HOPKINS, V., HUBBELL, R. and KREMITH, R.
Plasma spraying, a new method of applying solid film lubricants. Lubrication Engineering, Vol 24, No 2 (February 1968) pp72-80
An investigation was conducted to determine the feasibility of applying solid lubricant films with a plasma spray gun. A description is given of the gun configurations used to apply metal, resin and ceramic bonded solid lubricant films. Results of friction and wear equipment tests made on films are presented. The friction and wear equipment is described and test procedures are given. The importance of gun configuration in avoiding lubricant degradation and/or dissociation as well as obtaining good binder fusion is delineated. A dual port entry gun which introduced binders in the hot zone and lubricants in a cool zone of the gun was found to be the best for applying metal and ceramic bonded molybdenum disulphide type films. (3 figures, 6 tables) (Tribology 1968, abstract 113)

JONES, J. R.
The frictional behaviour of solid lubricants at low speeds. Lubrication Engineering, Vol 24, No 2 (February 1968) pp64-71
A study was made of the frictional behaviour of solid lubricants, in particular molybdenum disulphide, in press-fit tests using an electronic compression tester to measure and record friction as a function of time. A previous investigation of the effect of idle time on state friction is extended to higher speeds and to the second motion of specimens held in contact for long period. Several new powders are compared with molybdenum disulphide under the same conditions of sliding speed, load, and surface roughness. Data are presented relating coefficient of friction to surface roughness, speed, and history. It is shown that MoS_2 is far superior to the other powders as a lubricant for press-fit operations. (6 figures, 7 tables, 9 references) (Tribology 1968, abstract 114)

KODNIR, D. S., BAYBORODOV, Yu. I.
Contact-hydrodynamic calculation of non-metallic plain bearings with fluid friction. Vestnik Mashinostroyeniye, No 3 (1968) pp20-24
A procedure is given for contact-hydrodynamic calculation of elastically deforming non-metallic plain bearings with fluid friction. (8 figures, 3 references) (Tribology 1968, abstract 115)

LANCASTER, J. K.
Self-lubricating composites for bearings. The Chartered Mechanical Engineer, Vol 15, No 3 (March 1968) pp107-113
Ever-increasing interest is being paid to self-lubricating bearing materials, not only because of the space and process industries' veto on contaminants, but also for the inherent elegance of this method. A large number of materials are now available for this purpose but much further research remains to be done. (2 figures, 6 tables, 33 references) (Tribology 1968, abstract 116)

LANDEN, E. W.
Slow speed wear of stainless steel surfaces lubricated by thin oil films. Transactions of the American Society of Lubrication Engineers, Vol 11, No 1 (January 1968) pp6-18
Time rates of wear and distance rates of wear are presented as a function of calculated oil film thickness between two cylindrical steel rollers loaded to a maximum Hertz contact stress of 300,000lb/in^2. Wear is divided into a constant wear mode and a transient wear mode dependent on the oil film thickness. A negative slope of the curve representing the distance rate of wear versus oil film thickness explains the stabilising effect on radial surfaces. A positive slope in a narrow range of oil film thickness causes a surface instability due to wear, and surface rippling occurs. Transient wear occurs at the thicker oil films. When followed by zero wear rate surface oxide films develop. The amount worn off during transient wear varies greatly with the oil film thickness when using rollers of a given surface finish. Control of oil film thickness by either velocity or viscosity changes due to temperature produces similar wear effects. (19 figures, 6 references) (Tribology 1968, abstract 117)

LARSEN-BADSE, J.
Influence of grit size on the groove formation during sliding abrasion. Wear, Vol 11, No 3 (March 1968) pp213-222
The number and size of grooves formed on copper samples by sliding for a short distance in contact with silicon carbide abrasive papers are measured for various values of the applied load and for a wide range of abrasive grit sizes. It is found that the nature of the interaction between the abrasive grain and the metal surface is virtually independent of the grit size. A range of groove widths is observed in all cases. Approximately fifty per cent of the grains contacting the surface remove material in the form of a fine chip. An increase in the applied load produces an increase in the number of grooves formed, while the average groove width varies only slightly. On the basis of the results obtained a tentative explanation for the influence of abrasive grain size on the wear rate in sliding abrasion is advanced. This explanation is based on the part played by particles in elastic contact only with the metal in supporting the applied load without contributing to material removal. (10 figures, 18 references) (Tribology 1968, abstract 118)

LAVIK, M. T., MEDVED, T. M. and MOORE, G. D.
Oxidation characteristics of MoS_2 and other solid lubricants. Transactions of the American Society of Lubrication Engineers, Vol 11, No 1 (January 1968) pp44-45
Thermogravimetric oxidation data are given for fifteen refractory metal dichalcogenides. Interpretation of these data is supported by oxidation thermograms of the chalcogens and the refractory metals and by x-ray diffraction analysis of the oxidised products. The effects of humidity, heating rate and particle size on oxidation of the dichalcogenides are presented. Thermogravimetric analysis is shown to be helpful in detecting impurities, such as unreacted elements, in commercial samples. Some dichalcogenides are found to retain the same relative oxidation stability, when bonded in thin films with a ceramic, as pure powder samples. A table is presented summarising these oxidation characteristics together with information from the literature on crystal structures, electrical resistivities and densities. (12 figures, 3 tables, 19 references) (Tribology 1968, abstract 119)

MADAY, C. J.
A bounded variable approach to the optimum slider bearing. Transactions of the American Society of Mechanical Engineers, Journal of Lubrication Technology, Vol 90, Series F, No 1 (January 1968) pp240-242
Modern methods for treating inequality constraints in the calculus of variations are used to determine the maximum load-capacity one-dimensional slider bearing using a lubricant with pressure-dependent viscosity. A lower bound on the minimum film thickness is put into the form of an equation to facilitate the use of the Euler–Lagrange equations, the corner conditions and the Weierstrass E-function. It is found that, for typical lubricants, the slider bearing contains only one step separating two values of the film thickness. It is shown also that there exist cases for which a solution cannot be obtained to describe a real situation. (2 figures, 6 references) (Tribology 1968, abstract 120)

McCONNELL, B. D., WIESLER, L. E. and MECKLENBURG, K. R.
Wear-life improvement of a solid film lubricant. Lubrication Engineering, Vol 24, No 2 (February 1968) pp81-91
Solid film lubricants exhibit a wear-in behaviour, in which excess material is discarded as wear debris. The resulting compacted film provides the majority of the wear-life on the film. One ceramic-bonded, sprayed film was investigated to establish whether mechanical compression or artificial filling of the film voids would improve the wear life. A description is given of the particular film composition and preparation, including the effects of specimen pretreatment upon wear-life improvement. Wear-life and friction results are presented for two methods of mechanical compression (sliding and rolling) and a double deposition technique involving spraying and electrophoretic deposition. The double deposition film was found to produce a lubricant system having a wear life of over four million stress cycles on an opposed rub shoe machine which subjected specimens up to a 25lb normal load and a rubbing speed of 215ft/min. (8 figures, 11 tables, 25 references) (Tribology 1968, abstract 121)