

## NEWSLETTER

VOL. 22 #4

*National Association for Research in Science Teaching*

DEC. 1980

## PRESIDENT'S PAGE

The Annual Meeting of the National Association for Research in Science Teaching, to be held April 5-8, 1981, at Grossinger's in the Catskills, will incorporate several different features. The meeting is scheduled following the NSTA meeting in New York City at a nearby site, rather than in the same city. The location also differs from past settings, being a resort/conference center rather than a hote. The theme of the meeting will be "The Research Process in Science Education". This represents an attempt to deal with research from a broader perspective than that sometimes reflected in the past, which tended to emphasize experimental and quasi-experimental research. Several sessions will be devoted to non-quantitative research and to procedures differing from the traditional. There will also be a series of "Poster Sessions" to present information about ongoing, rather than completed, research projects. Still another difference is the need for advance registration this year, rather than registration on-site as has been the case in the past.

The Program Committee and Executive Board welcome your comments and suggestions for improvement of future programs.

Stanley L. Helgeson, President

HIGHLIGHTS OF THE 1981 NARST MEETING

REGISTRATION (you must make advance registration). Registration forms and invoices will be mailed in late January for our April 5-8 meeting at Grossinger's located in the Catskill Mountains of New York. Be sure Grossinger's receives your completed reservation form and \$50 deposit no later than March 14, 1981. Reservations received after that date will not be guaranteed in terms of availability or rate. Included with the invoice will be a pamphlet of suggestions and directions on "How to get to Grossinger's".

TRANSPORTATION. In this regard, private and public transportation facilities are excellent and should not create any problems. Currently, we are negotiating with a bus company for direct transportation on Sunday, April 5, from New York City (2:00 p.m.) to Grossinger's (4:00 p.m.) and return - leaving Grossinger's on Wednesday, April 8 (2:30 p.m.). NARST members unable to catch the 2:00 p.m. bus leaving New York City will be able to catch one of the regularly scheduled buses to Grossinger's. We will keep you informed about transportation schedules and costs as more details become available.

A RESORT SETTING. Grossinger's has a resort atmosphere with excellent meeting, recreational and entertainment facilities. Sports and recreational facilities include a 27 hole championship golf course, outdoors (12) and indoors (4) professional tennis courts, two Olympic-sized pools (outdoors and indoors), men's and women's health clubs, and an adjacent lake for boating and fishing. Entertainment opportunities include a variety of daytime family activities and a lounge and night club with live entertainment and dancing. Grossinger's has a good reputation for serving a wide variety of fine foods.

COSTS. A three-day stay at Grossinger will be quite inexpensive to NARST members and their families. Room rates (including breakfast, lunch and dinner, not including \$21.45 gratuity charge per person for three days and 7 % state sales tax) assuming double occupancy from 4:00 p.m. Sunday, April 5, to 2:00 p.m. Wednesday, April 8, for room categories A through C will be \$126, \$117, and \$108, respectively. Single occupancy rates for room categories A through C will be \$162, \$153, and \$144, respectively. These rates are excellent considering the average rate at New York "luxury" hotels is \$90 a night (room only) up 21 % from a year ago, according to Laventhol and Horwath, accountants.

FOUR NEW PROGRAM FEATURES. Be sure to read the program printed elsewhere in this newsletter. First, notice that a greater variety of topics will be discussed at the April 1981 meeting including two general sessions (I and III) and a special workshop where the invited speakers will talk about recent developments in descriptive research techniques and their application to curricular and instructional problems in science teaching. A few years ago, this topic presented at one of the paper sessions generated a surprising amount of interest and healthy debate. Second, notice that Dr. James Shymansky, Editor of THE JOURNAL OF RESEARCH IN SCIENCE TEACHING, will discuss and answer questions about editorial policy and the mechanics of processing manuscripts. Third, notice that the program committee has increased the use of discussants and session evaluators to help insure the presentation of research papers of high quality. Moreover, the audience at each session will be encouraged to express their reaction to speakers' research ideas and findings: Fourth, note (not described in the preliminary program) that "poster" sessions will be held throughout the meeting. Researchers wishing to describe their ongoing research projects to other interested NARST members, should bring a sheet of poster paper describing their projects. (Be sure to print in a legible and easy-to-read fashion.) These should be mounted on the designated hall wall using masking tape provided at the NARST information desk. People at this desk will provide you with instructions on how mutually interested people can get together and discuss their research interests. Finally, to encourage a scholarly exchange of meaningful ideas, one or two (to be determined) subsidized social hours will be held on Monday and Tuesday evenings.

