan, M. H., *J. Exp. Med.*, **91**, 1 (1950).
[8] Edsall, G., *Ann. N.Y. Acad. Sci.*, **66**, 32 (1956).

Specific Inhibition of Anti-*D* Antibody by Colominic Acid

In ref. 1 it is reported that certain nucleotides specifically inhibited anti-*Rh* antibodies, and in ref. 2 that there is specific inhibition by certain monosaccharides and substances such as rutinose and streptomycin. Although some differences in the effect of these substances on anti-*C*, anti-*D* and anti-*E* were observed by both groups of workers, in general a substance that inhibited one anti-*Rh* serum also inhibited the others. More recently, Dodd, Bigley and Geyer[3] have reported that N-acetyl neuraminic acid and certain related compounds inhibit anti-*D* but not anti-*C* or anti-*E*; this is a greater degree of specificity than that claimed in the first two reports.

We have confirmed the work of Dodd, Bigley and Geyer. In addition to the compounds tested by them, we have found that colominic acid, a substance produced by certain strains of *Escherichia coli* and shown probably to be a polymer of N-acetyl neuraminic acid[4,5], inhibits anti-*D*, but not anti-*C* or anti-*E*, in relatively low concentration (0·006 *M*).

In addition to the interesting implications of these observations for the structure of the *Rh* antigens, we believe our last observation is of possible practical importance. Colominic acid is stated[5] to be non-toxic and non-antigenic, and could undoubtedly be produced in quantity if necessary. We are therefore proposing to try it clinically to neutralize the anti-*D* in *Rh*-sensitized pregnant women and thus possibly prevent erythroblastosis in the unborn child.

This work was supported by research grants (*H*–1076 (*C*8), *RG*–4704 (*C*4) and *RG*–6939) from the National Institutes of Health, and a research grant (*NSF* G–5131) from the National Science Foundation. We are indebted to Dr. W. F. Goebel for a sample of colominic acid and a culture of *E. coli* K_{235}.

William C. Boyd
Egli Reeves

Department of Immunochemistry,
Boston University School of Medicine,
Boston 18, Massachusetts.

[1] Hackel, E., Smolker, R. E., and Fenske, S. A., *Vox Sang.*, **3**, 402 (1958).
[2] Boyd, W. C., McMaster, M. H., and Waszczenko-Zacharczenko, E., *Nature*, **184**, 989 (1959).
[3] Dodd, M. C., Bigley, N. J., and Geyer, V. B., *Science*, **132**, 1398 (1960).
[4] Barry, G. T., and Goebel, W. F., *Nature*, **179**, 206 (1957).
[5] Barry, G. T., *J. Exp. Med.*, **107**, 507 (1958).

BIOLOGY

Hydrogen Ion Concentration, Plankton and Fish in Fresh-water Eutrophic Lakes of India

Das *et al.*[1] have recently published results on the quantitative and qualitative aspects of plankton of some eutrophic fresh-water lakes of Uttar Pradesh, India; but no satisfactory information is available regarding the physico-chemical factors bearing upon them. Some work on related fields has been done by Chacko *et al.*[2] and Alikunhi[3], but their results deal only with part of the season in fish-hatching tanks and small bodies of water. In order to get detailed information regarding *p*H and plankton, regular weekly quantitative hauls were made and water samples obtained in 'Pyrex' glass-stoppered bottles. Hydrogen ion concentration was determined for each sample colorimetrically by using Helige comparators and Helige indicator solutions in daylight so far as possible in the field. Carbon dioxide was estimated by making use of phenolphthalein as indicator and the titration was done in Nessler jars in the usual way.

The investigations show that *p*H values range from 7·2 to 9·2 during the year. A high *p*H is observed in the months of July and August, when the average is about 8·6. But the values decrease during September and October and reach 7·4 in the last two weeks of October. November and December maintain rather constant values, but January shows a sudden increase in *p*H, reaching 8·8 in the third week; finally, a further rise occurs and reaches a maximum of 9·2 in the first week of February. In March *p*H values are still as high as 9·0, but show a fall to 8·0 in the last week of April. Finally, in the months of May and June, there is sharp decline in *p*H to 7·2.

The plankton records for the same period show that high *p*H values in the months of July and August coincide with the first monsoon phytoplankton peak. Then the decrease in *p*H during September–December can be attributed mainly to the zooplankton peak, along with the decomposition of