

4S Society for Social Studies of Science

Winter 1978

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4S Society for Social Studies of Science

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4S: PROGRESS AND PROSPECTS

Editors' Note

This first issue of 1978 is devoted primarily to bringing us up to date with journal publications in the field of social studies of science (the next issue will do the same for books and monographs). We hope that the Newsletter can fulfill the important function of information transfer (both formal and informal) which is so needed in a highly interdisciplinary field such as ours. YOU can help in this effort by sending us your "information" for inclusion in the Newsletter and, let us emphasize, by sending us your ideas on what we should be doing. This issue contains some new features (e.g., Current Contents pages and Forthcoming Publications) which continue in the tradition established by previous editorial teams, and it is hoped, will improve the information effectiveness of the Newsletter. We look forward to hearing your comments.

4S Election of Officers. The Nominations Committee (Robert McGinnis, Alexander Morin, Yakov Rabkin, Dorothy Zinberg, and chaired by President Hagstrom) has submitted the slate of candidates portrayed elsewhere in this issue for the offices of President, Secretary-Treasurer, and four Council positions. The terms of office of President Hagstrom, Secretary-Treasurer McGinnis, and Council members Jerry Gaston, Michael Moravcsik, and Dorothy Nelkin expire this year; and Nicholas Mullins seeks to be relieved of his council position at the end of the year, after having served on the Council since the Society's inception. The three candidates with the most votes will be elected to two year terms to the Council, the one with the next most votes will be elected to the remaining year of Mullins' term. The term of office of President is two years, that of Secretary-Treasurer three years.

The BALLOT appears on later pages 6-7. Please mark and detach it, then return in an envelope bearing your name and return address (this is to verify voting eligibility) to Robert McGinnis at Cornell University. THE DEADLINE FOR RECEIPT OF ALL BALLOTS IS 30 ~~JUNE~~ 1978.

July

The Third Annual Meeting of the Society for Social Studies of Science will be held at Indiana University, Bloomington, IN, on 3-5 November 1978.

The program will include invited speakers, special sessions, and contributed papers. Persons who wish to report on research in progress (15 minute presentations) or to offer full reports of research results or other scholarly contributions (30 minute presentations) should send notice of them to the 4S Referee Committee, c/o Daryl Chubin, Department of Social Sciences, Georgia Institute of Technology, Atlanta, GA 30332. The Committee will refer materials received to appropriate specialty referees. It is planned to have some parallel sessions, giving enough time for comments by designated discussants and for discussions among those attending.

There will be a session devoted to a discussion of "Varieties of Theoretical Orientations in the Social Studies of Science." Persons who wish to participate in the session or to nominate others for a panel should contact President Hagstrom (Department of Sociology, University of Wisconsin, Madison, WI 53706). Suggestions about other special sessions and invited speakers are welcomed by the Program Committee; contact President Hagstrom. Fuller details on the program will be presented in the next issue of the Newsletter.

The Local Arrangements Committee is chaired by Nicholas Mullins of the Department of Sociology, Indiana University, Bloomington, IN 47401. Details on accommodations and travel will be presented in the next issue of the 4S Newsletter.

CANDIDATE PROFILES FOR SOCIETY ELECTION

Presidential Nominees

DOROTHY NELKIN is Professor of Urban Planning and Development and of the Program on Science, Technology, and Society at Cornell University. Her interests include science and the public, and the professionalization of science. She is the author of, among other works, Science Textbook Controversies and the Politics of Equal Time (MIT Press, 1977), and of "Technology and Public Policy," in Mendelsohn, Weingart, and Whitley, eds., The Social Production of Scientific Knowledge (Reidel, 1977).

DEREK J. DE SOLLA PRICE is Professor of the History of Science and Medicine at Yale University. He did postgraduate studies in Physics and the History of Science at London and Cambridge, and his interests include topics in scientific communication, the history of science, and the history of scientific instruments. His publications include "Toward a Model for Science Indicators," in Elkana, Lederberg, Merton, Thackray, and Zuckerman, eds., Toward a Metric of Science: The Advent of Science Indicators (Wiley, 1978), and "A General Theory of Bibliometric and Other Cumulative Advantage Processes," Journal of the American Society for Information Science, September/October 1976.

Nominee for Secretary-Treasurer

LOWELL L. HARGENS is Associate Professor of Sociology at Indiana University. He did postgraduate studies in Sociology at the University of Wisconsin, and his interests include the productivity and stratification of scientists, and the organization of scientific specialties. His publications include Patterns of Scientific Research (American Sociological Association, 1975) and, with others, "The Group Structure of Cocitation Clusters," American Sociological Review, August 1977.

Council Nominees

FRANK M. ANDREWS is Professor of Psychology and Program Director in the Institute of Social Research at the University of Michigan, where he received his Ph. D. in Social Psychology. His interests include organizational factors in the performance and creativity of scientists and engineers, and social indicators of well-being. His publications include Scientists in Organizations: Productive Climates for Research and Development, with Donald Pelz (a revised and extended version of the 1966 edition has been published by the Institute for Social Research in 1976), and he is editor of and contributor to The Effectiveness of Research Units: A Study in Six Countries (Cambridge UP and UNESCO, late 1978 or early 1979).

JERRY GASTON is Professor and Chairman of Sociology at Southern Illinois University in Carbondale. He did his postgraduate studies in Sociology at Yale University, and his interests include studies of the reward system of science and international aspects of science. His publications include The Reward System of British and American Science (Wiley, 1978), and he edited, with Robert Merton, The Sociology of Science in Europe (Southern Illinois UP, 1977).

EDWIN C. LAYTON is Professor of the History of Science and Technology at the University of Minnesota. His graduate education was at UCLA, and his interests include aspects of the social history of engineering and technology. His publications include The Revolt of the Engineers: Social Responsibility and the American Engineering Profession (Case Western Reserve UP, 1971), and he is editing with W. Krohn and P. Weingart, The Dynamics of Science and Technology: Social Values, Technical Norms and Scientific Criteria in the Development of Knowledge (Reidel, 1978).

IAN I. MITROFF is Professor in the Graduate School of Business and the Departments of Information Science and Sociology at the University of Pittsburgh. He did postgraduate studies in Engineering Psychology and the Philosophy of Science at Berkeley, and he is interested in the mutual interaction of the philosophy, psychology, and sociology of science. His publications include The Subjective Side of Science: A Philosophical Inquiry into the Psychology of the Apollo Moon Scientists (Elsevier, 1974), and, with others, "On the Shoulders of the Spouses of Scientists," Social Studies of Science (August, 1977).

ALEXANDER J. MORIN is Director of the Office of Science and Society of the U.S. National Science Foundation. Educated in Economics at Harvard, he is interested in science and society and science policy-making. He was President of the Aldine Publishing Company from 1961 to 1976 and is author of Organizability of Farm Labor in the U.S. (Harvard UP, 1952).

ARNOLD THACKRAY is Professor of the History and Sociology of Science at the University of Pennsylvania. His professional interests in the history of science and technology include an interest in the history of the social studies of science. His publications include "The Industrial Revolution and the Image of Science," in a volume he edited with E. Mendelsohn, Science and Values (Humanities Press, 1974), and he is one of the editors of Toward a Metric of Science: The Advent of Science Indicators (Wiley, 1978).

PETER WEINGART is Director of the Science Studies Unit and Professor of Sociology at the University of Bielefeld, Federal Republic of Germany. He is interested in aspects of the sociology of science and science policy-making. His publications include "On a sociological theory of scientific change," in R. D. Whitley, ed., Social Processes of Scientific Development (Routledge and Kegan Paul, 1974), and he has edited two volumes in Wissenschaftssociologie for Athenaum Fischer Taschenbuch Verlag, Wissenschaftliche Entwicklung als sozialer Prozess (1972) and Determinanten Wissenschaftlicher Entwicklung (1974).

CHRISTOPHER WRIGHT is on the professional staff of the Office of Technology Assessment of the U.S. Congress. Educated in Political Science at Harvard, his interests include science and technology policy and science and public policy. With Robert Gilpin he edited Scientists and National Policy-Making (Columbia UP, 1964) and with Dixon Long Science Policy of Industrial Nations (Praeger, 1975).