- William G. Holliday, NARST Ex. Secretary

### NARST OFFICE MOVES TO CANADA

TO CALGARY - ALBERTA. THAT'S RIGHT - IN CANADA... THE UNIVERSITY OF CALGARY HAS OFFERED NARST A HOME FOR FIVE YEARS... AND NARST MEMBER BILL HOLLIDAY STARTS A FIVE YEAR TERM AS EXECUTIVE SECRETARY JANUARY 1, 1981.... HE SUCCEEDS PAUL JOSLIN WHO SERVED NARST FOR FIVE YEARS AS ITS FIRST EXECUTIVE SECRETARY UNDER AN AGREEMENT WITH HIS INSTITUTION, DRAKE UNIVERSITY IN DES MOINES, IOWA. THE UNIVERSITY OF CALGARY WILL PROVIDE, AS DRAKE UNIVERSITY DID PREVIOUSLY, TIME FOR THE EXECUTIVE SECRETARY, OFFICE SPACE AND FURNISHINGS, SECRETARIAL AND STUDENT-HELP SERVICES. CALGARY WILL ALSO PROVIDE FINANCIAL AND ACCOUNTING SERVICES. NARST IS GRATEFUL FOR THESE INSTITUTIONAL CONTRIBUTIONS.

1981 NARST ANNUAL MEETING  
PRELIMINARY PROGRAM  
APRIL 6-8, 1981  
GROSSINGER'S IN THE CATSKILLS

-3-

A preliminary copy of the program is being published this year in order to get the information into the hands of the members as early as possible. A final copy of the program will be available at the Annual Meeting. In order to reduce costs, the program WILL NOT BE MAILED OUT.

MONDAY, APRIL 6, 1981

9:30-10:30

Session A-1: Paper Set                      Presider: George J. Pallrand                      Evaluator: Barbara M. Strawitz  
Learning Science in Informal Settings: Naturalistic and Experimental Museum Studies  
John J. Koran, Jr., Edward A. Munyer, Jeff R. Lehman, Mary Lou Koran, William G. Holliday

Session A-2: Contributed Papers                      Presider: Louis A. Iozzi                      Evaluator: David Dunlop  
The Use of State-Trait Anxiety Inventory in the Measurement of Anxiety About Teaching Science in Preservice Elementary Teachers  
Mary Westerback

A Scalogram Analysis of Two Measures of Concept Generalization  
Walter E. Lowell

Preparation and Validation of a Videotaped Test of Conservation Suitable for Grade 6 Students in Jamaica  
Patricia A. Isaacs

Session A-3: Symposium                      Presider: Delmar Janke                      Evaluator: O. Roger Anderson  
Research Needed to Better Understand Developmental Approaches to Instruction and Curriculum Development  
Michael R. Abraham and John W. Renner

Session A-4: Contributed Papers                      Presider: Marvin Bratt                      Evaluator: Richard J. Bady  
Analyzing Arguments in Classroom Discourse: Can Teachers' Questions Distort Scientific Authority?  
Thomas L. Russell

Behavior Patterns in Desegregated Junior High School Classrooms  
Bessie A. Stanback

The Effects of Behavior Model Analysis on Teachers' Behaviors During Science Activity Lessons  
P. Ann Miller

Session A-5: Committee Meetings  
Rooms will be available for committee meetings. Chairpersons are responsible for arranging meetings.

10:40-11:40

Session B-1: Paper Set                      Presider: Dale G. Merkle                      Evaluator: John Butzow  
Patterns of Reasoning  
William Capie, Kenneth G. Tobin, Roger Newton, Danny L. McKenzie and Michael Padilla

Session B-2: Contributed Papers                      Presider: Linda R. DeTure                      Evaluator: Ramona J. Anshutz  
The Major Questions Addressed by the Extant Science Education Research: A Map for Meta-Analysis  
Ronald D. Anderson

A Meta-Analysis of the Relationship Between Science Achievement and Science Attitude: Kindergarten Through College  
Victor L. Willson

Discussant: James Kozlow

Session B-3: Panel                      Presider: Ray M. Snider                      Evaluator: Fred L. Fifer  
Building a Base of Community Support for Science Education  
William Ritz, Kenneth W. Dowling, Floyd E. Mattheis, Herbert D. Thier, Charles W. Wallace

