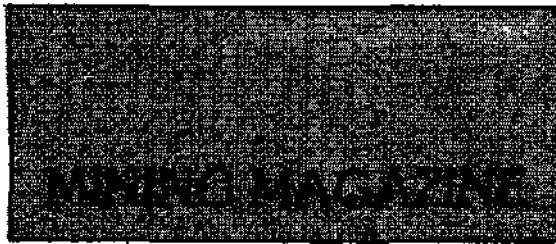
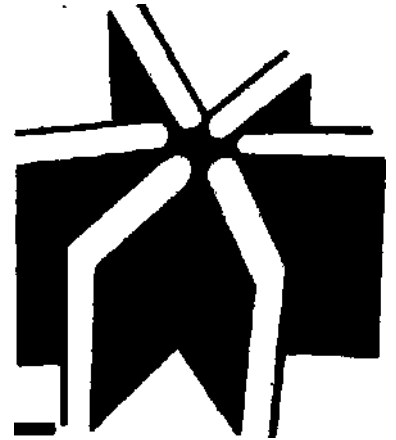


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- 122 Finland can supply advice or equipment for everything from exploration to smelting.

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Consultants

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Special Report: CONVEYORS IN MINING

Conveyor Belts Make Sense

C3 Conveyor belt haulage is becoming ever more attractive to miners throughout the world. Victor Cabrera studies conveyor belt technology in great detail in the first featured article of this Special Report, which begins immediately following the Reader Inquiry Card

What's New in Conveyor Equipment

CI 7 As conveyors gain wider acceptance, It becomes imperative that equipment is constantly upgraded. Here is a look at the latest developments

Beltcon

C30 John Chad wick attended a symposium In South Africa that was devoted exclusively to conveyors- their design, operation, and optimization

Keeping Belts Clean

19 Operating costs can be kept down if conveyor belt systems are kept clean. j.C. Leroy examines the many ways that this can be accomplished

Petaling Builds New Dredge

24 An unconventional method is being used by this Malaysian company in building a new dredge. John Chadwick has the story

International Mining & Metallurgical Congress

29 Optimism was evident at this conference, one of the most important in the world. There was also good information on the latest technology.

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Polaris Mine Comes On Stream

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Cut-and-fill Mining at Boliden

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- D1 It is difficult to imagine a mine that uses no Diesel power. The use of Diesels in mining has steadily increased since the invention of the engine in 1892, and the Diesel remains the "work horse" of the industry today. WORLD MINING, in cooperation with Fluor Mining Metals, Inc., Redwood City, California, United States, presents a comprehensive study of Diesels in the mining industry in this issue, covering surface and underground mines, power generation, Diesel fuels and subsystems, and maintenance. The section begins immediately after the Production Equipment Review

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- 40 France is a large consumer of uranium. A significant portion of its needs are met by one group of small mines, where the latest technology allows for very selective mining. John Chadwick has the story

Vertical Cutting Loader

- 44 George Argall reports on a new excavating and loading machine for open pit mines. Loading rates up to 9,000 tons per hour can be achieved with it

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- 50 One copper producer solved a concentrate dewatering problem while saving money at the same time. A new automated filter press was the key

Yugoslavia

- 52 - This country has a wide range of minerals, and is an important producer of many commodities. John Chadwick presents his findings

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Panasqueira and the Winds of Change

- 52 This Portuguese mine, the country's largest, is in a district with a mining history dating to ancient times. But Europe's most important wolframite producer is now installing the most modern equipment. Mary McNeil reports

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- 56 Solar energy and special equipment are part of a \$500,000,000 project, aimed to ultimately produce 1,200,000 metric tons of potash per year

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- 61 Each reclamation program is different—what works at one site may be a failure at another. Dr. Edward M. Watkin and Jo-Ann Watkin explain ways to ensure a successful program

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-Abatement of noise and vibration in the Canadian mining industry.

31 The scientists of Cartmet's Elliot Lake laboratory have identified two of the workplace hazards common in mining and make recommendations on practical testing procedures.

