Organized to improve science teaching—through research

NARST NEWS

NATIONAL ASSOCIATION FOR RESEARCH IN SCIENCE TEACHING

Thaddeus W. Fowler, Editor, University of Cincinnati, OH

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PRESIDENT

Patricia E. Blosser
The Ohio State University
Columbus, OH

PRESIDENT'S MESSAGE

The fall meeting of the executive board of NARST took place during the NSTA area meeting at Little Rock, AR, November 4, 1988. One action of the Board that will be of interest to NARST members was the selection of a new editor for the *Journal of Research in Science Teaching.* The NARST Board approved the choice of the search committee: Ron Good of Louisiana State University. Ron will work with Russ Yeany during the coming year as associate editor in order to facilitate a smooth transition of journal business.

The activities of the Board did not end on November 4 but were followed, on November 5, with a full day's discussion of issues. Most board meetings are so filled with committee reports and related motions that there is little time for sustained discussion on larger topics. The issues meeting began with a discussion of specific activities of NARST as an organization. These were considered in relation to NARST's mission statement as described in the articles of incorporation. NARST appears to have a two-fold mission: to promote research in science education and to disseminate findings of this research in such ways to improve science teaching. Board members believe that the journal (JRST); *Research Matters;* the newsletter you are reading; the column in the *Journal of College Science Teaching;* the annual Review of Research in Science Education prepared by NARST in cooperation with the ERIC Clearinghouse for Science, Mathematics and Environmental Education; the compilation of abstracts of the annual meeting (another joint NARST-ERIC project); the NARST directory, a new issue of which is now available; and two current projects — the preparation of a monograph for use with graduate students and the publication of the award-winning papers in ICASE, are all relevant to NARST's stated mission.

However, the question remains: what other activities should NARST be doing in order to carry out its mission as an organization? After much discussion, those board members present at the Saturday meeting decided that NARST should be about the business of formulating recommendations for action related to science education research. This course of action would make NARST a proactive group, rather than a reactive one. As a leadership group in science education, NARST should have something to say not only to classroom teachers but also to administrators and other individuals in schools, state and federal agencies, as well as to the National Science Foundation and the Office of Educational Research and Improvement (OERI).

In order to achieve this goal, several current members of the executive board have agreed to draft some statements, based on research, that can be used to influence policy, to talk to policy makers. Two different sets of recommendations for action will be prepared. One of these will deal with what NARST stands for and will attempt to paint a global picture of what NARST is about — and should be doing. The other will contain more specific statements and recommendations for action, again based on areas of research that have either high impact or promise of impact on science teaching, directed toward different audiences. Emmett Wright and Rodger Bybee have agreed to prepare the draft of recommendations for action that is the more global. Andy Anderson and Bill Holliday have agreed to work on the draft of more specific recommendations.

NARST members who wish to assist in this task are welcomed. Those who wish to get involved in the preparation of the more global recommendations should write or call either Emmett or Rodger:

Emmett L. Wright	Rodger Bybee
261 Bluemont Hall	BSCS
Kansas State Univ.	Colorado College
Manhattan, KS 66506	Colorado Springs, CO 80903
(913) 532-5550	(719) 578-1136

Those wishing to be involved in preparing the more

specific recommendations should call or write to Andy or Bill:

Charles Anderson
Erickson Hall
Michigan State Univ.
East Lansing, MI 48824
(517) 355-1725

Bill Holliday
Sci. Tchg. Cntr. Benjamin Bldg.
University of Maryland
College Park, MD 20742
(301) 454-1512

Please get in contact with these persons *no later than Dec. 31, 1988 and preferably earlier.*

Any NARST members who wish to serve as reactants to drafts of these recommendations are also welcome to volunteer their services to the appropriate individual(s).

It is the Board's intention to have these recommendations for action available for reading by NARST members at the NARST annual meeting next spring in San Francisco so that they can be discussed at the "Hour with the President" session.

1989 NARST MEETING IN SAN FRANCISCO

The program committee is excited about the upcoming NARST annual meeting in San Francisco at the Holiday Inn On Union Square. The Meeting features some significant events and programmatic changes, and promises to be the best ever. Presentations are scheduled to begin on March 30, Thursday, 8:15 AM and finish on April 1, Saturday, 4:30 PM. On the eve of the annual meeting, NARST attendees are invited to the Exploratorium museum.

