The Relationship of the Hildebrand Solubility Parameter of Various Oils to the Properties of Lithium Soap Greases made therefrom.
G. S. Bright, *NLGI Spokesman, 34* (5) (1970) 156–160; 8 figs., 6 refs.
Critical solution–temperature data obtained by the use of a hot-stage microscope were correlated with grease properties other than dropping point. A straight-line inverse relationship was found between the solubility parameters of the oils and the dropping point of lithium 12-hydroxystearate greases made from them. Lithium soap greases containing oils of 7.9 solubility parameters or less softened on the addition of water; those containing oils having parameters greater than 7.9 hardened.

Properties of Low-temperature Greases.
W. P. Scott and C. J. Swartz, *NLGI Spokesman, 34* (6) (1970) 197–203; 10 figs., 2 tables, 2 refs.
A preliminary study of the low-temperature flow properties of greases formulated with a new synthetic fluid a hydrocarbon having excellent thermal stability. No formulation problems were encountered with various conventional thickeners. The laboratory-size flow apparatus used allows a rapid determination of flow rates and pressure drops at various constant temperatures. The NLGI steady-flow charts for grease can then be used to yield a meaningful rheological characterisation.

Wool Processing Oils.
R. A. Nicholson, *Ind. Lubrication, 22* (7) (1970) 176–178.
The general principles of yarn production, the lubrication requirements and the necessary properties of the lubricants are outlined.

The Development of Fluorinated Greases for Aerospace, Military and Industrial Applications.
Anon., *NLGI Spokesman, 34* (7) (1970) 252–259; 3 figs., 9 tables, 18 refs.
The properties and performance of fluorinated greases, manufactured from fluoroalkylpolyether base oils and low-molecular weight tetrafluoroethylene telomers, are presented. These fluorinated greases have a unique combination of properties which results in their use where inertness, stability and lubricity are essential.

A Study of the Oxidation Kinetics of Synthetic Molybdenum Selenide.
G. D. Moore, *ASLE Trans., 13* (2) (1970) 117–126; 13 figs., 4 tables, 12 refs.
The kinetics of the oxidation of synthetic $MoSe_2$ were studied from 375° to 530°C. Reaction rate constants were determined isothermally in dry air and the activation energy for the oxidation determined by an Arrhenius plot of the reaction rate data. Values of 22 to 40 kcal/mole were determined for the activation energy.

Characterisation and Tribological Properties of MoS_2 Powders and of Related Chalcogenides.
G. Salomon, A. Begelinger, F. L. van Bloois and A. W. J. de Gee, *ASLE Trans., 13* (2) (1970) 134–147; 10 figs., 3 tables, 30 refs.
Using a pin and ring apparatus the surface and bulk properties of various particle sizes of commercially available MoS_2 products were compared and their endurance also compared with that of similar films of synthetic chalcogenides. The solid lubricants are classified according to their failure mechanisms. The minimum endurance value of an effective MoS_2 layer in air depends on the ratio of pin to ring hardness and on surface roughness.

Solid Lubricants—Utilization and Fields of Application.
S. M. Owen, *VDI-Z., 112* (22) (1970) 1487–1491; 4 refs.
Stabilized solid-lubricant additives for the production of liquid lubricants can be effectively used as part of a set of additives. Besides the unique properties of solid lubricants which can be used by direct treatment of the metal surface they can be effectively used by indirect treatment by way of varying the functional properties of the liquid lubricant.

4. MACHINE PARTS

4.1. Bearings

Gyroscope Bearing Cross Torque.
E. Kingsbury, *JOLT, 92 Ser. F,* (2) (1970) 303–309; 13 figs., 4 refs.
Ball-bearing cross torques which appear at right angles to the spin axis are described, demonstrated and analysed. Several methods for their control are described. A retainerless bearing, designed for small residual ball gap, suffers from neither ball group or retainer cross torque.

Optimum Surface Profile for the Enclosed-pocket Hydrodynamic Gas Thrust Bearing.
C. Y. Chow and H. S. Chang, *JOLT, 92 Ser. F,* (2) (1970) 318–324; 13 figs., 2 tables, 7 refs.
The relative importance with respect to load-carrying capacity of each geometrical parameter in a self-lubricated thrust bearing with an enclosed pocket is examined at $A = 0.55$. The variation of load *versus* each geometrical parameter are shown graphically to facilitate design procedure. Of the film profiles examined, the taper step film in an enclosed