4S ELECTION: BALLOT

President (vote for one):

DOROTHY NELKIN _____

DEREK J. DE SOLLA PRICE _____

Secretary-Treasurer (vote for one)

LOWELL L. HARGENS _____

Council (vote for no more than four of the following):

FRANK M. ANDREWS _____

JERRY GASTON _____

EDWIN C. LAYTON _____

IAN I. MITROFF _____

ALEXANDER J. MORIN _____

ARNOLD THACKRAY _____

PETER WEINGART _____

CHRISTOPHER WRIGHT _____

Cut along this line (or copy)

Please put your name and return address on the envelope containing this ballot. Ballots arriving without this information will not be counted. Mail to:

Professor Robert McGinnis
4S Election
SASS/Department of Sociology
Cornell University
323 Uris Hall
Ithaca, NY 14853
USA

THE DEADLINE FOR RECEIPT OF BALLOTS IS 30 JUNE 1978.

July

SEND BALLOT TO:

Professor Robert McGinnis
4S Election
SASS/Department of Sociology
Cornell University
323 Uris Hall
Ithaca, NY 14853
USA

BE SURE TO IDENTIFY YOURSELF ON THE ENVELOPE;

NOT ON THIS BALLOT

FURTHER ANALYSIS OF THE 4S MEMBERSHIP SURVEY

The diagram on the following page is the outcome of a multidimensional scaling analysis of data obtained from the 4S membership survey conducted last year (see Spring 1977 issue of Newsletter). Members were asked to select from a list (reproduced below) the three specialties which best represent the principal areas of their research interests. Each member response was converted into a set of three specialty pairs (co-selected specialties) and the frequency of occurrence of each pair was determined for all members responding to the survey. This yielded a 36 by 36 lower-half matrix which was submitted to the M-D-SCAL program of Kruskal. The two-dimensional solution is shown (stress using formula I is 0.13). The location of each specialty is indicated by its number enclosed in a circle. Caution should be exercised in interpreting this configuration because only roughly one-quarter (n=136) of the 4S membership responded to the survey. Relative locations of specialties should be regarded as approximate.

SPECIALTIES LIST

SCIENCE IN SOCIETY

- 11 - Impact of society on science and technology
- 12 - Social impact of science and technology
- 13 - Public understanding and evaluation of science
- 14 - Science education
- 15 - Science policy
- 16 - Science, technology and public policy
- 17 - Technology assessment
- 18 - Science in developing countries
- 19 - Other (specify)

SCIENCE IN HISTORY

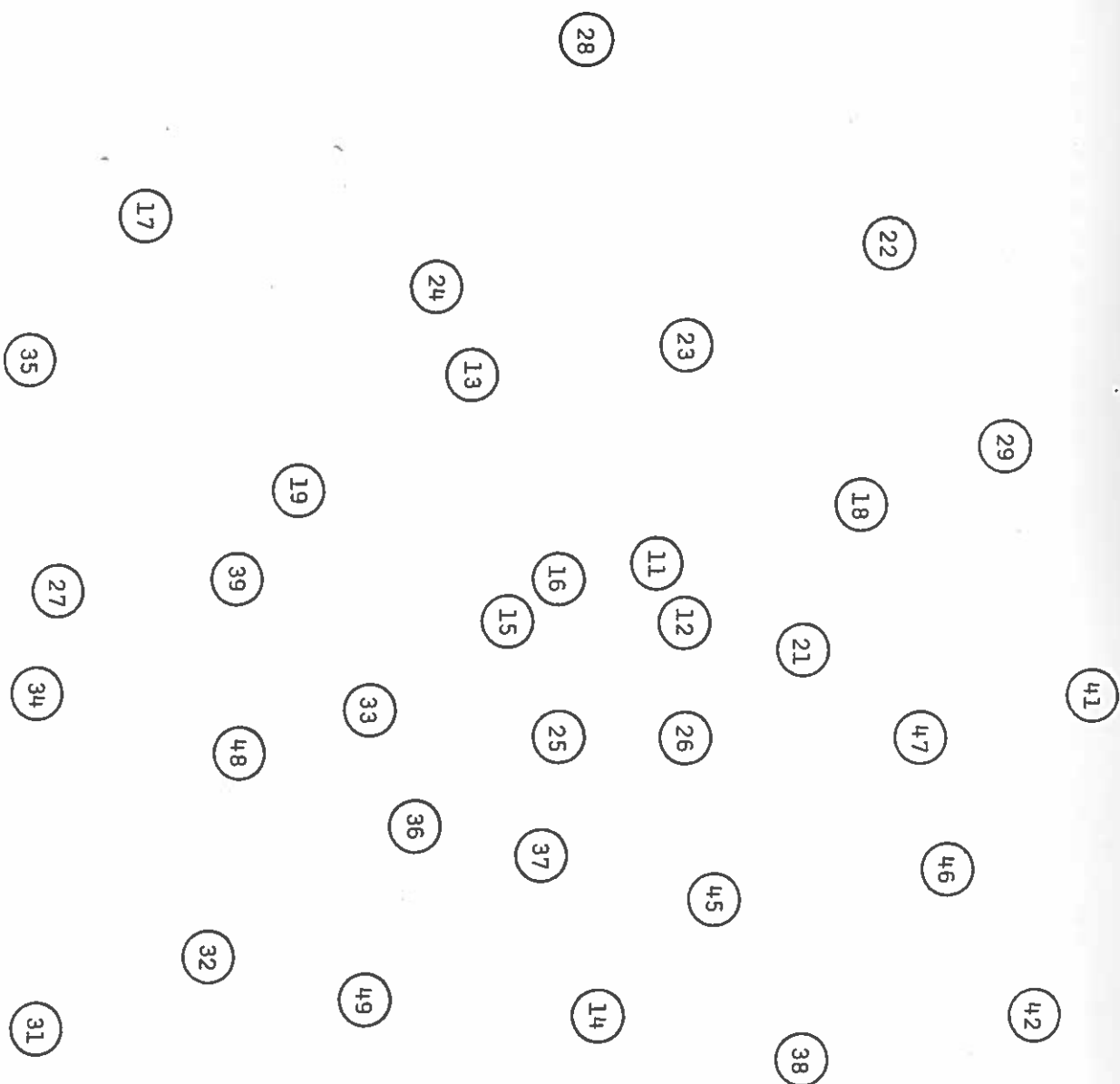
- 21 - Science as a cultural mode
- 22 - Development of technology
- 23 - Science-technology relationships
- 24 - Scientific and technical societies
- 25 - Development of disciplines
- 26 - Development of professions
- 27 - University science
- 28 - National groupings
- 29 - Other (specify)

ORGANIZATION OF SCIENCE

- 31 - Social backgrounds, mobility and manpower
- 32 - Stratification and reward systems
- 33 - Communication processes
- 34 - Bibliometrics
- 35 - Economics of research and development
- 36 - Sociology of specialties and disciplines
- 37 - Sociology of science, general
- 38 - Sociology of technology
- 39 - Other (specify)

SOCIAL STUDIES OF SCIENCE, not elsewhere classified

- 41 - Personality of scientists
- 42 - Creativity studies
- 43 - Psychology of science, general
- 44 - Ethnoscience
- 45 - Philosophy of science
- 46 - Ethics of scientific research
- 47 - Social studies of science, general
- 48 - Science indicators
- 49 - Other (specify)



The distance between two specialties is inversely related to how often they have been co-selected. The structure is surprisingly homogeneous, as shown by the fairly uniform distribution of specialties in the plane, with some bunching up, however, in the center. The center of gravity falls midway between science policy (15) and development of discipline (25). Comments or interpretations on the significance or lack of significance of this analysis are welcome.

THOUGHT AND OPINION

Questioning the Relationship Between Scientific Societies
and Science Journals

Karen B. Levitan
Mitre Corporation

The relationship between scientific societies and the publication of science journals is a subject needing attention from scholars of the social studies of science.¹ The purpose of this paper is to open general inquiry into the subject by relating some unsubstantiated generalizations that have been made about societies and journals, by describing some background probings which provoked this line of questioning and by discussing, as a specific example, the relationship between societies and the origin of various science journals.

It is common knowledge that societies have published the results of scientific research since the 17th century and that this kind of information is currently published in science journals. Over the past five decades the distinction¹ between publishing original research and publishing journals has become thoroughly confused. The link between American scientific societies and the publication of science journals has been so greatly generalized that it is now generally assumed that there is some special, inherent or natural connection between the purpose and functioning of scientific societies and the publishing of science journals.² It is clear, however, that societies, as one form of human organization, have no inherent purpose. Rather, their purposes are determined by the needs and desires of scientists at specific moments in time, and these change according to membership and historical context.