Experimental determination of the unattached radon daughter fraction and dust size distribution in some Canadian uranium mines

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Canada hosts first global scale diamond drilling workshop

- 15 Representatives from 26 developing countries discussed advances in equipment design and drilling techniques during two weeks of seminars sponsored by-EM "and" R and theCDDA.

The application of the aeromagnetic gradiometer survey technique to gold exploration in the Val d'or mining camp, Quebec

- 21 Earlier this year the GSC published unique maps valuable in the search for gold. Here for the first time is an explanation of the interpretation and importance of this survey technique. Full color map samples included.

Why interest in Electric tracked haulage systems is growing

- 41 When labor demands a better workplace environment and management is looking for reduced costs, electric tracked haulage becomes a viable alternative. Read about systems available in Canada and the benefits of automation.

Contractor sets new record driving pilot raise

- 51 The new record is 1803 ft in four weeks driven by Raise Mining and Driling at Rio Aigom's Stanteigh mine.

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- 23 The coal industry.suffers from some recessionary pains, but unlike the rest of the mining industry it ls functioning with minimum layoffs. Read the *report* on the 34th Canadian Conference on Coal.

The road to Detour Lake advances

- 28 The use of geotextiles speeds road construction thorough difficult terrain in northern Ontario.

Mine spending rises, up 18 per cent

- 34 Mineral producers in Canada Will spend an estimated 1Z6 billion in 1982; up from last year's amount. The effects of the current recession are felt in the changing patterns of these spending plans. Aproject-by-project list of individual companies begins on page 40.

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- 62 The Law of the Sea Treaty is about to become international law without the signature of the worUIs most influential country. Its provisions will affect the future of Canadian land based nickel producers.

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239 Phillip C. Reeves

Looking Back: AMC mining show gets its
start

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Engineering Systems For Maintenance
17 Harold M. Hartley

The Plight of the Copper Industry
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Some antitrust and Other Considerations
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29 Malcolm R. Pfunder and John. T. Masterson,
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39 A. Erickson, K. Heller and E. Thimons

INDUSTRIAL MINERALS

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Market outlookfor titanium * iaxi e* pig
meats

21 This paper, by John ColMngwood of Tioxide
International, was presented at the 5th Im
Congress recently held in Madrid. It presents
an up-to-date view of the sply/demand balan-
ce for the titanium dioxide industry up to
1985

Titanium minerals focus on. production

27 The article presents a review of the producing
side of the indurstry-with a brief look at the
minerals, processing methods, the saleable
products, and the companies involved in tita-
nium mineral production

'Associations' related to the industrial minerals field

- 37 A brief article which looks at the various trade association, academic institutions, and research establishments in the UK which are related to the minerals industry. A list of such associations with corresponding addresses is also given

Symposium Mondial sur L'Amiante/World Symposium on Asbestos

- 41 A report on the recent world symposium on asbestos which was held in Montreal, Canada last May

Zeo-Agriculture'82-coming down to earth

- 45 A report on the recent conference in Rochester, New York which examined the use of natural zeolites in agriculture and aquaculture

IM Madrid Congress

- 49 A report on the 5th Industrial Minerals International Congress in Madrid. Also included are details of the field trips which followed this highly successful meeting

Freights: Further gloom on the horizon

- 53 The usual summer lull in activity is not as apparent as previous years due to the general downturn in movements

AUGUST 1982

Ball and plastic calys— shaping up to ceramics doldrums

- 23 A review of production, processing and markets for ball and plastic clays. These fine-grained, kaolinitic clays possess a range of useful properties, but the most important of these is the ability to impart plasticity and unfired strength in the ceramic body—hence the widespread use of these clays throughout all sectors of the ceramics industry

Vermiculite—little growth envisaged

- 47 A review of world production and markets for vermiculite, including current price levels and future prospects for the mineral. Although badly affected by the current recession in the construction industry, the increased use of vermiculite in agriculture and horticulture has softened the overall downturn

The European vermiculite market—the view from Mandoval

- 50 A contributed article from Mandoval Ltd., the European marketing arm of Palabora Mining Co., on vermiculite distribution, sales and market conditions in Europe

