six times with 18 unsexed Broad Breasted Bronze poults per replicate. The poults were randomized into the compartments of an electrically heated battery brooder. The experiment was terminated when the poults were six weeks of age.

Body-weight results for male and female poults are summarized in Table 1.

Analysis of variance showed no significant differences in 6-week body weights of male or female poults. The above results would indicate that the response to thioctic acid by turkey poults is negligible when the birds are fed a practical ration.

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A Biological Action of Deoxyribonuclease on the Growth of *Euglena gracilis*

On realizing that the activity of the enzyme deoxyribonuclease was increased considerably in regenerating rat liver[1], we decided to investigate whether it might influence the rate of cellular multiplication by itself.

In our experiments we endeavoured to maintain the enzyme at the same concentration as it occurs in regenerating tissue. Since nothing is known about permeability of cell boundaries to deoxyribonuclease we tried to compensate for any permeation difficulties. This was done by increasing the outer enzyme concentration by a factor of ten as compared with what we assumed it to be from previous experiments. In the second set of experiments we tested the dose-action relationship.

Euglena gracilis had previously been cultivated for a week in the medium of Elsässer and Adler[2] containing 10^{-10} gm. vitamin B_{12} per ml. 0·5 ml. of this *Euglena* 'suspension' was transferred to 5 ml. of fresh, sterilized medium with vitamin B_{12} contained in 20 ml. penicillin-flasks. The cultures were then incubated in a moist oxygen atmosphere at 28°C. under fluorescent light (Philips *TLSW*). 70 hr. later the total cell volume was determined after spinning down an aliquot at 1,000 *g* for three min. Controls were taken as 100 per cent and the difference in volume was expressed as a percentage increase. It was found that the number of cells was proportional to the total volume of cells within reasonable limits.

Clearly it can be seen from the first experiment that deoxyribonuclease in doses of the order of micrograms will under suitable conditions double the rate of growth in *Euglena*. In the second experiment when the intensity of light is reduced the growth promoting effect is less, but the growth rate is still dependent on the dose of deoxyribonuclease.

Table 1. The action of Deoxyribonuclease I (Worthington) on *Euglena gracilis*

gm. per ml. Deoxyribonuclease I added to culture	Increase in total cell volume or number of cells (%)	Arithmetic mean of increase	Standard deviation	Probability for (ref. 3) perfect random incidence (%)
0·0	12 controls	±0·0	±8·2	>>5
$4·2\times10^{-6}$	12 tests	102·7	±30·7	<<0·5
0·0	5 controls	±0·0	± 5·1	>>5
10^{-7}	−18, −12, −11, 14, 16	−2·2	±14·1	>>5
10^{-6}	6, 9, 9, 14, 16	10·8	± 4·1	<<0·5
10^{-5}	18, 21, 28, 43, 45	31·0	±12·4	<<0·5
$3·3\times10^{-5}$	35, 65, 82	60·7	±23·7	<<0·5

From this experiment it is apparent that the enzyme may act as a growth promoting agent in low concentrations. It will be of interest for us to determine whether this is limited to special organisms or is rather a general phenomenon.

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HÆMATOLOGY

A 'New' Human Blood Group Antigen, Sw_a

In the course of compatibility tests with the serum of a patient Gu., the red cells of one donor, Swann, were found to be strongly agglutinated in all media. The patient was in crisis from auto-immune hæmolytic disease of the 'cold' non-gamma globulin type, with no free 'non-specific' antibody in the serum. Her groups were: 0; cde/cde; NS/Ns, Mi(a—), Vw—, Mg—; P_1+; K—; Le(a—b+); Fy(a+); Jk(a+b+); Wr(a—).

Mr. Swann's groups were: 0; cde/cde, E^w—, C^x—, V—; Ms/Ms, Mi(a—), Vw—, Vr—, He—, Mg—; P_1+; Lu(a—b+); K—k+, Kp(a—b+); Le(a—b+); Fy(a—b+); Jk(a+b+); Di(a—); Js(a—); Wr(a—); Be(a—); By—; Levay—; Rm—. Negative results were also obtained with seven antisera from unsolved 'family' groups, and with over 500 Group 0 (anti-AB) sera. His saliva inhibited anti-H of human and of plant (*Ulex*) origin, anti-Le^a and anti-Le^b, but not anti-A, anti-A_1, anti-B or anti-AB. Nor was the reaction of serum Gu. with his own cells inhibited with Mr. Swann's saliva.

Further testing of the serum Gu. revealed the presence of anti-Mi^a, anti-Wr^a and anti-By. The former was only weak, but the latter two antibodies were avid and powerful, and clearly separable by suitable absorptions both from each other, and from the antibody against Swann's cells. No other example of this latter antibody was found in over 1,200 normal sera, but several examples were encountered in other cases of auto-immune hæmolytic disease. In each such instance, anti-Wr^a was also present, and sometimes anti-Mi^a or anti-Vw as well. Pure antisera were prepared from all these mixtures by appropriate absorption without significant loss of avidity or titre.

It is clear from these observations that a 'new' blood group antigen is present on the cells of Mr. Swann. It is proposed to name this antigen Sw^a, and the corresponding antibody anti-Sw^a. Tests of 29,487 random blood samples from adults disclosed four more Sw^a positives, two of whom were related. Tests on three of the families have shown Sw^a to be inherited as a Mendelian dominant character which