Special Meeting Presentations and Events

Dr. Glen Seaborg, Noble Prize laureate in chemistry from the University of California at Berkeley, is scheduled to be NARST's honored guest at a hosted-bar reception at the Exploratorium museum on the evening preceding the annual meeting. Buses are scheduled to leave the Holiday Inn, March 29, Wednesday, 6:00 PM and return by 10:30 PM.

Dr. John Bransford of Vanderbilt University, specialist in classroom cognition and one of the best received NARST speakers during this decade, will return to present recent advances in student thinking and problem solving. He will, also, describe his current research as it relates to his recent award-winning JRST study, using video disk equipment and presented on special monitors.

Dr. Martin Maehr, now of the University of Michigan and an active researcher in achievement-motivation and an excellent speaker, will present paradigms, findings and methodologies useful for investigating classroom motivation problems in science teaching. He authored science-motivation works in AERA's *Review of Educational Research* and the famous research review, "On doing well in science: Why Johnny no longer excells: Why Sarah never did."

Dr. Allan Schmieder, Chief of Title II Funding at the Department of Education, and Dr. Emmett Wright of Kansas State University and his colleagues are scheduled to present a joint session of the "Do's and don'ts of writing fundable proposals." Dr. Wright's group will begin with a basic list of procedures to follow when writing proposals. They will use numerous examples to illustrate each procedure. Their presentation will be tailored to assist the attendees' needs. Then, Dr. Schmieder, an excellent speaker with two decades of grant-agency experience dealing with key federal and state program directors and a keynote speaker at 24 separate conventions, intends to elaborate on remarks made at the workshop and answer additional questions and make recommendations especially designed for attendees.

The two general session speakers (Drs. Bransford and Maehr) and the two workshop leaders (Drs. Wright and Schmieder) will hold follow-up sessions aimed at answering technical research questions.

A special symposium will include Drs. Glen Aikenhead, Ron Good (new editor), John Koran, Tony Lawson, Marcia Linn, Joe Novak, Jim Shymansky, and Russ Yeany (present editor). They will discuss the success of NARST's most valued asset, the *Journal of Research in Science Teaching* (JRST), make productive recommendations designed to enhance JRST's already good reputation, and answer questions from symposium attendees. Audience participation is encouraged because the Journal belongs to the membership and the NARST board of directors want to be responsive to members' opinions and recommendations.

Analysis of the Review Process

A record number of excellent papers is scheduled for presentation at the 1989 NARST annual meeting. More than 400 separate authors submitted a record number of proposals (230) covering a wide variety of research issues in science teaching. Because of the limited hotel meeting space available in San Francisco and NARST's continuing goal to encourage scholarships at high levels, the program committee materially raised its scholarly standards by maintaining the 1988 level of accepted contributed papers of 94 for the years 1988 and 1989, resulting in an increased number of poster sessions from 26 (1988) to 78 (1989) and increased rejection rate from 12 (1988) to 28 (1989). Similar adjustments were made for the 30 proposed group presentations (e.g., symposia, paper sets, panels), resulting in three rejected proposals, 14 special roundtable group presentations and 13 regular group presentations. Decisions regarding proposals were based on the requirements and criteria described in NARST's call for papers including the blind review process used in past years.

REPORT OF THE ELECTIONS COMMITTEE

The Elections Committee presented the following ballot for the 1989 Election. The ballot was accepted by the NARST Executive Board at the fall meeting. Each of the nominees has been contacted and has agreed to have his/her name placed in nomination and to serve if elected.

PRESIDENT-ELECT

Rodney Doran	SUNY at Buffalo
Jane Kahle	Perdue University

RESEARCH COORDINATOR

Frances Lawrenz	University of Minnesota
Joseph Riley	University of Georgia

BOARD MEMBERS-AT-LARGE

Michael Abraham	University of Oklahoma
Dale Baker	University of Utah
Donald McCurdy	University of Nebraska
Kenneth Tobin	Florida State University

Ballots will be mailed to members who have paid their 1989 dues. Ballots should be received by February 1, 1989 and need to be returned by March 1, 1989. If you do not receive your ballot by February 1, 1989, contact Glenn Markle (513-556-2332).