What are the facts that support such assumptions about the societies' importance in journal publishing? There have been very few scholarly analyses of this subject, particularly regarding the 19th and 20th centuries, the times most relevant to the way we currently view scientific journals and national scientific societies.

The need for research on this subject became apparent from two small studies which constitute the antecedents for this study. An exploratory survey conducted in 1975-76 found that contemporary biomedical scientists viewed the purpose of societies and the publication of journals as independent events.³ On the whole, these scientists did not join societies mainly to receive journals, did not publish mainly in their own societies' journals, did not associate journal quality with the journal publisher, and did not consider the societies' role as journal publisher especially significant in maintaining the integrity or cohesion of either scientific societies or of the scientific community in general. These results seemed so different from traditional assumptions about the importance of the society as journal publisher, that they stimulated inquiry into this heritage.

Have scientific societies, in fact, been the primary publishers of American science journals? A study which analyzed samples of journals and their publishers in the 17th, 18th, 19th and 20th centuries found that American

science journals have been produced by a pluralistic system of private and public, non profit and for profit individuals and groups throughout history.⁴

Given the results of these two studies, generalizations about the inevitable or natural partnership between societies and journals seem highly questionable. Such generalizations are related to the view that societies and journals have been mutually dependent, the journal needing reliable, scientific material and the society needing a means to record and disseminate scientists' work.⁵ When expressed in these terms, the relationship is too easily anthropomorphized and the richness of historical context, too easily lost.

Consider, for instance, the turn of the 19th century period from the post Civil War to World War I. These were the formative years for national scientific societies and for scientific research journals as we know them today. From common knowledge and personal experience it is possible to cite many cases which do not fit the society-journal partnership as generally portrayed: the Journal of Morphology (1887); the Journal of Comparative Neurology (1891); the Physical Review (1893); the Journal of Physical Chemistry (1896); Terrestrial Magnetism (1896); the Journal of Physiology (1898); the Biological Bulletin (1899); the Journal of Experimental Zoology (1904); The American Midland Naturalist (1909); the Journal of Parasitology (1914); the American Journal of Physical Anthropology (1918).⁶

Two of these journals were published with the cooperation of a scientific society: the Journal of Physiology, whose founder was also a leader in the American Physiological Society,⁷ and the Journal of Parasitology, which published papers of the Helminthological Society of Washington.⁸ After ten years of independent publication, the Physical Review was officially conducted with the cooperation of the American Physical Society, a link facilitated through the person of Ernest Merritt, who served both as a co-editor of the journal and as Secretary of the Society.⁹ Several journals were eventually taken over by scientific societies: the Journal of Physical Chemistry by the American Chemical Society in 1952; the Physical Review by the American Physical Society in 1913; Terrestrial Magnetism, which became the Journal of Geophysical Research (1949), by the American Physiological Society in 1914; the American Journal of Physical Anthropology by the American Association of Physical Anthropologists in 1935. However, none of these journals originated as society functions. It was not the organization and operations of a society that seemed to influence their origin and development, but rather, such key variables as:

- (1) the leadership exercised by their founders and editors, including personality, status as a scientist, motivation, personal income. This was evident in such men as: C.O. Whitman, who founded the Journal of Morphology¹⁰ and played a major role in establishing the Biological Bulletin;¹¹ C.L. Herrick, who pioneered the Journal of Comparative Neurology;¹² L.A. Bauer and John A. Fleming, founder and second editor respectively of Terrestrial Magnetism;¹³ William T. Porter, who started, edited and financed the American Journal of Physiology;¹⁴ A. Hrdlicka, founder and editor of the American Journal of Physical Anthropology;¹⁵ and Rev. Julius Arthur Nieuwland, who founded and edited Notre Dame's The American Midland Naturalist;¹⁶

- (2) the financial status, arrangements and viability of the journals, a significant influence in the evolution of all the above cited journals;¹⁷
- (3) the available technology for printing, engraving and disseminating via mail and other means;¹⁸
- (4) the state of the art of the particular science which the journal addressed,¹⁹ including the existing knowledge in that field, number of scientists in that field, relationship to industry and government²⁰ and its national and international status.²¹

These four factors stand out as the directing forces in the development of the above cited journals, even in cases where there were society affiliations, and they were presented with the intent of stimulating systematic studies of both the publishing activities of scientific societies and the development of American science journals. Any useful generalizations about the society-journal relationship must be based on evidence from specific periods in history which show: (1) the extent to which current and past journals originated as society publications; (2) the personal, scientific, economic and technological circumstances, as well as the general historical characteristics, which influenced this liaison; and (3) the numbers of independent journals which became society journals, or vice versa, and under what conditions. It is obvious, for example, that journals and societies founded in the 1930s and 1940s were affected by the depression and by World War II, and that journals founded in the 1960s were highly influenced by support from the National Science Foundation. It would seem likely that such historical differences would not justify a simple generalization about the mutual dependence of societies and journals, but further examination is necessary to verify such hypotheses.

These topics, which are virtually unexplored, represent exciting research opportunities for interdisciplinary social studies of science. Such research would be significant not only in clarifying the history and sociology of scientific societies and journals but also in contributing to societies' current activities, which are based, in large part, on assumptions about this heritage.

FOOTNOTES

1. Many topics on this subject, which need further research are discussed in Karen B. Levitan's Functions of Scientific Societies: Views of Biomedical Scientists, Unpublished Ph.D. Thesis, University of Maryland, College Park, Md., 1976.
2. See for example: Ralph S. Bates, Scientific Societies in the United States, (3rd ed., Cambridge, Mass.: M.I.T. Press, 1965); National Academy of Sciences, Technical and Related Societies of the United States, (Washington, D.C.: National Academy of Sciences, 1971).
3. Karen B. Levitan, op. cit., Functions of Scientific Societies: Views of Biomedical Scientists.

4. Karen B. Levitan, "Scientific Societies as Journal Publishers: A Heritage Reexamined," Contributed Papers of the 143rd National Meeting, 20-25 February 1977, Denver, Colorado (Washington, D.C.: American Association for the Advancement of Science, 1977), Abstract #410, (Manuscript in progress).
5. This is explicit in George H. Daniels, American Science in the Age of Jackson, (New York: Columbia University Press, 1968); see also Bates, op. cit., throughout.
6. My list could be extended by including journals from university laboratories, like Harvard's Bussey Institution or Denison's scientific laboratory, or from museums, like the Carnegie Museum, American Museum of Natural History, Harvard's Museum of Comparative Zoology. I have purposely excluded short-lived journals, like the American Meteorological Journal (1884-1896) and journals like The Plant World (1897), which were not basic-research-oriented in the commonly accepted sense of that term.
7. Maurice B. Visscher, "American Physiological Society Publications--History and Policy," The Physiologist, 1960, 3 (2):15-22.
8. "Announcement," Journal of Parasitology, 1914, 1 (1):3-4.
9. E. Scott Barr, "Biographical Material in the First Series of the Physical Review," ISIS, 1967, 58 (192):245-246.
10. C.O. Whitman, "Introduction," Journal of Morphology, 1887, 1 (1):i-iii; Letters from C.O. Whitman to E.G. Conklin, 1893-1905, Archives of the Marine Biological Laboratory Library, Woods Hole, Massachusetts; Ernst J. Dornfeld, "The Allis Lake Laboratory 1886-1893," Marquette Medical Review, 1956, 2 (3):113-142.
11. Robert C. Redfield, "Report of the Managing Editor of the Biological Bulletin," in Frank R. Lillie, ed., The Woods Hole Marine Biological Laboratory, (Chicago: University of Chicago Press, 1944), pp. 258-262.
12. Adolf Meyer, "The Contemporary Setting of the Pioneer," Journal of Comparative Neurology, 1941, 74 (1):1-24; C. Judson Herrick, "The Founder and the Early History of the Journal," Journal of Comparative Neurology, 1941, 74 (1):25-38; G.E. Coghill, "Clarence Luther Herrick as Teacher and Friend," Journal of Comparative Neurology, 1941, 74 (1):39-42.
13. Merle A. Tuve, "Greetings from the New Editor," Journal of Geophysical Research, 1949, 54 (1):1.
14. See footnote 6.
15. Alis Hrdlicka, "Preface," American Journal of Physical Anthropology, 1918, 1 (1):1-2.
16. Theodor Just, "The American Midland Naturalist, A Living Tribute to its Founder," The American Midland Naturalist, 1958, 60 (2):ix-xii.

