than one pool of CDP-choline in liver or a pathway of biosynthesis of lecithin from choline not involving CDP-choline as an intermediate. Linoleoyl lecithin of liver attained higher specific activity with respect to phosphate-^{32}P and choline-methyl-^{3}H than did arachidonoyl lecithin. Lecithin in bile attained higher specific activities with respect to phosphate-^{32}P, choline-methyl-^{3}H, and linoleate-1-^{14}C than the corresponding hepatic lecithins. Stearate-1-^{14}C and palmitate-9-10-^{3}H attained highest specific activities in the hepatic lecithin fraction rich in arachidonic acid.

ELECTRON MICROSCOPIC AND BIOCHEMICAL STUDY OF LIPOPROTEIN SYNTHESIS IN THE ISOLATED PERFUSED RAT LIVER. A. J. Jones, N. B. Ruderman and M. Guillermo Herrera (Dept. of Med., Harvard Med. School, Boston, Mass.). *J. Lipid Res.* 8, 429–46 (1967). The isolated perfused rat liver was used to study the 300–800 Å electron-opaque bodies which had previously been described in the liver cell Golgi apparatus, smooth endoplasmic reticulum, and space of Disse. When the perfusion medium was enriched with linoleate, the number and electron opacity of these particles increased markedly. Sequential biopsies showed that they appeared first in the smooth surfaced terminal ends of the rough reticulum, the smooth endoplasmic reticulum proper, and the Golgi apparatus and later in the space of Disse. After 60 min of perfusion, particles of the same size and shape as those in the liver cells could be isolated in large numbers from the $d < 1.006$ fraction of the perfusate. Control livers perfused with an identical medium but without linoleate did not show these changes. Puromycin markedly depressed the production of 300–800 Å particles by livers perfused with an oleate-rich medium; however, in keeping with these findings, puromycin blocked the incorporation of oleate-^{14}C into lipoprotein triglyceride isolated from the perfusate. Puromycin also blocked the incorporation of leucine-^{3}H into both tissue protein and perfusate lipoprotein.

ADIPOSE TISSUE LINOLEIC ACID AS A CRITERION OF ADHERENCE TO A MODIFIED DIET. S. Dayton, S. Hashimoto, and M. L. Pearce (Med. Services of Wadsworth Hosp. and Domiciliary, Veterans Admin. Center, Los Angeles, Calif.). *J. Lipid Res.* 8, 508–10 (1967). In elderly, institutionalized men on a diet of high linoleic acid content, there was little correlation after 1 yr between adipose tissue linoleic acid concentration and dining room attendance. The correlation improved thereafter, with a correlation coefficient of +0.81 after 5 yr and +0.74 after 6 yr.

SEPARATION AND SIZE DETERMINATION OF HUMAN SERUM LIPOPROTEINS BY AGAROSE GEL FILTRATION. S. Margolis (Depts. of Med. and Physiol. Chem., The Johns Hopkins Univ. School of Med., Baltimore, Maryland). *J. Lipid Res.* 8, 501–07 (1967). A method is described for the separation of the three major classes of human serum lipoproteins by gel filtration on columns of 4 and 6% agarose gel. After calibration of the columns, the elution volumes of the lipoproteins were used to calculate the molecular sizes and molecular weights of these macromolecules. The technique was employed to demonstrate aggregation of low density lipoprotein following partial delipidation, partial proteolysis, or mild heat denaturation. Agarose gel filtration shows promise as a useful method for the isolation, purification and characterization of lipoproteins.

CHARACTERIZATION AND IDENTIFICATION OF GLYCERYL ETHER DIESTERS PRESENT IN TUMOR CELLS. R. Wood and F. Snyder (Med. Div., Oak Ridge Inst. of Nuclear Studies, Oak Ridge, Tenn.). *J. Lipid Res.* 8, 494–500 (1967). The previously unidentified neutral lipid present in tumor tissues has been isolated from Ehrlich ascites cells and unequivocally identified as a lipid class of glyceryl ether diesters containing various degrees of unsaturation, and ranging in approximate molecular weight from 760 to 990. The glyceryl ether diester fraction was shown to be free from neutral plasmalogens (glyceryl diacyl alk-1′-enyl ethers). The tumor lipid was subjected to saponification, transesterification, and lithium aluminum hydride reduction. The glyceryl monoethers that resulted from deacylation were the 1-isomers ranging in hydrocarbon chain length from C_{12} to C_{24}. The predominant glyceryl ethers were the hexadecyl (49%), octadecyl (21%), and octadecenyl (14%) derivatives. Saturated and mono- and polyunsaturated fatty acids ranging in chain length from C_{12} to C_{24} carbon atoms were esterified to the glyceryl monoether. Gas-liquid chromatography, thin-layer chromatography, and nuclear magnetic resonance and infrared spectroscopy were used to characterize and identify the intact tumor lipid and its derived products.

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British Petroleum Plans Full-Scale Protein Production

British Petroleum plans to build a $5,600,000 plant at the Group's Lavera refinery in France to produce protein concentrate from a gas oil feedstock. Construction is expected to start in 1968 and the plant, with an annual capacity in excess of 16,000 tons, should be in production by 1970. The protein will be marketed as a component of animal feedingstuffs.

Extensive tests on the new BP product have been carried out over a period of years in Holland at the Central Institute of Nutrition and Food Research (C.I.V.O.) and the Institute of Agricultural Research of Biochemical Products (I.L.O.B.), two specialist organizations with very long standing experience in the field of nutrition and agricultural research.

Microwave Power Symposium

Papers dealing with microwave-induced chemical plasmas and with the chemical aspects of biological effects of microwave energy will be presented at the Third Annual Symposium of the International Microwave Power Institute.

Papers presented will include "A Comparison of Nitrogen Atom Yields in a Microwave Discharge Using Pulsed and CW Power," "Model for Large Scale Microwave Plasma Facilities," and "Chemical Aspects of Biological Effects."

The three-day meeting will be presented at the Statler-Hilton Hotel, Boston, Mass., March 21–23, 1968.