



PUBLICATIONS ON OCEAN DEVELOPMENT

DEEPSEA MINING AND THE LAW OF THE SEA

A. M. Post

MARTINUS NIJHOFF PUBLISHERS

Deepsea Mining and the Law of the Sea

ALEXANDRA MERLE POST

1983 **MARTINUS NIJHOFF PUBLISHERS**
a member of the KLUWER ACADEMIC PUBLISHERS GROUP
THE HAGUE / BOSTON / LANCASTER



Distributors

for the United States and Canada: Kluwer Boston, Inc., 190 Old Derby Street, Hingham, MA 02043, USA

for all other countries: Kluwer Academic Publishers Group, Distribution Center, P.O.Box 322, 3300 AH Dordrecht, The Netherlands

Library of Congress Cataloging in Publication Data

Library of Congress Cataloging in Publication Data

Post, Alexandra Merle.

Deepsea mining and the law of the sea.

(Publications on ocean development ; v. 8)

Includes index.

1. Ocean mining. 2. Maritime law. I. Title.

II. Series.

TN291.5.P67 1983 333.8'5 82-12559

ISBN 90-247-3049-X

ISBN 90-247-3049-x (this volume)

ISBN 90-247-2616-6 (series)

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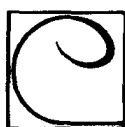
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Martinus Nijhoff Publishers, P.O. Box 566, 2501 CN The Hague, The Netherlands.

PRINTED IN THE NETHERLANDS

DEEPSEA MINING AND THE LAW OF THE SEA



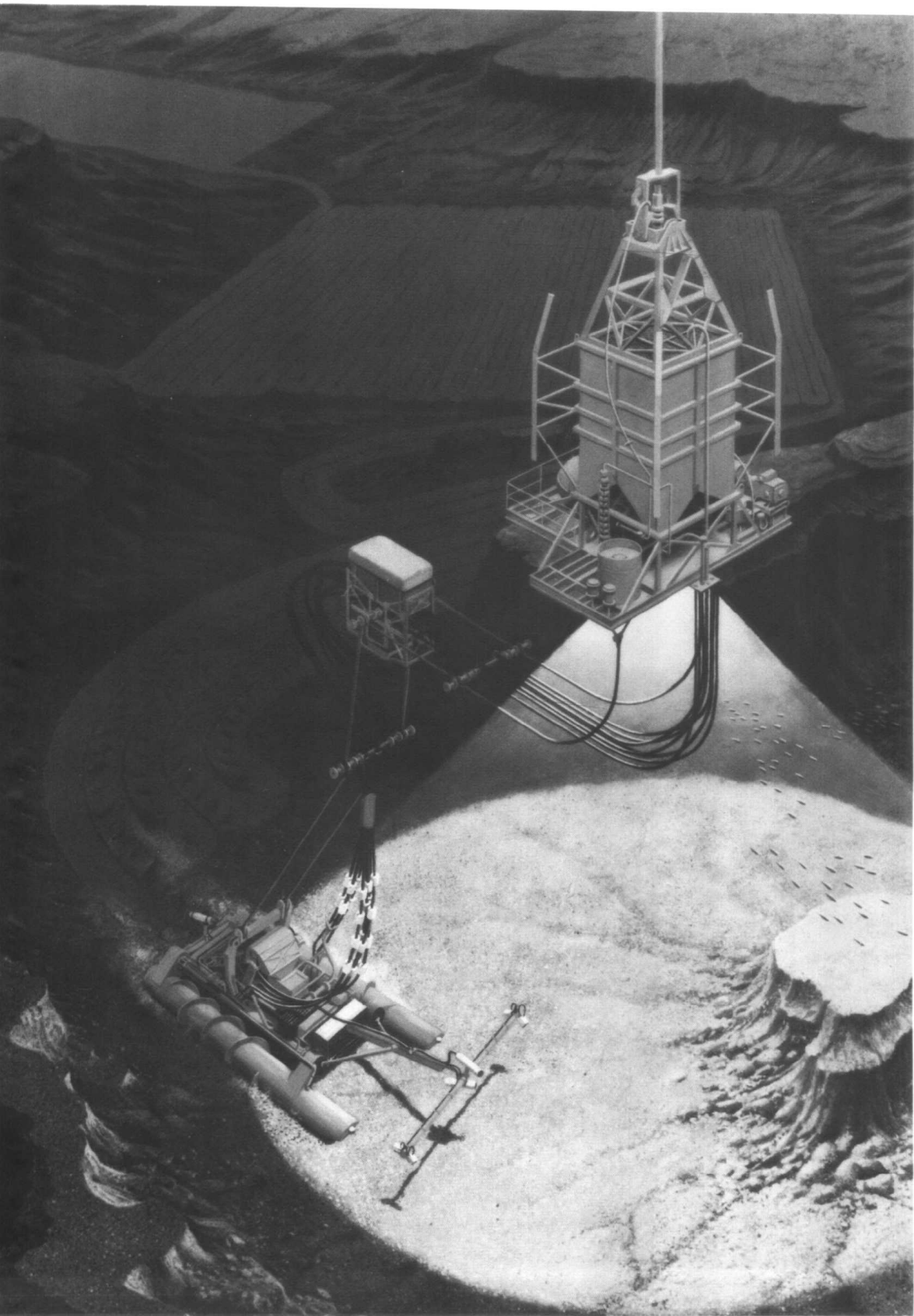
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Frontispiece: OMCO nodule collection system.

