obtained. However, the adsorbed antisera to fraction I agglutinated 'tanned' sheep erythrocytes coated with fraction I or its fractions giving titres [$\log_2$ (maximum dilution for observable agglutination)] of 7–10. Antisera to sheep articular cartilage extract gave a very low titre against cells coated with sheep serum; the serum-adsorbed antisera had little reactivity with cells coated with cortical-bone fractions although, with articular-cartilage extract, they gave haemagglutination titres up to 14 and precipitin lines were obtained by double diffusion.

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Some Properties of Embden-Goose Egg-White Albumin

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Goose egg-white albumin was prepared by a procedure closely related to that (Warner, 1954) used in the isolation of the similar protein from the hen's egg. Final purification of the monomeric form was achieved by chromatography on 0.1M-sodium chloride on a Sephadex G-100 column. The protein exhibits three closely running bands on polyacrylamide-gel disc electrophoresis (Davis, 1964). A single band was observed on electrophoresis in polyacrylamide gels containing sodium dodecyl sulphate, and the molecular weight was found to be 47500 by this technique (Marshall & Zamecnik, 1969) as well as by chromatography on Sephadex G-100. The glycoprotein contains 24 alanine, 21 glycine, 30 valine, 30 leucine, 21 iso-leucine, 13 proline, 23 phenylalanine, 12 tyrosine, 7 tryptophan, 39 serine, 27 threonine, 8 half-cystine, 19 methionine, 12 arginine, 6 histidine, 23 lysine, 36 aspartic acid and 51 glutamic acid residues as well as 8 glucosamine and 12 mannose moieties/molecule. The main differences from hen egg-white albumin are higher threonine (11 additional residues/molecule), lower alanine (10 residues less/molecule) and greater carbohydrate contents.

An enzymic digest (pepsin at pH 2.8 followed by trypsin and chymotrypsin at pH 7.8) of 660mg of heat-denatured albumin was neutralized (to pH 5.4) and evaporated under reduced pressure to a volume of about 3ml. The portion of the residue that was insoluble in ethanol was chromatographed in 0.1M-acetic acid on a Sephadex G-50 column. Three fractions were obtained: the first (fraction I) (at the

void volume of the column) accounted for 22% of the original mannose of the protein, the second (fraction II) accounted for 20% of the mannose and the third (fraction III) accounted for about 50% of the mannose. The mannose/glucosamine molar ratios decreased in the order fraction I > fraction II > fraction III. Fraction III had a molecular weight, by gel-filtration methods, of about 1900 and contained 1.8mol of glucosamine, 1.7mol of mannose, 0.69mol of threonine, 0.55mol of serine and 0.35mol of glycine/mol of aspartic acid. Smaller amounts of other amino acids were also present.

Goose egg-white albumin therefore contains more than one carbohydrate prosthetic group/molecule. It is reasonable to deduce from this observation, and from the amino acid composition of the whole protein, that the necessary amino acid sequence for the formation of 4-*N*-(2-acet-amido-2-deoxy- β -D-glucopyranosyl)-L-asparagine (see Marshall & Neuberger, 1970) occurs more frequently in this glycoprotein than it does in hen egg-white albumin.

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Cross-links in Protein from Cataractous Lenses

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Human cataractous lenses removed at operation vary widely both in opacity and depth of colour when examined after extraction. Cataractous lenses with deep-brown or black nuclei contain about 15% of their total protein in a form that is insoluble in 6M-guanidinium chloride–50mM-dithiothreitol, a medium that dissolves the normal lens completely (Pirie, 1968). Cataractous lenses that are lighter in colour, but still with a golden-yellow nuclear core, yield little or no insoluble protein under such conditions. The proteins from these lenses, classed by Pirie (1968) as group III cataracts, have been studied in an attempt to account for the lens pathology and for the insolubility of proteins from darker lenses.

Group III cataractous lenses were decapsulated