PRESIDENT ELECT NOMINATIONS

The two candidates that have been nominated for President are Dr. Rodney Doran and Dr. Jane Kahle.

Rodney Doran

Rodney L. Doran earned his bachelor's degree at the University of Minnesota (Minneapolis) with certification to teach science and mathematics (1961). After two years of duty with the U.S. Army, he taught high school science and math at Shattuck School, Faribault, Minnesota. His graduate degrees are an MST (Master of Science for Teachers) in Physics from Cornell (1966) and a Ph.D. in Science Education from the University of Wisconsin (1969).

Since September 1969, Doran has been at State University of New York at Buffalo where he is currently a Professor of Science Education. In addition to his science education responsibilities at SUNYAB, Doran served as Director of Teacher Education for seven years.

Doran's primary research interest is assessment of science instruction. He has published numerous articles on that topic and wrote a book on *Measurement and Evaluation of Science Instruction* which NSTA published (1980). He has attempted to enlarge the pool of instruments available to monitor the student and program outcomes of school science programs. As a result of this interest on assessment, Doran was asked to assist with the U.S. participation in the Second International Science Study (SISS). In addition, Doran was deeply involved with the laboratory Process Skills Tests developed and used at grade 5 and grade 9. He is currently writing (with Pinchas Tamir) the report of this "process" testing. He has contributed to several articles and volumes reporting on the U.S. SISS results with Willard Jacobson and others, including the recent *Science Achievement in the U.S. and Sixteen Other Countries — A Report to the Public.*

During the last year, Doran has helped to develop and trial test a Manipulative Skills Test that will be used in May 1989 as part of the Elementary Science Program Evaluation Test (ESPET) in New York State. He has written with Dr. Elizabeth Meng a monograph entitled *Improving Instruction and Learning Through Evaluation: Volume I Elementary School Science.* This monograph has been supported by NARST and Delta and will be published by ERIC/ SMEAC in the Spring of 1989.

Dr. Doran served as Research Coordinator for NARST, chair of Eastern Section AETS, faculty advisor for UB Chapter of Phi Delta Kappa, on the Board of Directors of School Science and Mathematics Association and the Western Section of Science Teachers of New York State. In addition to his role as NARST Research Coordinator, Doran has served on the Program, Awards and Election Committees of NARST. Doran was helpful in implementing the "What Research Says to the Science Teacher," series initiated by Ann Howe as NARST President.

Jane Kahle

Professor Jane Butler Kahle has worked extensively in the preparation of biology teachers as well as the assessment of the special needs and issues surrounding women and minorities in science. Her awards include election as a Fellow of American Association for the Advancement of Science, a senior Fulbright-Hays Lectureship to the Philippines, and a Science Teaching Achievement Recognition Award from the National Science Teachers Association. In 1984, she was awarded the Distinguished Service to Science Education award of the National Association of Science Teachers, and she received the Helen B. Schleman Gold Medallian Award at Purdue University. In 1983 Kahle won the Implications of Research for Educational Practice award of the Association for the Education of Teachers in Science for her paper, "The Disadvantaged Majority: Science Education of Women."

Kahle served as team leader for the 1984 National Science Foundation's curriculum project in Thailand, and she chaired the 4th international conference, Girls and Science & Technology, Ann Arbor. She has been

president of the National Biology Teachers Association and has served on the Board of Directors of the National Association for Research in Science Teaching. Currently, she chairs the Board of Directors of the Biological Sciences Curriculum Study, serves as a Member-at-Large of AAAS, and is a member of the Council of the American Institute of Biological Sciences. She frequently serves as a consultant to national foundations as well as to local and state Board of Educations. She has served on the editorial review boards for *Review of Education Research, Journal of College Science Teaching, Journal of Research in Science Teaching, and American Biology Teacher.* She currently heads the Publication Advisory Committee of NABT. She has written over 70 articles, reviews, editorials, and abstracts as well as three monographs and six book chapters. Kahle has authored *Teaching Science in the Secondary School, Human Reproduction,* and *Double Dilemma: Minorities and Women in Science Education.* Also she has served as editor for two recent books, *New Directions in Biology Teaching* (with F. Hickman) and *Women in Science: A Report from the Field.*

Kahle was awarded the Hayden Williams Fellowship at Curtin University of Technology, 1986, and a Marshall Fellowship to the University of Oslo in 1987.