Source: Collection system patented by Conrad Welling (Lockheed) for Ocean Minerals Company of Mountain View, Calif., U.S.A.

Preface

The growing saliency of the seas and especially of ocean mining can be attributed to several factors. First, in recent decades, sea use has increased exponentially. For example, through technical developments such as the large-scale trawler and offshore fish factories, the world fish catch increased by 40% from 1965 to 1973 alone, threatening fish species and important domestic industries alike. In the same time period, total shipping tonnage almost doubled from 147 to 306 gross tons per year, causing serious congestion problems and accidents. In addition, oil recovery is moving farther and farther out to sea. Over 30 countries and 140 firms are exploring for offshore oil and gas. Offshore drilling now occurs in depths greater than 1,000 meters, compared to 100 meters in 1968. New developments in military hydrospace technology have also occurred, including small highly maneuverable submersibles (bathyspheres), buoy networks, spacecraft observation instruments, ultrastable floating platforms, unmanned vehicles, and sonar tracking and sonar positioning instruments. These new naval technologies have direct applications to civilian uses.

Furthermore, because all nations have some sort of access to the sea, and because sea resources have been traditionally abundant and unsecurable, or incapable of being fenced off, ocean resources are claimed under the freedom of the seas principle to belong alternatively to no one (*res nullius*), or to everyone (*res communis*). Since 1967, the seas beyond national territory have been claimed common territory — or the common heritage of mankind — in which everyone has a stake and a concern.

However, due to the increasing use of ocean space, the basic precepts of international sea law are being challenged seriously for the first time. Due to advances in off- and onshore technology, it is now possible to secure large areas of ocean space far beyond the 3-mile, cannon-shot territorial sea. And because at least 90% of identified oil, non-fuel mineral, and living ocean resources are located in, on or above submerged land extensions called continental shelves, the securing of these areas by coastal states defies the historical concept of

access by all nations and peoples to the abundant regenerating resources of the sea. We are currently witnessing one of the greatest expansions of national sovereignty in human history.

What is left? In that area beyond national control called the high sea there is one major seizable and marketable economic resource that has been discovered to date: polymetallic nodules growing on the ocean floors at the fast pace of 1 millimeter every thousand years, which is calculated to be more than the growth in human consumption of ocean mining minerals (nickel, cobalt, copper, manganese, iron, molybdenum, and trace elements of other minerals).

And nodules are everywhere, not only in the deepsea areas, but also within national sea jurisdictions. However, the original superabundance of nodules predicted by Mero in 1965 (1,660 billion tons in the Pacific; 10.8 kg of nodules per m^2) is now conservatively assessed by the French mining group AFERNOD to be only 100 billion tons (3.5 kg per m^2). It would seem according to this much more modest estimate that there are enough nodules for 33,333 (3 mn. tpy) nodule mining project years. Polymetallic nodules, however, occur only infrequently in concentrations that can be defined as economically feasible, i.e., 10 kg per m^2 with combined ore content of 2.6% nickel, copper and cobalt. In terms of sufficient concentration, according to AFERNOD, there are only an estimated 1 billion tons of nodules that are worthy of exploitation. With an efficiency rate of 20%, 200 million tons of nodules could be ultimately recovered, or enough for sixty-seven mining project years, or approximately six sites covering 50,000 km^2 of rough terrain each. There are already six private mining consortia. If there are no new operators (including international Authority ones) and if the above estimates are accurate, then each mining group would invest US \$1 billion or more to recover some 66,000 pounds of metal in 11 years. This is absurd.