Session B-4: Contributed Papers                      Presider: Gene W. Moser                      Evaluator: Floyd D. Ploeger  
Relationship Between Abstract Reasoning, Instruction, and Achievement on a Physiology Unit Studied in Tenth Grade Biology  
Eugene L. Chiappetta

The Effect of Instruction Using Students' Prior Knowledge on Conceptual Change  
M. G. Hewson

Discussant: Patricia E. Blosser

Session B-5: Research Seminar/Workshop

11:50-12:50

Session C-1: Paper Set                      Presider: Edwin A. Arnfield                      Evaluator: Victor J. Mayer  
Sex Differences in College Science  
Dale R. Baker, David Van Harlingen, Veronica Mondrinos

Session C-2: Contributed Papers      Presider: Ronald E. Rowe      Evaluator: Joseph P. Riley  
Performance Assessment of Elementary School Science Teachers  
Dale G. Merkle

The Predictors of Science Teaching Performance in Elementary School Science  
Mildred R. Green

A Factor Analytic Study of Secondary Science Teacher Competencies Within Which Growth is Perceived as Important by Science Teachers, Supervisors, and Teacher Educators  
H. Craig Sipe and Bruce Tulloch

Session C-3: Research Committee      Presider: Arthur L. White  
A Discussion of the Activities of the Research Committee

Session C-4: Contributed Papers      Presider: Rodney L. Doran      Evaluator: James T. Robinson  
Attitude Measurement in an Innovative Curriculum  
Peter E. Pezaro

The Analysis of Science Curriculum Policies  
W. F. Graham Orpwood

An Analysis of Selected National Elementary Science Curriculum Projects Using Ralph W. Tyler's Basic Principles of Curriculum and Instruction as a Standard of Comparison  
Richard E. Willett

Session C-5: Research Seminar/Workshop      (Continuation of Session B-5)

1:00-2:00  
Lunch - Business Meeting      Presider: Stanley L. Helgeson

2:15-3:15  
General Session I      Presider: James R. Okey  
The Place of Non-Quantitative Research in Science Education

3:30  
Session D-1: Paper Set      Presider: Protima Roy      Evaluator: Rosalie Grant  
An Investigation of the Role of Piagetian Mental Operations on Earth Science Concept Attainment; in a Differential Instruction Model for Concrete and Formal Level Subjects  
Gabriel Ziccarelli and Gene W. Moser

A Linear Path Model of Delayed Prose Recall of a Lecture on Radiation Effects  
G. W. Moser and Helen M. Loughner

The Discriminability of Student Traits and Energy Opinions, for Final Chemistry Course Grades  
Helen M. Loughner and Gene W. Moser

The Discriminability of Mathematics and Science Achievement by Music Interest and Practices of Vocational Education Students  
Edward T. Hrabal and Gene W. Moser

Session D-2: Contributed Papers      Presider: Marcia Linn      Evaluator: James Stewart  
Representing the Substantive Structures of Disciplines  
Fred N. Finley

Young Adults Trust in Information Sources About Science Policy Issues  
Alan M. Voelker

Preparing and Using Data Tapes and Machine Readable User's Guides: A New Resource for Science Education Research  
James T. Robinson

Session D-3: Symposium      Presider: Terry Shaw      Evaluator: James D. Ellis  
Investigation of Male-Female Differences in Science  
Elizabeth K. Stage, Beverly Birns, Marcia C. Linn, Steven Pulos, and Wayne W. Welch

Session D-4: Contributed Papers      Presider: Vincent N. Lunetta      Evaluator: Sidney Rosen  
The Selective Facilitative Effects of Concrete Organizers and Abstract Organizers on Targeted Achievement Groups Learning  
Edward Jones

The Effects of Degree of Concept Relatedness of Instruction and Locus of Control Orientation on the Meaningful Learning Achievement of High School Biology Students  
Jacqueline D. Sherris

Discussant: David J. Harmon



Projective Spatial Reasoning of Undergraduate College Students  
Linda J. Kelsey

The Effects of Selected Student Characteristics of College Learning Environment on Science Process Skills of Information Acquisition  
John E. Penick

Session F-4: Contributed Papers      Presider: Nasrine Adibe      Evaluator: JoAnne Layne  
Objective and Continuous Assessment of Student Performance in the Physics Laboratory  
Uri Ganiel and Avi Hofstein