RESEARCH COORDINATOR NOMINATIONS

The two candidates that have been nominated for Research Coordinator are Dr. Frances Lawrenz and Dr. Joseph Riley.

Dr. Frances Lawrenz

Frances Lawrenz is presently an associate professor in the College of Education at the University of Minnesota where she teaches graduate and undergraduate courses in elementary and secondary science education. She began her career in science teaching in a 9th grade physical science classroom and since then, has worked in science education research and evaluation in a variety of settings from community college science teaching to adult and distance education for the Government of Yukon Territory in Canada. She obtained her PhD in education with chemistry and mathematics as related fields from the University of Minnesota in 1974. She has served on the editorial board of JRST, has been a consistent presentor at NARST national meetings, and is presently a member of the JRST awards committee. Other national exposure includes a year at NSF working on program evaluation and at NAEP developing science assessment items. Further, she has served on the advisory board of ISE, the editorial board of Science Education, and as an associate editor for School Science and Mathematics. Presently, she is on the national Publications Committee for the SSMA, the AETS editorial board for Science Education, and the Department of Education's Program Effectiveness Panel. The PEP determines which educational programs may be advertised nationally through the Diffusion Network. She is also actively involved in science education on the state and local level. She has been director of eight grants, has published over 35 articles in national, refereed journals such as, JRST, Science Education, School Science and Mathematics, Journal of School Health, and High School Journal, and has prepared over 40 evaluation reports for a variety of organizations. Her research has centered on the relationships among teachers, their students, and the classroom environment.

Joseph Riley

Joseph P. Riley, Professor of Science Education and Coordinator of the Elementary Science Program at The University of Georgia, has been an active member of NARST since 1974. Joe has served on several NARST committees including the membership, program, awards, and international committees. He has been the Associate Editor of the Journal of Research in Science Teaching since 1985. Joe has presented papers at each NARST annual meeting since 1974 and has subsequently published much of this work in JRST.

Joe's research focus has been on teacher behavior and its effect on student achievement. He has presented papers at AERA, AETS, NARST, NSTA as well as at international meetings in Japan, Thailand, Malaysia and the Philippines. He has published articles in Science Education, Science and Children, The Science Teacher and the Journal of Research in Science Teaching.

In addition to his work with NARST Joe has been active in NSTA serving on numerous committees and regularly presenting papers at regional and national meetings. He is editor of the Georgia Science Teacher and is a member of the NSTA committee on publications.

Joe graduated with a B.S.Ed from Salem State College, an M.Ed. from Penn State and a Ph.D. from the University of Colorado. His teaching experience includes two years in the Peace Corps, a year in Prince Georges' County Md. and two years in Newton, Mass. Before going to Georgia, he was an assistant professor at the University of Delaware. In 1985 he was a Fulbright Professor with the Ministry of Education, Manila Philippines. He has also worked in Indonesia as a science education consultant.

BOARD MEMBERS-AT-LARGE

The following nominations have been made for members of the Board. The persons nominated are Dr. Michael Abraham, Dr. Dale Baker, Dr. Donald McCurdy, and Dr. Kenneth Tobin. Two positions will be available starting in 1989. Board members serve for a term of three years.

Michael Abraham

Michael Abraham is Associate Professor of Chemistry and Adjunct Professor of Science Education at the University of Oklahoma. He received a B.A. in Chemistry from Grinnell College in 1964, and M.A.T. from Emory University in 1965, and a Ph.D. in Science Education from Florida State University in 1973.

Prior to joining the chemistry faculty at the University of Oklahoma, Mike was a high school teacher at Druid Hills High School and the Lovett School in Atlanta, Georgia; an Instructor in Science Education at Florida State University; and a Lecturer in Science Education at the California State College, Bakersfield. At the University of Oklahoma he serves as director of the general chemistry program and supervisor of the teaching assistants who instruct departmental laboratories.