The fluorspar industry of Thailand 1976-1981

- 53 A profile of Thailand's fluorspar industry, highlighting production, trade, and the companies involved. Contributed by Dr. S. Rachdawong, director of the Economic and Information Div. of the country's Department of Mineral Resources

Paper outlook 1980-1985—a revised forecast

- 57 The changing economic conditions in Western Europe have caused the Paper Division of ECC International to revise its original forecast on the fortunes of the European paper industry, highlighted in the May issue of IM

Freights: Too few cargoes for too many ships

- 63 Continuing the theme of past months, the dry cargo freight market continues to decline

SEPTEMBER 1982

Mineral in the Refractories Industry—assessing the decade ahead

- 29 A brief summary of the papers being presented at the conference organised by "Industrial Minerals" to be held in Pittsburgh, Pennsylvania this month. Biographical details of the authors are also given

The refractory raw materials of China

- 39 This article, by Lawrence R. Lebauer of Comets Inc., looks at the rich refractory raw material resources of China. These resources include bauxite, magnesite, natural flake graphite, and refractory grade chrome ore

Phosphate—new producers rock the boat

- 45 In common with all fertiliser raw materials the current market for phosphate rock is somewhat depressed. This article looks at world production, and indicates the changes that are taking place in the industry

5th International Lime Congress Report
65 Areport on the international lime congress held In Paris earlier this year

Lodiue from the Niigata dissolved dry gas producing area

69 This article by O. Fukuta, S. Nagata, and N. Fujii of the Geological Survey of Japan is a follow up to the first article on Japanese iodine which appeared in IM April'82 The authors provide information on the problematic iodine deposits in the Niigata area

Freights: Stil a very poor market

81 The weakness in the freight market has continued and, with the traditional holiday season in Europe, trading has been extremely quiet

OCTOBER 1982

Bentonite—a reviwev of world production

23 This versatile mineral continues to satisfy a variety of markets in the USA which continues as the world's leading bentonite producing country. This article focuses on the producing side of the indurstry which, in a time of recession, is performing well below capacity In all geographic areas. Following this month's discussion a round-up the principle markets will follow in the November issue of Industrial Minerals

Titanium dioxide pigments—focus on production

45 A continuation of a series of articles on the World's titanium minerals industry and its markets (which began in IM July'82) takes a took at world producers of titanium dioxide pigment—an industry which consumes about 85% of total titanium mineral output

United Kingdom Mineral statistics

53 UK industrial mineral import and export tonnage statistics for the first six months of 1982 The figures are compared against the corresponding complete year of 1980—due to the 1981 figures still being unavailable

Modern aerial ropeways and the environment

58

59 Freight markets for both dry cargo and oil tanker tonnage have continued to remain depressed. As shipowner looked for any signs of a market upturn, likely future Soviet grain purchases were a major talking point

NOVEMBER 1982

Energy and the US Portland Cement indurstry

31 Since 1972 the detrandns for strict energy conservation measures due to high fuel price and more recently worsening economic conditions, appear to have been successfully met by the US cement industry This article describes how the new efficient plants and the retiring of old ones has enabled significant reductions in total energy requirements and energy consumption per ton of output to be made

'Polcal'-an economical process for calcining magnesium hydrate

37 Of particular relevance to the theme of this years Industrial Minerals Annual Seminar is this paper by H.G. Schulte of Krupp Polysius on the development of a process for calcining Mg (OH)*. The process is characterised by its high energy efficiency, simple process technology, and being very stable in operation

Sulphur—pyrites set to return?

49 With the long term prices for sulphur expected to increase as a result of brimstone demand exceeding production, the use of pyrites as a feedstock for sulphuric acid production Is set to make comeback—especially in northern Europe and the Mediterranean. This article reviews both brimstone and pyrites production worldwide

Bentonite—in the pit of recession

67 Following last month's review of word bentonite production this article reports on current market conditions and indicates that bentonite consumption levels in most areas of the world are currently suffering in the lace of reduced demand

South African mineral statistics 1981

80 A statistical review of the production, imports and 'exports of industrial minerals In South Africa in 1981