

healing is being studied using a presumed lipid substance that appears to heal third degree burns rapidly without scar formation. Lipid metabolism of normal and infected cells cultivated *in vitro* are being compared. Lastly, studies of lipid metabolism of *Chlamydia* agents are being made. These agents are important because they cause trachoma—the major cause of blindness in the world, arthritis in man and sheep, and possible cervical carcinoma when a second organism, herpes virus, is present in the vagina.

Major research efforts of **Dr. W.J. Baumann** and his coworkers have been concentrated on the structure, metabolism, and function of unusual lipid components which contain a short chain diol instead of glycerol. These diol lipids occur widely in nature but are usually found at low levels. Higher levels of diol lipids accumulate, for example, during phases of rapid proliferation, such as in regenerating rat liver or in fast-growing tumors. It is of interest that diol-derived lecithin analogs show lytic activity which exceeds that of lysolecithins, and that diol-derived phosphatidyl serine analogs possess anticoagulant activity. Diol lipids are being widely used in this and other laboratories as model compounds to study substrate requirements of enzymes that are normally involved in glycerol-lipid metabolism. The low level of diol lipids commonly found in biological materials has required development of new methodologies for their reliable identification and accurate quantitation, which involve the use of internal deuterated diol lipid standards and gas chromatography-mass spectrometry. The biosynthesis of diol lipids is under investigation, and it appears that diol monoesters play a central role in the formation of neutral diol lipids as well as diol phospholipids. The enzymes catalyzing these reactions are subjects of some of the current studies. Other activities in this group involve studies on membrane structures and membrane functions, using nuclear magnetic resonance as a tool to elucidate the role of unusual phospholipids in biological membrane assemblies.

Studies by **Dr. Eldon Hill** and coworkers with miniature pigs fed atherogenic diets for 24 weeks showed that the pigs developed a severe hyperbetalipoproteinemia of the "broad beta" type, which differed from the human type III LP profile by having a significantly increased amount of high density lipoprotein in the serum, and by having a broader LP spectrum. These atherosclerotic pigs also had severely elevated serum cholesterol values, but only minor elevations

in serum triglycerides. Studies with chickens fed similar atherogenic diets showed 100% incidence of aortic lesions in 12 to 20 weeks. Dietary supplements of massive doses of vitamin C did not reduce or prevent atheromatous lesions of the aorta, and actually induced higher levels of serum cholesterol, serum triglycerides, and liver and aortic cholesteryl esters and free cholesterol.

Research conducted under the direction of **Dr. E.M. Stearns** has dealt with the control of synthesis of unsaturated fatty acids in higher plants and plant cell cultures. Studies performed under aerobic and anaerobic conditions in developing soybeans have shown a close interrelationship between newly synthesized individual fatty acids and their appearance in specific phospholipids. Current studies are concerned with differentiating between substrate or transport functions for the phospholipids. A modified treatment of plant tissues developed in this laboratory has enabled generation of a number of lines of soybean callus. Administration of plant hormones to suspension cultures of these cells at the 1 ppm level for 24 weeks has been shown to alter the pattern of fatty acids synthesized. For example, a mixture of cytokinin and gibberellin has effected an elevation of linoleic and depression of linolenic acids synthesized. Cultured soybean cells used in synthetic studies of lipids show the same reactions observed in cells from developing plants and at approximately the same relative rates. This makes possible assays and manipulations of cells that could be important to development of new strains with altered characteristics.

Dr. Howard L. Brochman's group is working on the relationships between the physical behavior of lipids and proteins at interfaces and on the regulation of lipid metabolism. They are currently measuring the kinetic and thermodynamic parameters which govern cholesteryl ester hydrolysis and the properties of the enzyme, aortic cholesteryl esterase, which catalyzes it. The experimental system used monolayers of substrates at either an air-water or oil-water interface with cholesteryl esterase in an aqueous phase. The specificities and magnitudes of the interactions being studied will provide a basis for understanding the relationship between the intrinsic physicochemical properties of aortic lipids and the accumulation of cholesteryl esters in the aorta. Another study in this group concerns the role of bile salts and colipase in the hydrolysis of glycerides by pancreatic lipase in defined monolayer systems. ■

CALL FOR NOMINATIONS:

North Central Section Alton E. Bailey Award

The North Central Section of AOCs is requesting of the society members written nominations for the 1975-76 Alton E. Bailey Award. The purpose of the Bailey Award is to recognize research and/or service in the field of fats and oils. The nomination should contain at least 5 pertinent references or contributions in the field of oils, fats, waxes, et cetera. Some of the past Bailey Award winners are: V.C. Mehlenbacher (1959), R.H. Potts (1960), J.C. Cowan (1961), A.R. Baldwin (1963), T.P. Hilditch (1965), D. Swern (1966), W.O. Lundberg (1967), H.J. Dutton (1968), H.S. Olcott (1969), H.E. Carter (1970), J.F. Mead (1971), R.T. Holman (1972), C.M. Gooding (1973), S.S. Chang (1974), and W.M. Cochran (1975).

Please send nominations to the Alton E. Bailey Award Chairman, Dr. B.F. Szuhaj, Central Soya Company, 1825 N. Laramie Avenue, Chicago, IL 60639. The deadline for nominations is January 1, 1976, and notification of selection will appear in this journal. The presentation of the Bailey Award is scheduled for March 17, 1976. ■