glycerol and fatty acids for growth, were shown to incorporate ^{14}C-labeled precursors into glyco- and phospholipids. The main glycolipids, which contained fatty acid ester, glycerol, and galactose in the ratio 2:1:1, gave a compound identified as 1-O-β-D-galactofuranosylglycerol when deacylated. The deacylation products of the phospholipids were glycerylphosphorylglycerol (GPG) and 1,3-diglycerylphosphorylglycerol (GPGPG). The ratio of GPGPG-lipid to GPG-lipid increased during the later stages of growth, when incorporation of glycerol into the lipid fraction had almost ceased.

EUGLENA GRACILIS: A NOVEL LIPID ENERGY RESERVE AND ARACHIDONIC ACID ENRICHMENT DURING FASTING. A. Rosenberg (Columbia Univ. Res. Service, Goldwater Memorial Hosp., N.Y. 10017). *Science* **157**, 1189–91 (1967). In *Euglena gracilis* grown in the dark, wax esters, consisting of a combination of medium-chain fatty acids and alcohols that contain both odd and even numbers of carbon atoms, appear to be a reservoir for metabolic energy. When the organisms are fasted, their pellicular membrane systems become quite rich in long-chain polyenoic acids, mostly of the arachidonic acid family.

BIOTIN DEFICIENCY AND OROTIC ACID FATTY LIVER IN THE RAT. D. S. R. Sarma and H. Sidransky (Dept. of Pathol., Univ. of Pittsburgh School of Med., Pittsburgh, Penna.). *J. Nutr.* **92**, 374–6 (1967). To determine whether biotin deficiency would influence the development of fatty liver due to orotic acid, female rats were fed *ad libitum* a basal or biotin-deficient diet for 10 weeks. The animals were then force-fed an adequate amount of basal or biotin-deficient diet containing 1% orotic acid for 3 or 6 days. All animals force-fed the orotic acid-containing diets developed fatty livers. These results indicate that biotin deficiency has no inhibitory effect on fatty liver induction by orotic acid.

EFFECT OF LOW ENVIRONMENTAL TEMPERATURE ON THE METABOLISM OF VITAMIN A (RETINOL) IN THE RAT. P. R. Sundaresan, Victoria G. Winters and D. G. Therriault (Biochm.-Pharm. Div., U. S. Army Res. Inst. of Environmental Med., Natick, Mass.). *J. Nutr.* **92**, 474–8 (1967). The effects of low environmental temperature on liver vitamin A utilization of rats were examined after two, four and six weeks of exposure at 5C. Total liver vitamin A levels were unchanged. The weight gain of animals at 5C was always less than the weight gain at 25C. An increased utilization of vitamin A was indicated if the utilization of the vitamin was expressed as a ratio of the amount of vitamin A removed from the liver to the weight gain of the animal. The increase in the vitamin A depletion ratio observed in the 4-week cold-exposed rats was abolished by administration of thiouracil at a level of 0.1% in the diet. An increased requirement for vitamin A in the cold was indicated by the reduced survival time of vitamin A-deficient rats exposed to cold. In addition, at least 20 times more retinoic acid was necessary to maintain growth and survival in the cold than at 25C.

NUCLEIC ACID AND PHOSPHOLIPID SYNTHESIS IN THE REGENERATING LIVER OF TUMOR-BEARING MICE. A. Theologides and B. J. Kennedy (Dept. of Med., Univ. of Minn. Med. Center, Minneapolis, Minn. 55455). *Cancer Res.* **27**, 1270–7 (1967). The metabolic interrelationships between the growth of a rapidly proliferating tissue and of a transplanted tumor were investigated in the same animal. Liver regeneration and tumor growth were studied in C3H mice bearing a transplanted mammary carcinoma. The rate of radioactive phosphorus incorporation in the DNA, RNA, and phospholipids of the liver and the tumor was determined at intervals of six hours after partial hepatectomy. The presence of the tumor did not affect significantly the time of onset, but increased markedly the rate of DNA synthesis in the regenerating liver from 24 to 36 hours after the partial hepatectomy. It had no effect on the liver phospholipid and RNA turnover rates. The tumor itself did not show any variation in the rate of ^{32}P incorporation in the phospholipids and RNA throughout the 48-hour study period, but demonstrated an early fall and a subsequent rise in DNA synthesis.

EFFECTS OF DIETARY CALCIUM UPON LIPID METABOLISM IN RATS FED SATURATED OR UNSATURATED FAT. H. Yacowitz, A. I. Fleischman, R. T. Amsden and M. L. Bierenbaum (Health Res. Inst., Fairleigh Dickinson Univ., Madison, N. J., and Atherosclerosis Res. group, St. Vincent's Hosp., Montclair, N. J.). *J. Nutr.* **92**, 389–92 (1967). To study the effects of varying the degree of saturation of dietary fat upon the hypolipemic

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• *New Literature*

A 63-page booklet entitled "Guide to Stationary Phases for Gas Chromatography," 4th Ed., by T. R. Lynn, has been published by ANALABS. The more than 500 references contained in the booklete are indexed according to the material separate. It gives brief notes about the separation, such as the stationary phase used, the temperature and the solid support. (P. O. Drawer 5397, Hamden, Conn. 06518.)

A revised edition of "Glycerine Terms, Tests and Technical Data," has just been issued by the GLYCERINE PRODUCERS' ASSOCIATION. The booklet contains Federal specifications and those of such organizations as ASTM, ACS, USP and TGA, American and British Standards for crude and refined glycerine. The most generally accepted glycerine test methods are also included. (Glycerine Producers' Association, 485 Madison Ave., New York, N. Y. 10022.)

E. H. SARGENT & Co., Chicago, Ill., has prepared a 6-page booklet featuring five different laboratory recorders: the Model SR Selective Range Recorder; the Model SRGC Laboratory Recorder for use with gas chromatographs; the Model SRL Recorder for use with spectrophotometers, photometers, densitometers and similar instruments; the Model MR Multi-Range Recorder; and the Model TR Recorder, a full-size recording potentiometer. (4647 W. Foster Ave., Dept. AR, Chicago, Ill. 60630.)