Mike is a member of NSTA, SSMA (served on the publications committee), ACS, AETS (served on the editorial board, on the board of directors, and as editor of the 1978 yearbook), AERA, and NARST where he has served as a member of the publications committee, a member of the awards committee, and a member of the editorial board. He has numerous publications in JRST, *Science Education*, *School Science and Mathematics*, JCST, JCE, and *The Science Teacher*. He has also made numerous presentations at professional meetings including those of NARST.

Mike has had several honors including membership in Sigma Xi, membership in Phi Delta Kappa, and the University of Oklahoma Award for Superior Teaching. His current research interests are instructional strategies in science teaching and student conceptions of scientific ideas.

Dale Baker

Dale Baker received her Ed.D. in science education from Rutgers University in 1981. She is currently an associate professor at the University of Utah where she teaches methods and research classes in science education. In addition she is the director of the graduate program in Cognitive Science and Instruction. Other administrative positions she has held include director of the Elementary Certification Program and Associate Director of the Western Regional Office of the Holmes Group. Her research focuses on the relationship of cognitive, personality, and attitudinal factors to success in science and gender differences. She has 21 scholarly publications and papers in these areas in journals such as JRST, Science Education, and Research and Development in Education. In 1986 she was a visiting scholar at WAIT (now CURTIN) in Perth, Australia. She is a member of the JRST editorial board, reviews for School Science and Mathematics, and has served on both the NARST awards committee and program committee. She has been state chair for both the Search for Excellence in Science Education and the Presidential Awards for Excellence in Science teaching as well as a member of the NARST program and award committees and the NSTA regional planning committee.

Donald McCurdy

Don McCurdy is the Wesley C. Meierhenry Professor of Science Education and Director of the Center for Science, Mathematics, and Computer Education at the University of Nebraska-Lincoln. He is a Past President of the National Science Teachers Association and has served on numerous committees of NSTA, AETS, and NARST. He has or is currently serving on several national advisory committees to groups including the Second International Science Study conducted by Columbia University under the auspices of IEA, Science Olympiad, Full Option Science System (an elementary science curriculum development project of the Lawrence Hall of Science, Chemistry in the Community (a chemistry curriculum project of ACS), and the National Coalition Journal of College Science Teaching and is on the editorial review panel of Science and Children. He has been a recipient of several awards including the Robert Carleton Award for National Leadership in Science Education (1982) and the Gustaf Ohaus Award for Innovations in College Science Teaching (1978) presented by the National Science Teachers Association. His current research interests include the role of instruction in the development of problem solving skills and strategies for reducing science anxiety and increasing science interest and literacy among pre-service elementary teachers.

Kenneth Tobin

Kenneth Tobin is a native of Australia with baccalaureate and masters degrees in physics and education. He completed his doctorate in science education at the University of Georgia in 1980. Work experience includes teaching high school physics, chemistry, and mathematics for nine years, curriculum development for one year, and teaching college science education for fifteen years. Currently, he is Professor of Science Education and Program Coordinator at Florida State University. He has been involved in classroom research since 1974. Initial research on wait time developed into research on teacher change with an emphasis on the role of teacher knowledge, beliefs about teaching and learning, and metaphors used to conceptualize teaching roles. He has co-authored two books, published more than 100 papers and chapters, and has presented more than 120 papers at national and international meetings. He is a member of the Editorial Board for the *Journal of Research in Science Teaching*, *Science Education*, and *Research in Science and Technological Education*. Currently, he is the North American editor of the *International Journal of Science Education*. His work has been recognized with a Senior Fulbright Award in 1985/86 and eleven awards from AERA, NARST, and AETS.

ANNOTATED BIBLIOGRAPHY ON ENERGY

ICASE has made a contract with UNESCO to produce an annotated bibliography on 'ENERGY AND ITS USES IN THE CONTEXT OF SCIENCE AND TECHNOLOGY EDUCATION.' Your Association/Institute/ Members are invited to participate in the production of this Annotated Bibliography on Energy suitable for teachers at Primary and Secondary levels. A copy of the bibliography will be sent to all contributing Associations and, as per last year, small Associations (those paying subscriptions of US$25) can submit entries in lieu of membership fees. It is intended that the bibliography is about 80 pages long with approximately 4 entries per page (i.e. a total of 320 entries). As there are currently 75 member Associations of ICASE this means each Association is requested to submit a minimum of 5 entries (no maximum figure).