However, ocean mining technology continues to be developed and has been tested in the pilot phase. But due to the high costs of entry coupled with expanding competition from land-based sources — especially for nickel — the present economic outlook for nodule mining is dim, except, perhaps in the very long term when expanding world minerals consumption would outstrip production capacity. Furthermore, the absence of a formalized legal order for ocean mining on the high seas augments political risk, the potential costs of which have already stymied investments. Beyond the prestige associated with the requirements of specialized technologies, a certain momentum is created by the desire to recoup developments costs reaching hundreds of millions of dollars. But large-scale projects are not undertaken simply to recover investment.

We must look elsewhere for the motivation for undertaking ocean mining. One of the major problems with the world minerals markets is not supply, but the location of free world supply in areas of political instability — primarily

the southern one-third of Africa. Moreover, through international economic order building, developing countries are attempting to augment their control over international market channels. The overriding problem thus remains political risk.

The first part of this study analyzes the salient features and risks involved in each of the various aspects or parameters of ocean mining. One method for reducing political risk, currently being finalized amongst ocean mining technology states, is an interlocking or 'reciprocating' system of national seabed mining laws reinforced by bilateral treaties.

In the second part of the study, another method for dealing with political uncertainty is considered: the construction through negotiation of an international seabed regime as part of a multilateral law of the sea treaty. Incorporated is an international seabed authority that would serve both as a regulating agency and an operating enterprise. When ratified, this multilateral regime is to take the place of reciprocating laws.

Since 1973, however, treaty negotiations have been obstructed by a schism of interests between nations producing ocean mining technology on the one hand, and developing nations wishing to control nodule recovery in the high seas on the other. The diminishing of this adversary relationship and thus of political risk is essential to the ultimate success of ocean mining. It is necessary to understand the conflicts and contradictions underlying this relationship in order to achieve viable solutions. In the last chapters of this book, it is thus inquired how the structuring of treaty provisions for ocean mining exploitation rights, resource policy and finance can increase political covariance and decrease political risk so that the prospects for ocean mining may be enhanced.

Acknowledgements

Very special thanks are due for comments and review to Roderick Ogley, University of Sussex, to Wolfgang Graf Vitzthum of the University of Tübingen, to Fabrizio Bastianelli of ENI, and to H.A. Tonino of Occidental Financial Services; and for illustrations to ed Dangler of Ocean Minerals Company and Hans Schreiber of Metallgesellschaft AG.

Acknowledgement and thanks are also due to several persons whose comments and contributions were critical to this study: Peter-Cornelius Mayer-Tasch, Peter Opitz and Manfred Holler of the University of Munich; Arvid Pardo and Robert Friedheim, University of Southern California; Elisabeth Mann Borgese, University of Halifax; Norton Ginsberg, University of Chicago; David Ross and Per Wijkman, Wood Hole Oceanographic Institution; John E. Flipse, Texas A&M; Conrad Welling, Lockheed Corporation; Jeff Amsbaugh, Deepsea Mining Ventures; Alain Godefroid of Union Minière; Paul Peters, Royal Dutch Shell; Keith O'Brien, INCO Corp.; Udo Boin, Metallgesellschaft GmbH; Dan Nyhart and Joel Clark of the Massachusetts Institute of Technology; Bernard Reddy and John Black of Charles River Associates; Steve Tucker and Robert von Pagenhardt of the Monterey Naval Postgraduate School; Bernardo Zuleta, Wolfgang Gluschke and Thomas Waelde of the United Nations; St. Munadjat Danusaputro of the Indonesian Dept. of Justice, Rebecca Wright of Dikstein, Shapiro and Morin; Terry K. Teramura and Yusuke Nishina of Mitsubishi Corporation; Tetsuya Senga of KEIDANREN; W.R. Moran of Union Molycorp; Karen Greenberg, Bayerische Vereinsbank; Charles H. van Horne, Bankers Trust Company; and for documents and other information to the Ocean Education Project, and especially to Pierre Comte at the Information Service, United Nations, Geneva. Especially helpful was Julia Rechenberg, who provided logistical support.