A Descriptive Instrument For Use in Investigating Science Laboratories  
Michael Abraham

A Laboratory Study of Physics Teaching in the Egyptian General High School in Light of Recent International Trends  
Dr. Ahmed Khalil Mohamed Hassan

Session F-5: Research Seminar/Workshop  
Trend Analysis Using Micro Computers

10:40-11:40

Session G-1: Paper Set      Presider: Charles R. Ward      Evaluator: David J. Harmon  
The Influence of Voluntary Diagnostic Testing on Science Achievement: A Replicated Study  
Russell Yeany, Wenda J. Adams, Edwin A. Helseth

Session G-2: Contributed Papers      Presider: James P. Barufaldi      Evaluator: John A. Novak  
The Acquisition of Formal Reasoning Ability Via A Neo-Piagetian Treatment  
Marianne Betkouski and William Lamb

Teaching Formal Reasoning in a College Biology Course for Pre-Service Teachers  
Anton E. Lawson

Predicting the Piagetian Cognitive Levels of Teacher Education Students at the Pennsylvania State University  
Hassan H. Zeitoun and H. Seymour Fowler

Session G-3: Contributed Papers      Presider: J. David Lockard      Evaluator: G. H. Bartlett, Jr.  
The Determination of the Scientific Literacy of the Students in Twelve Specific Counties of Georgia  
Constance T. McNeill

Science Interest of Middle and Secondary School Students in Utah  
J. Hugh Baird and Reuven Lazarowitz

Science Needs Assessment: A Statewide Approach  
Piyush Swami, Lawrence L. Gabel and Stanley L. Helgeson

Session G-4: Contributed Papers      Presider: John J. Koran, Jr.      Evaluator: Robert H. Evans  
Facilitating Problem Solving in High School Chemistry  
Dorothy Gabel and Robert D. Sherwood

The Effects of the Mastery Paradigm on Summative Performance in a High School Biology Laboratory Course  
William Kushner

Discussant: Rodney L. Doran

Session G-5: Research Seminar/Workshop      (Continuation of Session F-5)  
Trend Analysis Using Micro Computers

11:50-12:50

Session H-1: Paper Set      Presider: Ron Good      Evaluator: James A. Shymansky  
A Report on 1977-80 Project LEO Studies on Quantitatively-Defined Science Teaching Strategies  
Charles C. Matthews, Charlie Ray, Dorothy Schlitt

Session H-2: Round Table      Presider: Eugene Gennaro  
The Frequencies and Origins of Scientific Misconception  
Richard Trembath and James P. Barufaldi

Session H-3: Contributed Papers      Presider: John Penick      Evaluator: Edmund A. Marek  
The Comparative Effects of Congruent and Incongruent Teacher Verbal Behavior on Higher Level Learning Outcomes of Secondary Biology Students During Discovery/Inquiry Laboratories  
James A. Botti and H. Seymour Fowler

Effects of Curricula on Search Behaviors Modeled by Science Teachers  
John T. Wilson

A Case Study Example of a Beginning Teacher's Use of Curriculum Materials and the Potential Outcomes for Students  
Brent Kilbourn

Session H-4: Contributed Papers      President: J. Michael Russell      Evaluator: Vince Mahoney  
The Cognitive Developmental Level of Elementary School Students in Trinidad and Tobago  
Pamela Fraser-Abder and H. Seymour Fowler

-7-

Using the Intensive Time-Series Design for Assessing Learning of Curstal Evolution  
Victor J. Mayer and Carlos A. Rojas

Discussant: Dorothy Gabel

Session H-5: Research Seminar/Workshop      President: Rosalie Grant  
Determining the Power of Statistical Tests and Sample Sizes for Research Studies  
Rosalie Grant

1:00-2:00

Lunch - JRST & NARST Awards

2:15-3:15

General Session III      President: John W. Renner  
The Use and Mis-Use of Quantitative and Non-Quantitative Research in Science Education

3:30

Session I-1: Outstanding Paper      President: Ellen S. Simmons

Session I-2: Contributed Papers      President: John Norris      Evaluator: Bruce Tulloch  
A Model of Class Inclusion Development Based On Subjects' Verbal Justifications  
Jean Sindhikara

Objective Measures of Cognitive and Moral Judgment Level in Bioethics  
John Finley and Cheri M. Taylor