The deadline for receiving entries is 31st December 1988 (Northern hemisphere) and 30th January 1989 (Southern hemisphere) — the difference is because of differences in long vacation times. Any Association having difficulty meeting the deadline should write to the ICASE Executive Secretary, Jack Holbrook, Dept. of Professional Studies in Education, University of Hong Kong, Hong Kong. Please note that the document will be sent to the printers in mid-February and no further entries can then be added.

This bibliography is to form a factual resource document for use by teachers, teacher trainers and curriculum developers, etc. in the various parts of the world. As such, it is deemed desirable if it could include:

a) teaching materials, especially printed materials, but also include audio visual material and readily available computer software, that have been prepared in different parts of the world. Articles from Science Teacher Journals and other publications of science teacher associations are expected to provide a major source of such material.

b) content related to new and renewable sources of energy, conservation of energy, energy conversion as well as the more traditional areas of potential and kinetic energy, activation energy, bond energy terms, energy requirements of plants, etc. Applications and uses of energy in everyday life and in technological devices is also an important area.

REQUIREMENT

The bibliography itself needs to contain the following

1) title of the article, teaching kit, visual aid, etc.
2) author(s) or editor(s) of (a)
3) where article is published (journal/newsletter, volume, page, etc.)
4) if not published, where material is located (address)
5) date published or made available
6) a brief summary of the contents highlighting the most relevant features
7) how it is relevant to the teaching of energy
8) approximate age group of students referred to.
9) name and contact of person supplying the bibliographic entry.
10) name of Science Teacher Association supplying the entry and suggesting the entry would be of interest to science teachers

In *addition,* a copy of the actual article/material is requested if at all possible.

It is important that each entry is seen as being particularly useful to teachers at the primary and secondary levels. A high priority will be given to bibliographical entries that cover

activities related to energy

investigation that students can carry out related to energy

games, computer programmes etc for teaching energy topics material useful in aiding debates and class discussions

It is expected that most entries would come from the following

1. The local science teachers journal/newsletter/bulletin (it does not matter how old the reference is as long as it is still relevant).
2. Other local published materials — e.g. curriculum guides, commercial textbooks, newspaper articles.
3. Material e.g. visual aids used by teachers and/ or promoted by the Association.

Although international articles/materials can be included in your entries, it is anticipated that the emphasis will be on local entries. The annotated bibliography entries are required in Engligh, but the material itself can be in any language (please make reference to the language used).

CALL FOR WORKSHOPS: ASSOCIATION FOR BIOLOGY LABORATORY EDUCATION (ABLE)

Each year, at its annual meeting, ABLE presents 12-15 reliable innovative hands-on workshops suitable for undergraduate biology laboratory courses. Workshops cover diverse disciplines and levels within biology, ranging from exercises aimed at non-majors to ones appropriate for advanced, specialized upper division courses. Workshops that successfully apply new ideas, materials, or approaches, or that use non-traditional organisms in a classroom setting are especially sought.

The 1989 meeting will be at the University of New Brunswick, June 12-16. If interested in presenting a workshop, please contact one of the following people by December 15, 1988.

ANGELIQUE GLOSS
Department of Biology
University of New Brunswick
Bag Service 45111
Fredericton, N.B.
E3B 6E1 Canada
(506) 453-4589

JON GLASE
Section of Neurobiology and Behavior
1130 Comstock Hall
Cornell University
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(607) 255-3007

JRST MANUSCRIPTS

Beginning January 1, 1989, manuscripts for the **Journal** should be sent to:

Dr. Ronald Good
223 E. Peabody
Louisiana State University
Baton Rouge, LA 70803

NARST News

NARST News is published and mailed to members on the first of the month of March, June, September, and December. Contributions need to be received one month before the publication date. Send contributions to the editor:

Dr. Thaddeus W. Fowler, Editor
NARST News
College of Education
University of Cincinnati
Cincinnati, OH 45221-0002

The newsletter is a way for NARST committees to communicate with the membership. Special interest groups can announce their plans, projects and contact persons. Members can announce items of interest. First priority will be given to regular *NARST News* features and other articles will be published as space permits. Please submit copy in printed form and, if possible, also as a text file on a "five inch" floppy MS-DOS computer disc (WordPerfect preferred).

NARST

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