tion was carried out by the technique described by Hogeboom *et al.*[5], which involves fragmentation of the cell and differential centrifugation. All the fractions were made up to the same volume as the original homogenate (10 c.c.), except the unfractionated residue, which was made up to 20 c.c., and 1 c.c. of each of the fractions and 2 c.c. of the residual fraction were added to the reaction mixture containing vitamin C (10 mgm.) and phosphate buffer *M*/45 (*p*H 7·4). The protective effect of each of the fractions was determined by incubating the reaction mixtures at 37° C. and estimating the vitamin at known intervals of time by titration with the indophenol reagent.

In the accompanying table are given the results of a typical experiment.

INHIBITION OF THE OXIDATION OF VITAMIN C AT *p*H 7·4 BY THE VARIOUS FRACTIONS OF LIVER HOMOGENATES OF THE RAT

Liver fraction	Vitamin C (mgm.) after 0 hr.	1 hr.	2 hr.	4 hr.	20 hr.
Vitamin C alone (control)	10·0	6·3	3·6	0	0
Vitamin C + original homogenate	10·0	9·8	9·2	8·1	3·4
Vitamin C + nuclear fraction	10·0	9·8	9·2	8·1	2·7
Vitamin C + mitachondrial fraction	10·0	10·0	9·8	9·7	6·1
Vitamin C + unfractionated residue	10·0	10·0	9·8	9·7	7·3

The results show that all the fractions of liver homogenate inhibit the oxidation of the vitamin, the protective action exerted by the mitachondrial fraction and the unfractionated residue being somewhat more than that exerted by the original homogenate and the nuclear fractions. This suggests that the homogenate contains also factors which oxidize the vitamin, and that these oxidative factors are mostly present in the nuclear fraction. Further work on the nature of these factors and the mechanism responsible for their protective action is in progress.

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Anaerobic Subcutaneous Emphysema of Poultry

IN poultry and pigeons, subcutaneous emphysema is known as a disorder caused by air escaping from the respiratory system (air sacs, lungs and trachea). In such cases, the escaped air accumulates in the subcutis and inflates the skin. This condition can be improved by repeated puncturing of the skin and by expressing the air.

During 1949 and the beginning of 1950, many cases of emphysema with very marked 'ballooning' were received at this Laboratory. The condition could not be corrected by repeated puncturing of the skin. Post-mortem examination of these cases revealed changes in the subcutis and muscles, which closely resembled those encountered in infections caused by anaerobes. Indeed, bacteriological and microscopical examinations proved that this disorder was caused by a mixed infection of *Clostridia* and cocci.

Very little is known, and less even published, about clostridial infection in poultry. Most references deal with single and accidental cases and not with a disease of widespread occurrence. According to our observations, the disease in southern Israel usually appears in the form of a few sporadic cases on different farms, and involves several areas.

In all cases only young birds aged four to sixteen weeks were affected, and *Clostridium welchi*, accompanied sometimes by *C. tertium*, was isolated. In most of the fowls thus affected, the disease terminated in death. We believe that infection occurs through skin wounds.

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Direct Isolation of D-Deoxyribose by Mercaptanolysis of Calf Thymus Deoxyribonucleic Acid

THE identity of 2-deoxyribose as a carbohydrate constituent of thymus nucleic acid was demonstrated by Levene. Using acidic hydrolysis[1] and enzymic methods[2], it was possible to prove that 2-deoxyribose was combined with the purine residues in the nucleic acid, though the nature of the sugar combined with the pyrimidine moiety is still uncertain[3].

The problem has now been re-investigated in the light of recent developments. Stacey *et al.*[4], working with sperm nucleic acid, found that the substance is very sensitive to acidic reagents, and there was evidence that at least some of the sugar units may possess highly labile aldehydo linkages, and that methyl acetal-like substances are formed when the nucleic acid is degraded by methanolic hydrogen chloride. It has now been found that calf thymus nucleic acid behaves in a similar manner toward acidic reagents, and it appeared worth while to attempt the isolation of a deoxy sugar component as a crystalline derivative of the aldehydo form. Experiments were carried out on fibrous calf thymus nucleic acid provided by the courtesy of the late Prof. J. M. Gulland. Since the dibenzylmercaptal of 2-deoxyribose is stable under acid conditions[5], concurrent hydrolysis and mercaptylation were carried out with aqueous hydrochloric acid and toluene-ω-thiol at − 5° C. (or with toluene-ω-thiol saturated with hydrogen chloride) in the following manner. The nucleic acid (0·5 gm.) was finely dispersed and stirred with toluene-ω-thiol (0·5 c.c.) at − 5° C. Strong hydrochloric acid (0·5 c.c., density 1·1) was slowly added, with vigorous stirring, to the mixture. The nucleic acid appeared to swell and then to assume a white gum-like form. After four hours, the reagents were separated from the mercaptylated product, which was then washed alternately with water, acetone and ether to remove excess reagents. The solid was treated with ammonium hydroxide (5 c.c., 5 *N*) at room temperature for 30 min. and then evaporated to dryness, under diminished pressure, at