Opinions expressed are those of the author and are not necessarily shared by those consulted.

List of abbreviations

AFERNOD	Association française pour l'étude et la recherche des nodule polymétalliques (French seabed mining group)
AMR	Arbeitsgemeinschaft meerestechnischgewinnbare Rohstoffe (West German seabed mining group)
APC	African, Pacific and Caribbean states participating in the Lomé Convention
Art.	Article
ASEAN	Association of Southeast Asian Nations
bn.	billion (1000 million)
CIAO	Convention on International Civil Action
CIPEC	International Council of Copper Exporting Countries
CLB	Continuous Line Bucket Nodule Retrieval System
CNEXCO	Centre National pour l'Exploitation des Océans
COMEX	Commodities Exchange, New York
DC	Developed Countries
DOMES	United States Deep Ocean Mining Environmental Study
EC	European Community (Common Market)
ECOSOC	United Nations Economic and Social Council
EEC	Exclusive Economic Zone
EFTA	European Free Trade Association
EIS	Environmental Impact Statement
ENI	Ente Nazionale Idrocarburi
FAO	United Nations Food and Agricultural Organization
FOB	Free on Board
GDS	Geographically Disadvantaged State
GNP	Gross National Product
Group of 77	Lobby of Developing Countries in the United Nations Conference on the Law of the Sea
GSA	United States Government Services Administration
IADB	Interamerican Development Bank

IAEA	International Atomic Energy Agency
IATA	International Air and Transport Association
IBA	International Bauxite Association (Bauxite Cartel)
IBRD	International Bank for Reconstruction and Development (World Bank)
ICSPRO	Intersecretariat Committee on Scientific Programs Relating to Oceanography
ICNT	Informal Composite Negotiating Text (Third draft treaty on the Law of the Sea)
IFC	International Finance Corporation (World Bank)
IMCO	International Maritime Consultative Organization
IMF	International Monetary Fund (World Bank Group)
INCO	International Nickel Corporation
INMARSAT	International Maritime Satellite Organization
INTELSAT	International Telecommunications Satellite Organization
ISBA	International Seabed Authority
ISNT	Informal Single Negotiating Text (First draft treaty on the Law of the Sea)
ITC	International Tin Council (Tin Cartel)
ITU	International Telegraph Union
LAFTA	Latin American Free Trade Association
LBP	Land-based Producer (of minerals found in manganese nodules)
LDC	Less Developed Country
LLDC	Least Developed Country
LME	London Metal Exchange
LOS	Law of the Sea
m.	meter
MEDI	Marine Environment Data Information
MMC	Multinational Mineral Corporation
mn.	million
m.t.	metric ton
NASA	National Aeronautic and Space Agency
NIC	Newly Industrialized Country
NG	Negotiating Group
NGO	Nongovernmental Organization
NIEO	New International Economic Order
NIPO	New International Political Order
NOAA	United Nations National Oceanographic and Atmospheric Administration
OAU	Organization for African Unity
OECD	Organization for Economic and Cooperative Development

OMA	Ocean Mining Associates (Deepsea Ventures Mining Group)
OMCO	Ocean Minerals Company (Lockheed Seabed Mining Group)
OMI	Ocean Management, Inc. (INCO Seabed Mining Group)
OPEC	Organization of Petroleum Exporting Countries
p.a.	per annum
PIM	Pacem in Maribus
RSNT	Revised Single Negotiating Text (Second draft treaty on the Law of the Sea)
SCOR	Scientific Community for Oceanographic Research
SDR	Special Drawing Right (international monetary unit of the World Bank)
s.m.	sea or nautical mile = 1,852 km (U.S.)
SMN/SLN	Société Métallurgique Nouvelle/Société Le Nickel
STABEX	Export Stabilization Scheme of the Lomé Convention
t/ton	ton (short ton = 2,000 pounds; long ton = 2,240 pounds)
tonne	metric ton = 1,000 kilograms
tpy	tons per year
UN	United Nations
UNCLOS	United Nations Conference on the Law of the Sea
UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNGA	United Nations General Assembly
UNIDO	United Nations Industrial Development Organization
UNITAR	United Nations Institute for Training and Research
WHO	World Health Organization
WMO	World Meteorological Organization
w.t.	wet ton

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