17. See especially: C. Judson Herrick, op. cit., "Notes, Terrestrial Magnetism, 1896, 1:92; Letters from Whitman to Conklin, op. cit.
18. C. Judson Herrick, op. cit.; Letters from Whitman to Conklin, op. cit., Theodor Just, op. cit.; Herman Skolnik and Kenneth M. Reese, A Century of Chemistry, (Washington, D.C.: American Chemical Society, 1976), pp. 94-105; "The Wistar Institute Press," The World of Wistar (House organ of the Wistar Institute, Philadelphia, Pa.), Winter 1971.
19. "Notes," Terrestrial Magnetism, 1896, 1:90-92; Meyer, op. cit.; C.J. Herrick, op. cit.; C.O. Whitman, op. cit.; Dornfeld, op. cit.; "Editorial Announcement," The American Midland Naturalist, 1909, 1 (1):1-3; Tuve, op. cit.; Twenty-Fifth Anniversary of the American Chemical Society, April 12-13, 1901, Proceedings of the American Chemical Society, 1902, 23:86-168.
20. Hrdlicka, in starting the American Journal of Physical Anthropology, hoped it would aid the National Research Council and government policy. See footnote 14.
21. Most of the founding editors, like Whitman, Herrick, Bauer, Porter, viewed the journal as a primary means to raise American science to the prominence of European science.

A Comment

Robert J. Silverman
Ohio State University

Dr. Levitan has raised exciting, fundamental questions whose answers could have critical impact on our understanding of societies, knowledge production and dissemination, and their historic and future connections. Though it may not seem appropriate to broaden an already rich proposal, such is my goal in this brief reaction to her suggestions.

Although it is unclear how Dr. Levitan defines "scientific society" and "scientific journal," the discussion and footnotes suggest a focus on the natural sciences. I believe this restriction to be unfortunate, for the suggested studies would have meaning for but one domain in the over one thousand research and scholarly journals currently being published by societies in this country.¹ Societies publish 356 research and scholarly journals in the applied sciences and technology, 84 in the humanities, and 424 in the social sciences. In fact, societies publish fewer than half (209) of the total research and scholarly journals (473) in the natural sciences. Addressing the population of research and scholarly journals would allow for a truer understanding of the relationship among the variables--the nature of the societies (e.g. developmental level), the structures of the fields (e.g. degree of maturity), and knowledge dissemination practices. An examination of a more delimited sector of scientific societies would raise serious questions when findings were applied to fields with different characteristics.

At the same time, such an expansion could find larger meaning in what seems to be, at this point in time, the most promising theoretical model for examining fields of study. Biglan², initially, and later Smart and Elton³, and Smart and McLaughlin⁴ have categorized fields as hard-soft, life-nonlife, and pure-applied. Using the three dimensional model, they have examined, among other areas, faculty behavior, departmental goals, and reward structures, in disciplines located in the model's sectors. Studies of society-journal relationships within the Biglan framework, a model which is proving adequate in capturing the complexity of fields, would allow for the generation of a more integrated literature.

In addition to extending the scope of the proposal to include society published research/scholarly journals in a variety of scientific areas, I would urge an examination of the actions of principals involved in knowledge dissemination--authors, editors, and referees--as they illuminate society involvement. There is some evidence that societies use different criteria for editorial board membership.⁵ Further, some emerging data suggest that editorial policies, such as blinding manuscripts, is of differential importance to members of the various societies.⁶ These concerns, which speak more directly to the management of knowledge creation, should be addressed in order to understand and subsequently improve knowledge dissemination practices.

Dr. Levitan has developed a significant research agenda whose expansion could allow for the generation of even larger meaning and more clear-cut implications to those involved in knowledge creation and dissemination.

FOOTNOTES

1. Bernard M. Fry and Herbert S. White, Publishers and Libraries: A Study of Scholarly and Research Journals (Lexington, Mass.: Lexington Books, Heath, 1976), 69.
2. Anthony Biglan, "The Characteristics of Subject Matter in Different Academic Areas", Journal of Applied Psychology, 57 (1973), 195-203; Anthony Biglan, "Relationship Between Subject Matter Characteristics and the Structure and Output of University Departments", Journal of Applied Psychology, 57 (1973), 204-213.
3. John C. Smart and Charles F. Elton, "Goal Orientations of Academic Departments: A Test of Biglan's Model", Journal of Applied Psychology, 60 (1975), 580-588.
4. John C. Smart and Gerald W. McLaughlin, "Reward Structures of Academic Disciplines," Research in Higher Education, 8 (1978), 39-55.
5. Duncan Lindsey, "Distinction, Achievement, and Editorial Board Membership," American Psychologist, 31 (1976), 799-804.
6. Thomas Sloane, The Transmittal of Research Reports by Scholars in Four Academic Disciplines: Reflections of Scientific Norms. Dissertation in progress, Ohio State University.

Questioning the Questioning of the Relationship Between Scientific
Societies and Scientific Journals

Tendzin N. Takla
Purdue University
West Lafayette, Indiana

Karen Levitan has raised an important and interesting topic for sociological investigation on science, namely the relationship between scientific societies and scientific journals. Despite the number of significant works in the study of the scientific community and the formal communication system of science, research on scientific associations and journals themselves have scarcely been undertaken. I am therefore fully in accord with her that one profitable line of inquiry in filling this research gap is to examine the historical and present pattern of the interrelationship between the two.

What I find problematic though is her seemingly total rejection of "the traditional assumptions" of close and intimate relations between societies and journals. It is, of course, true that many scientific serials are published by organizations other than scientific associations: university presses, research institutes, private publishing houses, the government as well as international agencies. Moreover journals may owe much to the unremitting toil, struggle and vision of a key individual rather than spring forth fully fashioned through a simple fiat of the publication committee of some learned society. The heroic and virtually single-handed struggle of George Sarton in the creation and establishment of Isis,¹ or the small group under the leadership of Emile Durkheim that launched and sustained the Annee Sociologique² are two well documented cases. Finally, factors such as printing costs, readership, circulation, etc. are all undoubtedly important determinants of the birth, viability, and survival of scientific publications. However despite these and other points raised by Levitan, I feel that there is indeed a "natural partnership" between journals and societies, and investigating this link is a fruitful, if not more fruitful, approach than emphasizing their mutual independence. We can look at this interrelationship in two ways: first, the importance of scientific societies for journals, and second, the importance of journals for scientific societies.

Although the topic has never been thoroughly investigated, there are good reasons for believing that scientific societies play an important role in the emergence and subsequent fate of journals. To begin with, while many journals are independent publications, a very large number, probably a majority, of learned journals are in fact published by scientific societies. In this connection, it is interesting to note that out of the 11 independent or semi-independent journals cited by Levitan, at least six were eventually taken over by scientific associations. Whatever the reasons for these takeovers (and incidently is there any reverse case where a society journal became independent?) there is strong evidence that societal sponsorship affects journal mortality and quality.

In a detailed study of 17th and 18th century scientific serials David Kronick found that journals published by scientific societies had a far higher rate

of survival than those published by others.³ Although I know of no similar study for later periods I would hazard the guess that the same pattern holds. For one thing, in the age of publication explosion, a societal publication has a higher visibility and subscription base than a comparable journal published elsewhere. For another, scientific societies probably offer greater continuity in terms of administration and sponsorship, i.e., as a "home base". The respective fates of Isis and Annee Sociologique are instructive in this context. The former continued under the aegis of the History of Science Society; the latter, having no formal association to ensure its perpetuation, did not long outlive Durkheim despite the heroic efforts of Mauss.

