

and improved specific fuel consumption (SFC) (17). These goals will require new blade alloys such as single crystal, oxide dispersion strengthened and directional eutectic materials, and the introduction of these into engine operation will pose certain problems as to whether currently available coatings will provide adequate protection; there is still tremendous scope for further coating development.

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The Platinum Group Metals in Society

A general concern about future supplies of industrially important materials was demonstrated in the interest shown in a recent London conference, entitled "Strategic Metals in the 1980s". The internationally recognised authorities who spoke included Mr. D. R. Dumenil, an Executive Director of Johnson Matthey & Co Limited, who presented a paper on the platinum group metals.

Despite the relatively small quantities of platinum group metals that are available, the remarkable properties of these metals bring great benefits to industry, and to society in general. Due mainly to increased industrial use, but also to a growing interest in all things that are both rare and precious, the demand by the Western World—including Japan—has increased four-fold over the past twenty years, with purchases of newly mined platinum, palladium and rhodium now being made at an annual rate of about 170 tonnes.

In addition to presenting an account of some of the many strategically important industrial processes that rely on the platinum group metals, most of which will be known to regular readers of this journal, reference was also made

to the use of the metals as jewellery materials. Increasingly, jewellers and their customers are becoming aware that the colour of high-purity platinum enhances precious stones, while its strength enables the most delicate mounts to hold stones securely. Although platinum is the most important for this purpose, palladium is used as an alloying element, particularly in Japan, and electrodeposited rhodium is used to provide a brilliant protective surface on other metals.

In the foreseeable future, it is improbable that there can be any dramatic change in the world's dependence on South Africa and the Soviet Union for supplies of the platinum group metals, but in South Africa alone the reserves amount to over 300 years production. At present 10 tonnes of the Rustenburg ore yields little more than one and a half ounces troy of platinum metals, so a vast producer industry is already committed to satisfying the needs of the platinum users. Thus, providing there is a reasonable guarantee that consumption will continue at an adequate level, the underground reserves can be made available on the surface for a continuing expansion of use.