

A New World of

# Materials: Renewable and Nonrenewable Resources

Edited by  
Philip H. Abelson  
and Allen L. Hammond

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An important exploration of the new set of realities affecting the flow of raw materials—a probing of the increasing demand for them and the obstacles to their discovery and production.

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considerations on materials production and use, the perspectives in needs and supplies of resources, high technology materials, and renewable and reusable resources. They examine those materials issues most vital to industrial economics, the future of materials research, and the effect of the new realities on the quality of life.

The result is rare and refreshing—a detailed study which yields an identification of critical problems as well as the authors' consensus that, in principle, these problems are solvable. This overview must be studied by those involved in materials problems today, by those reaching for answers, and by all of us who will benefit from the solutions. Don't miss this vital collection of papers. A brief sampling of the compendium's contents reveals the importance of studying and dealing with these new realities.

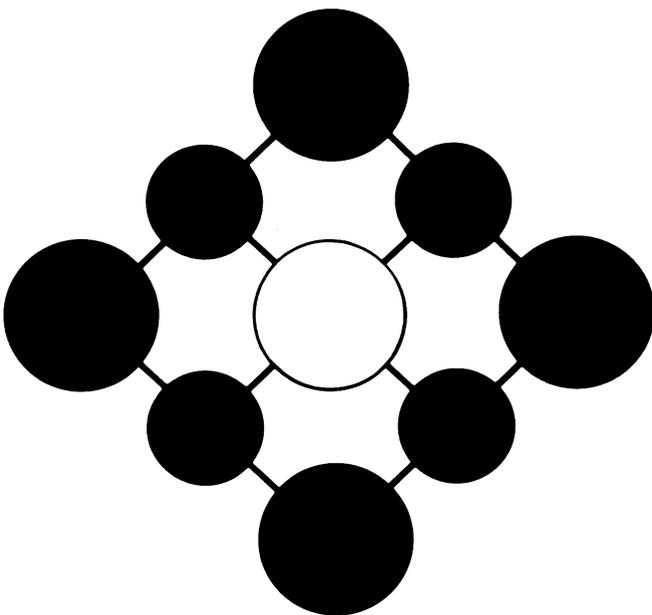
Papers in the Compendium include  
"Materials: Some Recent Trends and Issues"—Hans H. Landsberg  
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A reliable flow of raw materials has been the fundamental factor in the health of the American economy and of the economies of all other industrial nations. While economic growth has begun once again in the United States and, more slowly, in Europe, it is predicated on a whole new reality of materials dramatically different from that of a decade ago. No longer can an abundance of basic commodities be taken for granted, and no longer can the supplying of any commodity be assumed continual. We have learned that the flow of existing materials is vulnerable to interruption by financial shifts, increased nationalization of foreign-owned properties, restriction of access to resources on public lands, and a host of other considerations born of the 1970's. In the development of substitute materials we must hurdle these obstacles and also adhere to new regulations for environmental protection.

In February 1976 *Science* devoted an entire issue to a critical in-depth look at these and related problems. The special issue contained 24 papers written by some of the country's foremost authorities. Thirteen more articles created by other, equally distinguished authors were added to the list, and the total is being published as a compendium to provide a meticulous look at *Materials: Renewable and Nonrenewable Resources*.

The compendium's authors probe the implications of national policy, energy constraints, environmental

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# Science and Change: Hopes and Dilemmas

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... weather modification ...  
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science ... right to die.

## 2. Physical and Mathematical Sciences

... high-energy physics ...  
solar physics ... science and  
mathematics ... software ...  
remote sensing ... synchro-  
tron radiation ... laser chem-  
istry.

## 3. Energy

... wind energy ... geophysi-  
cal exploration ... solar ener-  
gy ... renewable resources  
... nuclear energy ... nucle-  
ar power and weapons ... fu-  
sion.

## 4. Resource Policy

... recreational use ... min-  
eral policy ... conservation  
... Rocky Mountain devel-  
opment ... Indian lands ...  
energy resource development  
... public domains manage-  
ment.

## 5. Biological Science

... herbivore-plant inter-  
actions ... plant reactions to  
environmental stress ... polar  
research ... cell organelles  
... bioscience information  
... mathematical questions  
... theoretical biology.

## 6. Agriculture and Ecology

... biology and agriculture in  
China ... food and pest losses  
... coyotes and meat produc-  
tion ... wildlife survival ...  
renewable resource manage-  
ment ... high-altitude geoecol-  
ogy.

## 7. Environment

... environmental problems  
... benefit-cost analysis ...  
nature and government ... ur-  
ban environment ... Denver  
air pollution ... regional air  
pollution.

## 8. Arid Lands

... American droughts ...  
desert dust ... reclamation of  
arid lands ... management of  
dry lands—past and present.

## 9. Medicine and Health

... rural area services ...  
orofacial motor control ... be-  
havioral research and training  
... organ transplantation and  
tumor immunity ... financial  
incentives ... medical deci-  
sion making ... pharma-  
cokinetics ... psychotropic  
drugs ... health goals and in-  
dicators ... perinatal factors  
... use of fluorides.

## 10. Anthropology

... man versus ape ... devel-  
opment of primates ... differ-  
ences in human nutritional re-  
quirements ... ethnoscience  
... migration in America ...  
fertility control programs ...  
folklore ... American moun-  
tain people.

## 11. Technological Implications

... research in developing  
countries ... appropriate tech-  
nology ... communication  
without paper ... hand-held  
calculators ... building venti-

lation ... remote sensing from  
space.

## 12. Behavioral Science

... psychoanalytic research  
... creativity ... individual  
differences ... screening as-  
sessment ... early inter-  
vention ... cybernetic ap-  
proach ... families ... en-  
counter groups ... somatosen-  
sory experience ... violence.

## 13. Education

... minorities, women, and  
handicapped ... multi-  
disciplinary training ... bio-  
logical curricula ... metric  
changeover ... assessment of  
educational progress ... inter-  
face with engineering.

## 14. Economic and Social Sciences

... U.S. economic growth  
... institutional limit to  
growth ... interdisciplinary  
research ... technological  
change ... environmental is-  
sues ... covert discrimination.

## 15. Science and Public Policy

... federal funds ... informa-  
tion policy ... public problem-  
solving ... policy decisions  
... social science information  
in Congress ... scientific  
knowledge and public policy  
... energy analysis ... con-  
gressional fellows.

## 16. History and Philosophy of Science

... technology in retrospect  
... Martian centenaries—  
moons and canals ... re-  
ligious movements in America  
... Isaac Newton ... human  
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cial theory.



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For further details, see the 5 No-  
vember issue of *Science*.