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**Figure 1:** Fractionation of end labeled DNA markers on 3mm thick 0.8% agarose by the VAGE apparatus and transfer to Duralon—UV™ membranes using the PosiBlot pressure blottter.
A. Ethidium stained gel showing high resolution.
B. Same gel after pressure blotting.
C. Autoradiogram of membrane after pressure transfer.
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**Book Reviews in Science**

Publishers send about 4000 scholarly books a year to *Science* in the hope of having them reviewed. Their success rate is only about 6%. Half the books are set aside because they are devoted to highly specialized topics or for other reasons. The difficult choices from among the remainder are made after consultation with advisers selected from a list of about 500. A consideration that enters final decisions stems from a mission to help balance the overall content of *Science*. Most of the magazine is devoted to exciting news especially relevant to natural scientists and administrators. The book reviews provide sustenance for social scientists. They also furnish food for those scientists, engineers, and physicians who choose occasionally to engage in broader contemplative scholarship.

The tasks of conducting the Book Review section fall on two staff editors. They love books and enjoy interacting by telephone with the advisers. These consultants are usually highly knowledgeable about the subject matter and the author of the book. Conversations with advisers reveal the degree of enthusiasm or antipathy for the book and suggestions for appropriate reviewers. Often a number of advisers are consulted about a book, and it is thus possible to evaluate the advisers.

In choosing reviewers an effort is made to identify up-and-coming people. They are usually diligent and eager. People with established names are sometimes careless. Once a person agrees to review a book, a set of guidelines containing points to consider is sent. For instance, “It should be evident from your review why the book merits attention in a selective journal,” and “We cannot undertake to publish reviews whose only purpose is to warn readers against the book.” The finished review should give the reader a good idea of the substance of the book, the author’s purpose in writing it, and your estimate of his or her success in achieving that purpose.” In dealing with symposium volumes, reviewers are instructed to avoid simply listing papers and contributors. Instead they are asked to spotlight the papers or ideas they find most stimulating.

This issue of *Science* contains a special annual Book Review section. A listing of the reviews provides a cross section of the kinds of books treated during the year. Different readers will make various judgments on the level of interest stimulated and significance of the reviews. Three of the reviews were of special interest to me. Taken together they provide a vivid example of the great changes that have occurred during this century in technology, public health, and the status of women. A book entitled *Electrifying America* provides a glimpse of the enormous difference between the days before electricity and events following its introduction. The introduction of electricity profoundly affected life in and structure of cities, the layout of and work in factories, and life and chores in the home. It was especially helpful to women. It broadened their job opportunities in factory work previously dependent on brute strength. Electrical appliances greatly eased housework. For example, the clothes washer superseded hard work on the washtub. Electric lighting, replacing the kerosene lamp, made evening reading pleasant. Most readers may not be familiar with the impact of the electric streetcar, which in its day shaped the evolution of cities. Books entitled *Fatal Years* and *Save the Babies* tell of the time when infant mortality in the United States was greater than that of the less developed world today. The two volumes provide a “means of understanding one of the major achievements of the 20th century United States, lowering the death rate of the young.” The review of a book entitled *Gender and Higher Education in the Progressive Era* provides further reminders of the enormous changes that have occurred in the status of women. In the early decades of this century women were barely tolerated as students at universities. As an example of their status at the University of California, they were prohibited from sitting on certain benches and using certain paths reserved for men.

One of the useful features of the annual book issue is a compilation and naming of the titles covered in the preceding 51 issues. All together, 238 books were treated. Of these the subject of 43 was physical sciences; 70 biological sciences; 125 social science, science policy, history of science, and general. For those who might wish to engage in contemplative scholarship, an inviting buffet has been prepared from a selection of the most appetizing of 4000 volumes.—*PHILIP H. ABBEISON*
The Human Frontier Science Program (HFSP) aims to promote through international collaboration, basic research to elucidate the complex mechanisms of living organisms, including man. Applications are invited for the support of research grants, fellowships and workshops for research aimed at the elucidation of biological functions at the molecular level and brain functions. The program distributed about $12 m on new awards this year and aims to spend a similar amount in 1992.