An Investigation of the Relationships Between Students' Self Concept, Mental Maturation, Degree of Open-mindedness and the Numerical Values They Assign to Indefinite Quantitative Words and Expressions  
Pastor R. Rojas, Ninoska R. Rojas and Michael Duffy

Session I-3: Symposium      President: Carol Wareing      Evaluator: William Leonard  
Formal Operational Reasoning: Format, Content and Intervention  
Jane Bowyer, Robert Karplus, Marcia C. Linn, Steven Pulos, Elizabeth Stage, Rodger Bybee

Session I-4: Contributed Papers      President: J. Hugh Baird      Evaluator: Walter A. Farmer  
Applications of Scientific and Mathematical Processes Using Microcomputers: Part II: Sex and Age  
Correlates to Estimation  
Carl F. Berger

Thirty Studies Involving the "Scientific Attitude Inventory": What Confidence Can We Have in This Instrument?  
Hugh Munby

Discussant: James J. Gallagher

Session I-5: Research Seminae/Workshop      President: William Capie  
Assessing Pupil Engagement in Learning Activities  
William Capie and Kenneth G. Tobin

4:45

Session J-1: Contributed Papers      President: Frank Fazio      Evaluator: Victor L. Willson  
An Investigation of Relationships Between Cognitive Preference Orientation and Jungian (MBTI) Personality  
Types of Eighth-Grade Science Students  
John A. Novak

Learning From Science Text Aided by Diagnostic and Prescriptive Instructional Strategies Derived From  
Information Processing Theory  
Pierce Farragher and Michael Szabo

Session J-2: Contributed Papers      President: Robert Rivers      Evaluator: George H. Lord  
A Comparison of Pupil Control Ideology of Science and Non-Science Secondary Student Teachers  
Dan R. Jones

The Effects of a One-Day Energy Workshop on Science Teacher's Attitudes Toward Energy-Related Topics  
David L. Dunlop and Frank Fazio

The Effect of Reasoning Workshops on the Teaching Strategies of Secondary Science Teachers  
Anne Lombard

Session J-3: An Hour With Past Presidents

Session J-4: Contributed Papers      President: Mary M. Atwater      Evaluator: Vincent N. Lunetta  
The Effect of an Explaining Module on Preservice Elementary Science Teacher's Knowledge of Explaining Teaching  
Behavior of Student Achievement  
Joseph P. Riley, II

An Empirical Determination of Concepts Contributing to Successful Science Task Performance: A Study of  
Mineral Classification  
William L. Yarroch

Session J-5: Research Seminar/Workshop      Presider: William Capie  
Assessing Pupil Engagement in Learning Activities (Continuation of Session I-5)

6:00-7:00  
Social Hour

7:30  
Dinner

WEDNESDAY, APRIL 8, 1981

9:30-10:30

Session K-1: Contributed Papers      Presider: Roger G. Olstad      Evaluator: Dale R. Baker  
Textural Apprehension in Young Children - Development and Implications for Science Curriculum Design  
Dennis W. Sunal and Cynthia S. Sunal

Evaluating Science Curricula: Relating Educational Process to Product  
James D. Ellis

Patterns in the Use of Elementary School Science Program Materials: An Observational Study  
Charles W. Anderson

Session K-2: Contributed Papers      Presider: Anthony Lazzaro      Evaluator: Robert K. James  
Relationship Between Locus of Control and the Development of Spatial Conceptual Abilities  
Herbert G. Cohen

Visual Testing and Visual Instruction in High School Biology  
Michael Szabo, Hermes T. DeMelo and Francis Dwyer

Comparison of High and Low Spatial Males and Females on Selected Science Concepts  
Carole Ann Camp

Session K-3: Contributed Papers      Presider: Martin D. Stewart      Evaluator: James P. Barufaldi  
College Level Physical Science for Non-Majors  
John P. Schellenberg

Effect of Experience with Investigative Biology on College Students' Views of Scientific Method and Knowledge  
Margaret Waterman

Operational Determinants for Academic Promotion in Undergraduate Science Departments  
Gloria J. Dyer

Session K-4: Contributed Papers      Presider: Jane Bowyer      Evaluator: Eugene Gennaro  
Validation of the Test of Integrated Science Process Skills  
James R. Okey, F. Gerald Dillashaw and Charles F. Porter

Designing a Likert-Type Scale to Assess Attitude Toward Energy Conservation  
Thomas R. Koballa, Jr.