Studies on the relative importance of journals are much more common and have been made for several disciplines.⁵ Unfortunately most of them have ignored the question of journal origin or sponsorship. In one study of 1,394 biological periodicals that did examine this topic, it was found that societies were the single largest type of publisher with over 45% of the journals. This was twice the number published by the next most important group, namely commercial publishers. Furthermore, the study showed that out of over 190,000 citations investigated for 1971, over 55% were to society journals.⁶

As regards the importance of journal publication for scientific societies the question is almost entirely unresearched and so I shall confine myself to some general remarks. First, barring a few exceptional cases such as the Council of Biological Editors, all scientific societies publish at least one learned journal, and in the case of the leading disciplinary associations, they publish several.⁷ The American Chemical Society and the American Mathematical Society for example publish 27 and 11 regular periodicals respectively, including the core journals in their field. Moreover an examination of the incorporating charters of scientific societies will reveal that journal publication, together with holding scientific meetings, are the two most cited specific functions of the organization.⁸ "Publish or perish" is not perhaps quite the expression to denote the situation, but a scientific society that does not publish a journal and does not regard this as a primary function is a truly exceptional case. Indeed, many of the smaller speciality associations such as the American Acoustical Society or the American Fern Society, etc. function more or less as simply meeting-and-publishing bodies. While this would be a highly inaccurate description of the larger, disciplinary associations, journal publication nevertheless constitutes a core function for them as well.

The reason for all this is clear, if somewhat more complex. A scientific society is not only a formal association or a community of scientists, but it is above all an intellectual group. Its intellectual identification depends upon the establishment of a cognitive domain, be it a discipline, a sub-field, or a speciality. One of the most important means of carving out and articulating its intellectual domain is through the establishment of its own journals. This can be seen with special force in the case of new and emerging specialities. As Hagstrom and others have shown, a new speciality is often denied recognition by its parent discipline and disciplinary association and also faces difficulties in finding an outlet for its researches. In such cases the response is to form an independent association and one of the primary objectives of the new association is to establish its own journals.⁹

In short the relationship between scientific societies and scientific journals is symbiotic and tracing this relationship demands, rather than hinders, the incorporation of "the richness of historical context" that Levitan advocates. Without doubt other factors need to be considered in investigating either journals or societies. Thus for example the tendency to view scientific associations as purely learned societies, as simply meeting-and-publishing bodies, is a highly simplified view which forecloses interesting research such as their role as professional associations. Similarly, to see scientific journals as only outlets for scientific communication has resulted in the neglect of studies on the biographical economic and social factors which give rise to and shape the structure of scientific periodicals. Like Levitan, I agree that these topics offer promising opportunities for interdisciplinary research in the social study of science. However a basic framework for such research should be an approach that focuses upon the inter-relationship between these two institutional pillars of science rather than view either in mutually exclusive terms.

FOOTNOTES

1. Arnold Thackray and Robert Merton, "On Discipline Building: the Paradoxes of George Sarton", Isis, 63 (1972):473-95.
2. Stephen Lukes, Emile Durkheim: His Life and Work (New York: Penguin Books, 1975), Chapter 15.
3. David Kronick, A History of Scientific and Technical Periodicals (New York: Scarecrow Press, 1962).
4. For some examples, see H.C. Brown, Scientific Serials (Chicago: ACRL Monograph No. 16, 1962); H. Inaber "Is There a Pecking Order in Physics Journals?" Physics Today 27 (1974):39-43; W.C. Bush, et al., "A Quality Index for Economic Journals" Review of Economic Statistics, 56 (1974): 124-5.
5. Mabel Reddin and Edwin Feinberg, "The Core Literature of Biology: Its Sponsorship and National Origin", BioScience 23 (1973):354-57.
6. Scientific, Technical, and Related Societies of the United States (Washington, D.C.: NAS, 9th edn. 1971).
7. While I know of no study that actually investigated this, an examination of the officially stated organizational goals based on incorporating documents as given in the reference source cited in fn. 7 will show this to be the case.
8. Warren Hagstrom, The Scientific Community, (Carbondale, IL: Southern Illinois University Press, 1965), especially Chapter 4.

Social Studies of Science in Australia

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The social studies of science has no corporate identity in Australia. The nearest equivalent to 4S is the Australian Association for the History and Philosophy of Science (AAHPS), the existence of which reflects the fact that HPS courses have been taught in Australian universities long enough for a small professional community in HPS to be established. This community and the wider Australian academic community share the increased interest recently shown in the social studies of science. What follows is a brief and selective account of recent trends in the social studies of science in Australia with particular reference to the Australian HPS community and the newest Australian universities.

There are HPS departments in 3 of Australia's 19 universities, and HPS courses are taught at a number of the other universities. HPS departments were established at Melbourne (1946), the University of New South Wales (UNSW) (1959), and most recently at Wollongong which was previously a college of UNSW. Despite rapid growth in the number and size of Australian universities since the 1940's, chairs were not established in these HPS departments until 1966 (UNSW), 1975 (Melbourne), and 1978 (Wollongong). Difficulties which face any new development in universities were probably aggravated in Australia by the failure of HPS to meet unrealistic expectations about the extent to which it would provide THE BRIDGE between the "two cultures." Nevertheless, courses in HPS are now accepted in all three universities as providing a worthwhile perspective on science for students of both Arts and Science Faculties. (Diana Dyason, "After Thirty Years: HPS in Australia 1946-1976", Melbourne Studies in Education 1977, ed. S. Murray-Smith, pp. 45-74, provides an account of the trials and triumphs of HPS in Australia.)

In recent years the Australian HPS community has responded to the pressures which produced SISCON in Britain and 4S in North America, by providing a greater range of courses in the social studies of science. The most ambitious of these new departures is a program leading to the degree of Master of Science and Society (M.Sc.Soc.) at UNSW. According to publicity,

the course is designed for graduates in both the natural and social sciences who wish to learn more about current problems in the social relations of science and technology in such areas as the economics and sociology of research and development, the nature of science policy, the connection between technology and social change, and the relationship between social objectives and values, the aims of scientific activity, and the moral dilemmas of social responsibility in science.

The M.Sc.Soc. program is co-ordinated by John Saunders of the UNSW HPS department but courses in the program are also provided by staff from the sociology and economic history departments. UNSW has recently appointed Jarlath Ronayne, previously Director of the Science Policy Research Centre at Griffith University, as Head of its HPS department and it is expected

that he together with other staff and students in the M.Sc.Soc. program will carry out research on science and society in Australia.

New developments in other HPS departments also indicate increased activity in the social studies of science. This includes research in the social history of science, courses on the social and ideological contexts of science, and on the history of the social sciences, and co-operation in various interdisciplinary programs. The Melbourne department currently has three members with grants to undertake research combining social and intellectual history: Rod Home on the European physics community of the 18th. century, Homer Le Grand on the French chemical community and the chemical revolution, and Lyndsay Farrall on the Australian biological community from 1850 to 1940. The Wollongong department has two courses entitled "Philosophical and Ideological Perspectives in Science" in which works by Berger and Luckman, Kuhn, Revetz and Ziman are used as texts. A full course is devoted to the history of psychology and allied sciences by the department at Swinburne College of Technology and an HPS course at the University of Sydney includes sections on the history of the social sciences. Members of the Wollongong department are active in Women's Studies courses and members of the Melbourne department have helped to initiate an inter-departmental course in 18th. century studies. UNSW and Wollongong HPS departments are fortunate to have as colleagues in the respective sociology departments, Professors Sol Encel and Stephen Hill, who are actively involved in the sociology of science and science policy studies.

Three of the new Australian universities have already established courses in the area of social studies of science. Griffith University at Brisbane, Queensland, has established in its School of Science a program in science, technology and society together with an associated Science Policy Research Centre, (Director, Ann Moyal). All first year students in the School of Science take a common program of studies, one quarter of which is a course called "Science, Technology and Society" (STS). This course has sections on the origins of modern science, the nature of scientific knowledge, the scientific community, science and public policy, and contemporary problems of science and society. In later years of their science degree, students may select from a number of other STS courses including "Science, Technology and the Modern Industrial State", "Science, Technology and Underdevelopment", and "Science Policy". The Griffith Science Policy Research Centre is designed as a national centre for research on science and technology policy in Australia and the Australian region.

Murdoch University in Perth, Western Australia, has a program in STS co-ordinated by Keith Roby of the School of Mathematical and Physical Sciences. The Murdoch School of Social Inquiry recently appointed Michael Durey to a lectureship in the Social History of Science to teach courses in that area and to co-operate in the STS program. Deakin University at Geelong, Victoria, has appointed Wade Chambers to a senior lectureship in the Social Studies of Science and he is chairing a team (which includes the Vice-Chancellor, Fred Jevons) preparing an "Open Campus" course entitled "Knowledge and Power" for the 1979 academic year. At both Deakin and Murdoch it is hoped that it will be possible to carry out further developments in STS and the social studies of science.