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* The eligible countries for the current year are Canada, France, Germany, Italy, Japan, Switzerland U.K., U.S.A and non-summit EC member countries. (Details in the guidebook)

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smelter emissions of arsenic decades earlier (9). Similarly, a subsequent case-control study (10) showed a relative risk of 2.0 for lung cancer among men who had lived near an arsenic-emitting smelter in Sweden which could not be explained by smoking habits or occupational background. Epidemiologic studies have also found associations between cancer and other nonoccupational exposures to carcinogens, including ambient air pollution, environmental tobacco smoke, and asbestos (11). Moreover, epidemiologic studies do not suggest a threshold for carcinogens. On the contrary, an increasing risk with increasing exposure is generally seen [as, for example, with arsenic, asbestos, uranium mining, coke oven emissions, and cigarette smoking (12, 13)].

There are both theoretical and biological arguments for not assuming that thresholds exist for carcinogens (14). In actuality, dose-response curves are difficult to ascertain, especially at low levels of exposure. Furthermore, combined exposures may lead to cumulative or synergistic effects (15). Hence, U.S. regulatory agencies use linear, no-threshold models unless there is convincing scientific evidence that they are incorrect in individual cases. Recent studies have revealed not only significant background levels of molecular damage from environmental carcinogens but also significant genotoxic and other biologic effects of low-level occupational and ambient exposures to carcinogens such as polycyclic aromatic hydrocarbons and ethylene oxide (16, 17). In the case of ethylene oxide, worker exposures were generally below the current occupational health standard (17).

7) Is it true that current regulatory guidelines do not use a balanced approach?

The depiction by Ames and Gold of a current national policy that “attempts to protect the public” at 10−6 hypothetical, worst case risk . . . from industrial pollution . . . whatever the cost” is erroneous. Indeed, most major statutes explicitly require agencies to take the costs of regulation into account (18).

We have consistently argued for a balanced approach to the problem of human cancer prevention. Risks from both natural and synthetic carcinogens are of concern. The appropriate policy for natural carcinogens is to test suspect constituents and to advise and educate the public about dietary factors that may be either hazardous or protective. Indeed, the American Cancer Society, the National Cancer Institute, and other organizations are already doing this.

The policy for synthetic carcinogens is testing and regulation of those that pose significant risks, with use of the most cost-effective measures to reduce human exposure. This, in fact, is also the current policy of U.S. regulatory agencies (18). Ignoring the potential health hazards of synthetic carcinogens is antithetical to current preventive public health policies in the United States and many other countries.

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result from the latter because of their stimulation of the activity of peroxisomes, which elevates metabolism of oxygen to products that can damage DNA (18). In a similar manner, the long-term induction of P450IA1 by dioxin would alter the capacity of the tissue to activate other environmental carcinogens to genotoxic products. However, the incidental exposure of laboratory animals to such carcinogens would be expected to be low and may not be sufficient to account for the carcinogenicity of dioxin in laboratory testing.

Alternatively, nongenotoxic carcinogens that are also inducers of P450's could act via their activation of transcription factors; these factors may adversely affect the expression of proteins that regulate cell growth and differentiation and result in a transformed phenotype (17). The complete characterization of the dioxin receptor could reveal how, where, and when these ligand-activated transcription factors function. This will not only expand our understanding of how our capacity to metabolize foreign compounds is regulated, but may also identify critical mechanisms in environmental carcinogenesis.

