

invariably cause other problems of a mechanical nature. For a medium pressure plant, it is estimated that having one less change in the yearly schedule can result in a saving of £60,000 on the metal costs alone.

### Summary

Knitting is rapidly gaining acceptance as a gauze manufacturing technique, and material fabricated in this way is also being applied to areas other than nitric acid production.

Samples of knitted platinum group metals have been supplied for various specialist applications and to industries that deal predominantly in base metals.

Many of the early claims made for knitted catalysts have now been substantiated and, indeed, many other beneficial and unexpected results have been achieved. Further developments in the knitted structure and in the alloys involved are continuing, and the future for knitted gauzes looks assured.

### References

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## Some Diverse Aspects of the Platinum Metals

**Noble Metals and Biological Systems: their Role in Medicine, Mineral Exploration, and the Environment**

EDITED BY R. R. BROOKS, CRC Press, Boca Raton, 1992, 392 pages,  
ISBN 0-8493-6164-8, U.S. \$156, £94.50

The rise in interest in environmental issues over recent years has resulted in a significant increase in the number of papers related to the investigation of the distribution of materials in the environment, and particularly in biological systems. The above named book offers an extensive review of this literature in relation to gold, silver and the platinum group metals, with particular emphasis on exploration and medicinal use.

Because the noble metals occur at low concentrations in the earth's crust, trace analytical techniques are required for much of this work, and therefore the book begins with a chapter on the analysis of noble metals. This review is necessarily brief but highlights the improvements that have been made in recent years through the introduction of neutron activation analysis and inductively coupled plasma techniques, with emission or mass spectroscopy detection.

Much of the information gathered for this book deals only with silver and gold, due to their generally higher concentrations in the environment and their longer history of interest from exploration studies. Details and particularly interpretation of data on the platinum group metals is thus limited.

Two chapters discuss the determination of noble metal concentrations in biological mater-

ial as an aid to mineral prospecting. Plants and microorganisms concentrate the noble metals from the soil, allowing evidence of underlying mineralisation to be obtained. Biological mobilisation of noble metals by microorganisms is reviewed as is the relationship of animals and noble metals. This section is then summarised by a general discussion of noble metals in the environment.

The final part of the book, consisting of four chapters, deals with the role of noble metals in medicine. The use of gold therapy for arthritis and platinum-based chemotherapy for cancer is now well known and, although the reviews are well written, the interested reader will probably be aware of this material already, or wish for a more detailed study as provided in numerous other specialised texts. Other chapters in this section deal with the use of osmium compounds in arthritis and ruthenium compounds for cancer therapy.

For those who have considered the role of noble metals in the environment and their interaction with biological systems, this volume should provide something of interest. It offers a guide to some of the less well known literature on this subject matter, much of which was originally published in Russian.

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