This account has not surveyed developments in such areas as the sociology of science, science policy studies, and science education. Nor has it noted the many developments in institutions of higher education other than the universities. But enough has been reported to show that social studies of science is alive and kicking down under.

The BSA has a Sociology of Science Study Group which holds occasional meetings. We are particularly anxious to use this Group as a vehicle for aiding the international exchange of ideas on sociology of science topics. If American scholars (students completing dissertations and established researchers) expect to find themselves in the UK it might be possible to arrange meetings of the Group to coincide with their visit, and enable them to present their ideas to the UK audience. If anyone is coming and would be prepared to give a paper to the Group, could they please contact the convenor of the Study Group, giving plenty of notice. The convenor is:

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News From England

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The SISCON (Science in a Social Context) Council (U.K.) in conjunction with Professor Egbert Boeker of the Free University, Amsterdam, is organising a conference to be held in Amsterdam from August 13-18th 1978, to discuss the changing relationships between science and society and to assess the implications for education. The major themes are:

Turning Points in the Relation of Science and Society,
Public Participation in Technological Decision-Making,
Science, Society and Education at the University level,
Science, Society and Education in Secondary Schools.

Details from Prof. M. Gibbons, SISCON Coordinator, Liberal Studies in Science, The University, Manchester M13 9PL, England.

A SISCON Association is being formed with the objective of "promoting an understanding and awareness of the social dimensions of science and technology in education and in practice", which will take over responsibility for organising conferences and publishing a bi-monthly newsletter. Newsletter Editor, Dr. D.J. Jenkins, Department of Management Sciences, and Technology Studies, University of Stirling, Stirling FK9 4LA, Scotland.

Public interest in the control of recombinant DNA research is steadily increasing in the U.K., and the Parliamentary Select Committee on Science and Technology has announced that it will embark on an investigation of this issue in April, 1978.

EURONET, the joint telecommunications network recently set up by the EEC is designed to offer the public direct access to the Community's scientific and technical information, and should promote rapid transmission of scientific, technical, economic and social information between the nine countries.

Dr. R.M. MacLeod, reader in history and social studies of science at the University of Sussex and joint editor of, "Social Studies of Science", has been appointed to the chair of science education at the Institute of Education, London.

The February issue of Science and Public Policy reports an advisory meeting sponsored jointly by the Directorate General for Research, Science and Education (DG XII) of the Commission of EEC and the Science Policy Foundation to examine the proposal for the creation of a Federation of European Science Policy Organisations.

The British Sociological Association, Sociology of Science Study Group met in Manchester on 8th February 1978. Papers were:

Dr. E. Yoxen, University of Manchester	"Molecular Biology and the Reification of Life"
Dr. B. Wynne, University of Lancaster	"Politics, Plutonium and Participation"
Mr. H. Martins, St. Antony's College, Oxford	"Witchcraft in Western Societies: The Sociology of Logic and Rhetoric"
Mr. D. Travis, University of Bath	"Creating Contradiction: An Aspect of the Construction of Scientific Knowledge"

A conference on "Participation in Decision-Making in Science, Technology and Industry" was sponsored by the OECD in Paris on January 16-17th, 1978. The meeting discussed case studies of a number of European countries and the U.S. and a report is expected to be produced shortly.

A new degree course entitled, Liberal Studies in Science is to start at Lancaster University in October 1978. The course, modelled to some extent on its namesake at Manchester University, allows the students essentially to choose from a selected science stream and social science stream to produce an integrated programme in science studies. Details from Dr. B. Wynne, Department of Independent Studies, University of Lancaster, Lancaster, LA1 4YQ, England.

The long-running Windscale Inquiry into the plan to construct a plant for reprocessing irradiated oxide nuclear fuels, which has served as an examination of the future of civil nuclear power in Britain produced its report on 26th January 1978. During the inquiry a number of fundamental issues were raised, including the appropriate role of scientific advice, public participation in technical decisions and the basis for the assessment of risks. However despite strenuous the recommendations were that construction should go ahead subject to the improvement of safety standards, monitoring and regulation in a number of areas.

The International Congress of the International Sociological Association is to be held in Uppsala, Sweden, August 14-19th. The five main topics of discussion are:

Studies in the Historical Sociology of Science,
Science and Ethics,
Sociological Analysis of Scientific Knowledge,
Science and Politics,
Research on Research.

Any queries should be addressed to Dr. M. Mulkay, Department of Sociology, University of York, York, England.

Report on AAAS Meeting

144th Meeting of the American Association for the Advancement of Science:
The Annual Meeting of the AAAS was held in Washington, February 12-17, 1978, the last of five late winter meetings of the Association. Beginning next year, the Annual Meetings will be held during the first week of the year, January 3-8. During this year's session the board of directors of the Association voted to shift the location of the 1979 Meeting from Chicago to Houston in a gesture of support for the Equal Rights Amendment.

Press coverage tended to focus on the ERA and other controversies, such as a water-throwing episode at a sociobiology session and an attempt to rescind the 1977 election of psychologist Arthur R. Jensen as a Fellow, or upon discussions of spectacular large-scale technologies, such as orbiting solar power stations and transcontinental supersonic subways. However, a substantial proportion of the 139 symposia were of potential interest to 4S members. More than sixty panels involved discussions of social aspects of science and technology, and 46 of these reported on studies of science or science policy.

One theme that appeared repeatedly in a variety of forums was the importance of wherewithal to the modern scientific enterprise. The subject of money was an important theme in the address of Presidential Science Advisor Frank Press, it figured prominently in discussion of the Peer Review System, and drew overflow audiences to panels on the State of Academic Science and the R&D Budget Process.

The Science Advisor's speech fell within the well established political tradition of pointing with pride and viewing with alarm. Reviewing the impact of inflation and restrictive R&D budgets on the scientific community, Press described the Administration's decision to increase the funds available for basic research by 11%, a decision that pleased his audience. The remainder of his talk reviewed a list of urgent problems demanding the attention of the nation's research effort, particularly in the areas of encouraging technological innovation and increased productivity. Few appeared to notice that this agenda bore little resemblance to the traditional image of the non-directive nature of basic science. However, the Administration's 11% increase in basic research funding was criticized as being but half what would be needed to keep U.S. science abreast of international scientific development by Derek J. de Solla Price. Price was one of eight witnesses before a unique set of oversight hearings sponsored jointly by subcommittees of the House and Senate and held at the AAAS Meeting.

A large audience was attracted to a session concerning "OMB and OSTP in American Science Politics," at which Philip M. Smith, Assistant Director of OSTP provided a more detailed description of the Administration's decision-making process and concerns with science policy priorities in determining the increase in the basic research budget. Another member of the panel, Thomas P. Grumbly, described how the tools available to an examiner in OMB had been utilized to shift the pattern of research funding in the Department of Agriculture from formula (institutional) grants to competitive grants in an effort to improve the quality of research.

The science administrator view of Grumbly contrasted with some of the laboratory and academic scientist views expressed at the panel "Appraising Peer Review" arranged by Harriet Zuckerman. Results of three studies made in response to criticisms of the peer review system were reported by Ruth L. Kirschstein on the National Institutes of Health, Grace Carter on "Peer Review Evaluation by Citation Data," and Jonathan Cole on the National Science Foundation. All three studies found, in general, that the peer review system was alive and well and replicated by citation data, although Kirschstein indicated that NIH was considering a number of minor reforms of its procedures. During the discussion a number of methods of funding research were discussed, including contract research and block (institutional) grants as alternatives to the peer review system.

Among the many other panels of interest to 4S members were a review of the Smith and Karlesky report on The State of Academic Science given by Bruce L.R. Smith and "Trends in the Organization of Academic Research," a study of organized research units and the status of the "unfaculty" by Albert H. Teich. A number of panels focused on discussion of technology transfer and "Appropriate Technology" as well as the ongoing preparations for the 1979 U.N. Conference on Science and Technology for Development. There was also substantial interest in discussion of the successes and failures of the Office of Technology Assessment. OTA's new Director, Russell W. Peterson, spoke at a dinner sponsored by the AAAS Committee on Science and Public Policy and Congressional Science and Engineering Fellow program, attracting what appeared to be the largest attendance to date at one of these now annual affairs.