REFERENCES AND NOTES
have demonstrated, the study of institutions is inseparable from a study of the values that guide human action and decision-making; for values legitimate actions taken by individuals and societies alike. Robert Marc Friedman in his essay on the Nobel Prize and David Edge in his on competition in modern science discuss some of the values motivating scientific activity for the individual. Yet as the essays by Elisabeth Crawford and John Kribe make clear, the system of values legitimating the scientific enterprise has become increasingly complex in the modern world. Crawford demonstrates how international science has become bound up with global economic and foreign policies, and Kribe examines the intersection of scientific and state interests in the British decision to join CERN.

Values that justify activities are often expressed in ideologies, which according to Karl Mannheim are related to utopias. According to Mannheim, ideologies, like utopias, are situationally transcendent ways of achieving legitimation; but unlike utopias, ideologies do not seek to burst through the existing order but rather often use it for their own ends. The stability of most university systems, the subject of the contributions by Matt Kluge and J. B. Morrell, can be viewed in these terms. Most universities harbor ideologies compatible with the interests of higher powers, such as the state. As Morrell points out by invoking the ideas of Antonio Gramsci, institutions, including those of science, can be viewed as vehicles for achieving ideological control.

B. J. T. Dobbs considers alchemy to be strategic in the evolution of the social value of science; for alchemy's ideology seeking redemption and perfection of both matter and humanity melded with society's millennial expectations of reformation and salvation. This coalescence, Dobbs argues, was important not only for the growth of secret societies preceding the growth of scientific academies, but also for the evolution of a secretive millenarianism into a public and social utilitarianism. Lorraine Daston follows through the transformation of another ideology, that of scientific cosmopolitanism, into scientific nationalism in France. Under Napoleon's guidance, French scientists' desire for honor and fame was satisfied by the creation of traditionally oriented rituals and protocols similar to those of France's now moribund aristocracy. Daston's story of French scientists, like that of Stendhal's Julian Sorel in The Red and the Black, demonstrates how value-laden symbols, especially of the aristocracy, could be manipulated and used to the point where they became signs lacking meaningful signification. One wonders if French scientists' obsession with

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Social Impressions

Interpersonal Perception. Edward E. Jones.
Freeman, New York, 1990. xvi, 313 pp., illus.
$29.95; paper, $18.95. A Series of Books in
Psychology.

"There is more to seeing," the aphorism

goes, "than meets the eyeball." Edward E.

Jones's Interpersonal Perception seeks to show

us how much more there is, particularly

when what we are seeing is other people. It

is a fascinating volume, one that seems

simultaneously aimed at three audiences.

For each, it should prove a different book;

for each, it should prove a valuable book.

A first audience for Jones is the intelligent

layperson. For this reader, Interpersonal

Perception is designed as an introduction to

a field of research that has become one of the

half-dozen major topics defining the field of

social psychology in recent years. The cen-

tral question that Jones's book addresses is

how we come to know, or think we know,

what another person is really like. When we

perceive another person, we typically come

away not just with an idea of that person's

size, shape, color, and the like; we also,

almost inevitably, have beliefs about what

that person is like inside—beliefs about that

person's underlying intentions, dispositions,

preferences, and attributes.

For this first audience, the very fact that

we automatically reach such conclusions and

the processes by which we do so are the

subjects of Jones's selective survey of this

field. Although Jones does describe the ac-

tual research from which his conclusions
dervie in some detail, this work is presented

in the form of a narrative designed to be

accessible to readers without strong back-
grounds in psychology. Jones tells the story

of his field with charm and grace.

A second audience for this volume is

Jones's professional colleagues. For this

group, the book serves as an intellectual

autobiography, presenting the history of

Jones's own central involvement in this field

of research (indeed, in making this a signif-

icant "field of research") for more than 40

years. Although, as Jones himself notes, he

was not actually "there at the beginning," he

was there close to it. Both Jones's own

career and the current book begin with the

1957 Harvard symposium that first led to

the recognition of a coherent and substantial

field of social psychology concerned with

"person perception."