H. Roberts Coward
I.S.I.

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RESEARCH IN SOCIOLOGY OF KNOWLEDGE, SCIENCES AND ART

A new annual series was announced by JAI Press Inc. The series is edited by Robert Alun Jones, Department of Sociology, University of Illinois. The essays in this annual series will consist of original research done in the fields of the sociology of knowledge, science, and art. The focus of the series will be explicitly interdisciplinary, including contributions from philosophers and historians as well as sociologists, and extending to the philosophy of science and history of ideas as well as sociology. A number of theoretical and methodological perspectives, as well as nationalities, will be represented. The series will also serve as the vehicle for essays of a length or content inappropriate to more conventional scientific journals.

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FORTHCOMING PUBLICATIONS

As a new feature of the Newsletter we provide bibliographic information on articles "in press" at various journals. We obtain this information from publishers. Let us know if there is a journal you would like us to contact.

Social Studies of Science

Volume 8 Number 2

May 1978

Papers

Parallels and Paradoxes in Modern Physics and Eastern Mysticism: A Critical Reconnaissance -- Sal P. Restivo

This paper is a prolegomenon to a study of the social origins and functions of the thesis that there are parallels between modern physics and Eastern mysticism. Interest in the parallelism thesis has been growing, but with an emphasis on advocacy as opposed to critical analysis. Advocates of parallelism such as Fritjof Capra have failed to take account of the pitfalls associated with drawing parallels between science and religion, or physics and mysticism. My basic objective in this paper is to establish a preliminary foundation for social studies of parallelism. I outline the parallelism thesis, emphasizing physics-mysticism parallelism, identify several pitfalls in the parallelism arguments, and suggest reasons for moderating the skepticism which emerges from the pitfalls analysis.

On the Diversity and Co-Evolution of Technological Multiples: Steam Turbines and Pelton Water Wheels -- Edward W. Constant II

Conventional interpretations of multiple invention depend for their validity on the relative homogeneity of individual multiples as well as on the homogeneity of all instances of multiple invention. Historical analysis of two specific cases of alleged multiple invention suggests, however, that both types of identity are illusory. Four original steam turbine inventions exhibit notable historical and technical diversity among themselves. Moreover, the invention of steam turbines differs significantly from another alleged instance of multiple invention, Pelton water wheels. Additionally, the developmental paths of steam turbine technology and of Pelton water wheels each were influenced critically by the selective pressure of other technologies with which each co-evolved: electrical power generation and distribution systems. Perceived multiple invention would thus seem likely to be a more diverse and complex phenomenon than heretofore widely acknowledged.

Boyle's Atomism and the Restoration Assault on Pagan Naturalism -- J.R. Jacob

This paper places Boyle's atomism in its social context, and describes the political motives which underlay it.

Boyle's physico-theology was designed to answer the ideological challenges thrown up by the turbulent events of mid-seventeenth-century England. After

the Restoration, Boyle and the Royal Society continued to use his natural philosophy to this end. One important example is Boyle's A Free Enquiry . . . (written in 1666, but not published until 1686). This addresses itself to the heretical implications of scholastic natural philosophy. Scholasticism, argues Boyle, assumes a universe in which a purposive rationality works quite apart from God and divine providence, and in which there is no distinction between "nature" and "providence"; this may lead to some form of "paganizing naturalism," and so must be overthrown. Boyle's strategy is first to show that the scholastic conception is not scientifically valid, and then to offer his corpuscular philosophy as a superior alternative.

However, Boyle's real enemy was not scholastic theory per se, but those who relied on it--papists and paganizing deists. In showing that both cherished outmoded assumptions about nature, Boyle attacked both kinds of idolatry simultaneously. The timing of the appearance of A Free Enquiry also added to its effectiveness as a shrewd piece of Anglican apologetics. It was published just when, because of James II's religious policy, the threat of subversion by papists and "atheists" bulked larger than ever before in the fears of Anglican churchmen.

Notes and Letters

Controversy over a Local Nuclear Waste Repository -- Allan Mazur and Beverlie Conant

A proposal to site a nuclear waste repository near Syracuse, New York became the focus of a shortlived controversy. We interviewed a sample of local residents near the height of the publicity and then nearly four months later, after the publicity had died away. Men were three times more likely than women to be aware of the controversy. However, exposure to the controversy had a greater effect on women than on men, moving female attitudes against the repository. Attitudes formed during the peak of publicity persisted over time, particularly among men. We speculate on the causes of these various sex differences, suggesting that they are based on our cultural expectation that men should know politics and technology, and women need not.

Science in a Bilingual Society: The Case of Two Engineering Schools in Quebec -- Thomas O. Eisemon and Yakov M. Rabkin

This paper considers the influence of language of work on the professional attitudes and activities of scientists. This issue is of considerable significance to those linguistically-defined scientific communities in which the medium of scientific training does not coincide with the dominant lingua franca of scientific communication and recognition. Does language of work, for instance, serve to isolate scientific communities, thereby depressing research activity?

This and other questions have been studied in the case of academic engineers affiliated with an English-medium and a French-medium university in Quebec--

a society where the relationship between the two linguistic groups used to be described as "two solitudes." Considerable variations have been found between the two universities in terms of professional orientations, research activity, etc. Yet, attempts to introduce the local language and to respond to local needs and priorities do not seem to be incompatible with the capacity to be cosmopolitan--although some of the data indicate that relationships to the international scientific system may be weakened.

Essay Review

The Sociological Study of Scientific Specialties -- Thomas F. Gieryn and Robert K. Merton

Journal of the History of the Behavioral Sciences

"Paul F. Lazarsfeld and the History of Empirical Social Research"
by Anthony Oberschall (July 1978)

Paul F. Lazarsfeld had a longstanding interest in the history of empirical social research which dated back to his Vienna years in the 1920s. This interest was reactivated in 1959 when he developed a loosely structured research program on the history of social research centered on seminars at both Columbia University and the Sorbonne. He hoped to complement the standard histories of sociology that dwell exclusively on social theory with the history of the other, equally important, empirical roots of the discipline. Lazarsfeld thought that institutional support for social research would be more readily forthcoming if the long and interesting history of empirical sociology became better known.

"Robert E. Park at Fisk"
by Werner J. Cahnman (October 1978)

"The Development of Sociology in China since its Political Division"
by Alvert O'Hara (issue undecided)

Zeitschrift für Soziologie

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Thomas Schnelle and Wilhelm Baldamus, "MYSTIC MODERN SCIENCE? Sociological Reflections on the Strange Survival of the Occult within the Rational Mechanistic World View"

Research Policy

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ANNOUNCEMENTS

Where Do We Go From Here?
(Questions for a "social psychologist" of science to ponder)

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By the time this article appears, a new expanded mailing list should have reached all of the "declared" social psychology subgroup members. If anyone else wants to be added to the list or did not receive a copy, they should contact me directly. The purpose of this open letter is to remind everyone where we stood at the last annual 4S meeting and get people thinking about what they would like to see happen at the next one.

When we last met it seemed to be a common concern that there be a session devoted to our interests. We also spoke of the need to reach other people not presently in the 4S with related interests, and I believe there was talk of inviting some people we wanted to hear speak about what is going on in other countries or related fields. Finally, we spoke of sharing information and ideas while trying to define our common interests but no format for doing so was developed. The spirit of this inquiry has been continued by some of those writing to me to be added to the mailing list.

Gerald Holton brought to my attention his new book *THE SCIENTIFIC IMAGINATION: Case Studies* (Cambridge University Press, 1978), and pointed out that chapter seven, "On the psychology of scientists and their social concerns" might be of particular interest to us.

Michael Wolff forwarded a copy of a brief article entitled "Social Psychology As History: Advancing the Problem," (*FSPB*, 1977, 3, p. 211-12), in which he takes the role of a social psychologist of social psychology to remind his colleagues about the effects of "undisciplined criticism" and the likely reaction of those faced with it. This raises a very interesting question about the role of students of science vis a vis the scientific enterprise.

J.M. Ziman noted that it was interesting that a group should be talking about the need for a social psychology of science at this time and wrote that he had found that that was what he was talking about in a recent series of lectures on "The Pursuit of Knowledge: Science as a Vocation" to be given at the University of Wales. He also pointed out that properly speaking, any member of the 4S not blinded by disciplinary boundaries should be interested in the subject as well. In asking how he could help "push this along further" he asks a question important to us all about our relationship to the rest of the 4S society.

One very important way in which we can address these questions specifically is in planning what we would like to do or see happen at the next annual meeting. This should not be limited to presenting papers, though it would be a good idea if those who can be ready or will be ready to present something at that time let the rest of us know about it. Knowing what others are

interested in has moved me to pull together related materials in the past and I'm sure others benefit from such nudges as well.

I would like to see us have a chance to engage in some focused discussion around a common stimulus; I would also like us to have a chance to broaden our horizons. Focused discussion might require having a single speaker from the group or invited by us come and talk about something we have all had a chance to read prior to the meeting. This means preparation long in advance, a problem, unless it is something that has already been prepared in some form. Noting that three of the six latest additions to our group have mentioned existing work they would like to get reactions to, it should be possible to find some common focus of interest. If not, I'm sure we all have favorite recent selections by other students of science and technology that warrant discussion. I would be willing to suggest Joseph Weizenbaum's section on computer 'hackers' in his book COMPUTER POWER AND HUMAN REASON (W.H. Freeman and Co., 1976) for discussion whether or not Joseph could make the meeting. Questions of motivation, style and social implications all come out of these passages on "compulsive" programming in a fertile mix.

Broadening our awareness of what is going on should be easier to arrange assuming we know enough about related areas to invite someone interesting. Let me start the list of possibilities with three names so that those interested in having an invited speaker can suggest others or comment about them.

Rudolph Fisch contributed chapter 8 on "The Psychology of Science" to Ina Speigel-Rosing and Derek Price's edited book on Science, Technology and Society: A Crossdisciplinary Perspective (Sage, 1977). An expanded overview and description of European trends by Professor Fisch might be of considerable interest and spark discussion amongst us.

Robert Ornstein's brief book on THE PSYCHOLOGY OF CONSCIOUSNESS (W.H. Freeman, 1972) is an attempt to see what psychology might be and where it might be going if the "esoteric," traditions of the East are taken seriously. He also discusses the need for a "paradigm leap" in psychology to reopen new areas for discussion. Given the growing importance of "Eastern" conceptions in physics, the questions we might have about the receptivity of psychologists to our work and questions we probably all have about the kinds of evidence developing in psychology that might enlighten the study of science, an open discussion with a maverick psychologist might be very useful.

Finally, it has come to my attention that a data base of considerable potential is developing under the auspices of Mary McCauley at the Center for Psychological Type, University of Florida. The Center has applied a test based on a Jungian framework very widely in an effort to characterize personality differences amongst students going into various fields. As a result, a considerable collection of information on thousands of science and engineering students (at a variety of schools) is available or soon to be available and stands a very good chance of improving over time. This is a development I would like to learn about and it would be ideal if our group had a chance to suggest ways in which future data collection would make the existing information as theoretically significant as possible.

I hope that you will all give some thought to the question of what we want to do next and send me ideas about papers, speakers, luncheon meetings or whatever would interest you. I hope to be in a position to report back your ideas in a short article for the next 4S Newsletter.

The Newsletter has received a request to publish this announcement:

In our paper, "Peer Review: A Dialectical Policy Analysis," presented at the Second Annual 4S Meeting in Boston, we discussed an unpublished draft report by Professors Stephen and Jonathan Cole on their National Academy of Sciences-commissioned study of the NSF peer review system. Having apologized privately to the Coles for this inadvertent breach of confidentiality, we now offer a public apology to the members of 4S.

Daryl Chubin
Georgia Institute of Technology

Ian Mitroff
University of Pittsburgh

Dr. R. Steck, Technische Universitat, SFB 79, 3 Hannover, Welfengarten 1, announces:

There will be held in Spring 79 an International Workshop entitled

"Interdisciplinary Research Groups"

in Scholss Reisensburg, Germany. The aim of this conference is to provide a forum of discussion for participants interested in offering a research or empirical perspective on the organization and management of interdisciplinary research units, and those positing a well-developed conceptual or theoretical framework. On behalf of the members of our International Advisory Board and Organization Committee I would like to ask you to publish a call for papers in an issue of the 4S Newsletter. Deadline for sending abstracts will be October 1st, 1978.

I'm member of the 4S Society myself and I would be very pleased to welcome colleagues from the US at our Workshop in Germany.

Science Citation Index data base
leased by the National Science Foundation
from the Institute for Scientific Information

The Institute for Scientific Information (ISI) announces the signing on December 30, 1977 of an agreement with the National Science Foundation for leasing of ISI's Science Citation Index data base. The agreement gives NSF, its grantees and contractors access to the complete data base for program planning and science policy studies, and studies of the sociology and history of science and scientific communication. Under the terms of the agreement, NSF staff and researchers supported by NSF grants and contracts will be able to obtain data from the Science Citation Index tapes without being charged a data base fee. Users will be charged only for costs of programming and computer time necessary to extract the data they desire, costs which, according to NSF, can be line items in budgets of proposals submitted to NSF. Requests for more information should be addressed to Dr. Morton V. Malin, Vice-President, Professional Relations and Contract Research, Institute for Scientific Information, 325 Chestnut Street, Philadelphia, Pennsylvania 19106, U.S.A. Phone: 215-923-3300.

Science Indicators -- 1976

The third in the series of Science Indicators reports--Science Indicators -- 1976--is now available from the National Science Foundation (issued as the Ninth Annual Report of the National Science Board). According to the Head of the Science Indicators Unit, Dr. Robert R. Wright, several improvements have been made in this (the third) edition. For example, documentation of data sources is more complete and references are provided for those readers who are interested in examining further the topics discussed in the report. Compared with earlier editions, there have been some additions, and a few deletions as a result of the evaluation of statistical significance and reliability. The report now contains a topical index to indicator tables to facilitate its use as a reference document. The report covers many phases of R&D activity and is divided into six chapters dealing with: international science, resources for R&D in the U.S., basic research, industrial R&D and innovation, science and engineering personnel, and public attitudes toward science and technology.

Directory of Science Communication Courses and Programs

Published in February 1978 by the Department of Chemistry, State University of New York at Binghamton (Binghamton, N.Y. 13901), this Directory contains courses and programs given at colleges and universities concerned with the communication of science and technology to the public. Included are courses such as science writing, science communication, science journalism, environment, the media and in general only those courses and programs that appear to have a significant component devoted to teaching science communication to the general public, rather than to business, professional or other specialized audiences. The listing is alphabetic by State of the U.S., and was produced by Sharon Friedman, Rae Goodell, and Lawrence Verbit.

Scientometrics: An International Journal for all Quantitative
Aspects of the Science of Science and Science Policy

A new journal called Scientometrics is being launched this year by the Elsevier Publishing Co. and the Akademiai Kiado of Budapest. From information supplied to us by the Managing Editor, Dr. T. Braun, the first issue is scheduled to appear in September, 1978. The periodical aims at publishing the results of research concerned with quantitative studies of science, with special emphasis on investigations of the development of science using statistical methods. There has been a general call for papers, and prospective authors should send two copies of their manuscripts to:

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Other 4S Announcements

1. Volume 3:2 of the 4S Newsletter will include several reviews of new books. Issue #3 will be devoted primarily to the third annual meeting. Issue #4 will have news of the annual council meeting held in Bloomington and will contain abstracts of papers presented.

This general division by emphases for each of the 4 issues will be the organizing theme for each volume over the near future.

2. Volume 3:2 will also include important summaries of recent national and international conferences.
3. The editors apologize for the less-then-regular distribution schedule of the Newsletter. We hope that by the next issue we will be able to maintain the quarterly schedule of March, June, September, and December.

4S Society for Social Studies of Science

The 4S Newsletter is published four times each year, beginning with V.2:4 at the Department of Sociology, Southern Illinois University, Carbondale, Illinois 62901, and sent to all members of the Society for Social Studies of Science. Membership is on a calendar year basis. Membership dues (\$10 for professionals, \$5 for students) and institutional subscriptions (\$20) should be sent to: The Secretary/Treasurer, 4S, SASS, 323 Uris Hall, Cornell University, Ithaca, NY 14853. Renewals are handled by Neale Watson Academic Publications, Inc., 156 Fifth Avenue, New York, NY 10010.

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