For this second audience, the heart of

Jones's account is the progression of his own

seminal work and its links to other impor-
tant landmarks in the field. The result is a

portrait of the artist that makes clear the

coherence underlying Jones's many distinc-
tive research endeavors in a way individual

research accounts typically do not. Three

characteristics of this portrait, three recur-

rent themes, stand out.

First, Jones chose from the start to define

the central question of person perception as

one of understanding intentional action and

the inferences people draw about underlying

dispositions, attitudes, and capabilities from

those actions—a question that serves to fo-
cus attention on the uniquely social aspects

of interpersonal perception. Hence, the cor-

respondence between overt actions and con-
vert characteristics necessarily becomes a

central theoretical issue. Second, Jones also

focused quite early on the manner in which

social perception processes are deeply de-

pendent on individuals' goals in particular

settings. Thus, Jones was one of the first to

highlight the sometimes powerful conflict

between people's desire to perceive their

social world accurately and their desire to

perceive their social world as they would like

to be or in ways that make them feel good

about themselves—the tension between

effective reality-testing and successful wish-

fulfillment. Third, Jones also chose from the

outset to stress the interpersonal character

of social perception. Interpersonal perception

is necessarily a process that takes place pri-

marily in contexts in which individuals are

simultaneously perceivers of others and ob-
jects of others' perceptions. In such an ac-

count, potentially competing motives and

the manner in which we cope with such

conflicts ourselves and analyze them in oth-

ers assume importance.

From these three central choices comes

the rich array of problems that Jones has

addressed over the years and discusses in this

volume. These include the study of ingrate-

ation and its surprisingly powerful effects

even on forewarned targets, research on the

proverbial "rocky [inferential] road" from

actions to dispositions, analyses of the dif-

ferent goals and perspectives of "actors"

versus "observers," and work on the psych-

ological impact of stigma. Jones is a master

of the technique of moving back and forth be-

tween the study of phenomena of interest

that imply new processes and the study of pro-

cesses of interest that imply new phenomena.

Finally, a third potential audience for this

volume is the beginning student in psychol-

ogy. For this last group, Jones's book can be

seen as a loving exposition by example of the

art of classical experimental social psycholo-

gy. The book is filled with excellent illustra-

tions of experiments that "tell a story" about

people's reactions to experimental situations

carefully crafted to involve participants in

meaningful social interactions, albeit within

a laboratory context. In an era in which

social psychologists all too frequently ply

their trade "hypothetically," assessing par-

ticipants' reactions to verbal descriptions

of persons and situations, Jones's insistence

on the study of real people in real social in-

teractions and his focus on the uniquely social

and interactive nature of interpersonal per-

ception provide a refreshing reminder of the

power of the classic experimental approach

to social psychology.

MARK R. LEPPE
Department of Psychology,
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Stanford, CA 94305

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18 May 1990 Through 10 May 1991

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814
American Science Policy Since World War II, B. L.
R. Smith, 11 Jan. 1991, 210
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P. J. T. Morris, 18 May 1990, 892
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This report presents the conclusions and recommendations of the AAAS Project on Liberal Education and the Sciences. It discusses the level of scientific understanding necessary for optimal participation in 21st century life and the type of undergraduate science education required to achieve such a level of understanding. In addition, this volume supports the idea that science is a liberal art and should be taught as such. It recommends goals for liberal education in the sciences, outlining the multidisciplinary curriculum and teaching strategies necessary to achieve them.

An appendix includes descriptions of existing courses and programs, offered at institutions nationwide, that are consistent with the project's recommendations. This report is of particular interest to undergraduate science educators as well as to all people committed to quality science education.

**Topics include:** Agenda for action; faculty responsibility; resource commitment; teaching materials and technologies; assessment instruments; the nature of scientific explanation; historical context; pedagogical techniques; integrating multidisciplinary content; programmatic approaches to liberal education in science; and liberal education for special groups such as future science teachers, the underrepresented in science, people with disabilities, and science and engineering majors.

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