Discussant: Edward Smith

Session K-5: Research Seminar/Workshop      Presider: William Leonard  
A Quantitative Procedure for Treatment Verification in Science Teaching Research  
William Leonard

10:40-11:40

Session L-1: Contributed Papers      Presider: Lily V. Holloway      Evaluator: Ellen S. Simmons  
A Study of the Perceptual Orientation of Community College Students and Their Attitudes Toward Science as They Relate to Science Achievement  
Linda W. Crow and Martha K. Piper

Developing an Instrument to Measure Scientific Attitudes  
Carol Wareing

Attitudes of Preservice Elementary School Teachers Toward Science Teaching: Antecedents and Response to Field Experience  
Joseph C. Cotham

Session L-2: Contributed Papers      Presider: Susan C. Nurrenbern      Evaluator: Carol Wareing  
The Effects of a Modified Mastery Learning Strategy Achievement, Attitudes, and On-Task Behavior of High School Chemistry Students  
F. Gerald Dillashaw and James R. Okey



C A N D I D A T E S F O R N A R S T 1 9 8 1 - 8 2 O F F I C E S . . . . .

Nominees were approved by the Executive Board at its annual fall meeting 10/31, acting upon recommendations of the Election Committee.

FOR PRESIDENT ELECT: Carl Berger and Marjorie Gardner

FOR MEMBER OF THE EXECUTIVE BOARD: (two to be elected for three-year terms)  
Michael Abraham, Rodger Bybee, Dorothy Gabel, and Jane Kahle

NOTE: Additional nominations may be made by a petition of ten members. Petitions should reach the executive secretary by January 30.

The Bylaws require that vitae be published in this newsletter and that ballots be sent two months prior to the annual meeting. Ballots will thus appear in the February newsletter.

C A N D I D A T E S F O R P R E S I D E N T E L E C T

C A R L F. B E R G E R.

Professor of Science Education and Associate Dean, School of Education, University of Michigan, 1979-Present.

Professor of Science Education 76-79, Assoc. Prof. Sc. Ed., U. of Mich. 72-76, Sc. Ed. and Environ. Comm. Dir. Detroit Edison, 71-72; Staff Physicist, SCIS 66-71; Inst. PSSC St. Lawrence U. 65-66; Sci. and Math. Dept. Chr. Rio Linda H.S. Ca., 63-66; Sci. Teach. Grant Union H.S., N. Sacramento, CA 59-62.

MEMBER: NSTA, AERA, Michigan STA.

PROFESSIONAL ACTIVITIES: Ed. Consultant, Harcourt-Brace; Author, Houghton-Mifflin; Ed. Bd. SCIENCE 76-79; Ed. Bd. THE PHYSICS TEACHER 68-72; Ex. Bd. NARST 78-80; Dir. NSF Administrators Confs. 73-78; Consultant - Dept. Defense Schools 75-78; Pres. Detroit STA 75.

SELECTED PUBLICATIONS: MAPS (El. Sc. Prog.) Houghton Mifflin, 6 texts, Act. Bks., Equipment Kits, Teacher Guides 74. MEDIA ACTIVITIES IN SCIENCE FOR INDIVIDUALIZED INSTRUCTION, 7 books, Houghton-Mifflin, 72. SCIENCE (El. Sc. Prog.) Houghton-Mifflin, 6 texts, 6 teachers guides, 79. Numerous articles in JRST, SC. Review and other journals.

EDUCATION: B.A. Univ. Denver 58; M.A. Calif. State-Sacramento 66; EdD. Berkeley, 71.

M A R J O R I E H. G A R D N E R

Div. Dir. Sc. Education Resources Imp. NSF (on leave) University of Maryland, Professor of Chemistry.

Dir. Sc. Teachers Center, Assoc. Dean and Dir. Bureau Research 75-76, As. Provost Sp. Proj., 74-75 (Vis. Prof. Macquarie and Canberra Univ. Australia 73-74), Prof. Dept. Chem. and Sec. Educ. 72-78 U. Maryland; Assoc. Prof. Chem. and Ed. 67-72, As. Prof. Chem. and Ed. 64-67 U. Maryland. ESCP 64-67. As. Ex. Sec. NSTA 61-64; Inst. Chem. & Sc. Ed. Ohio St. 58-60; Teacher Sc., Eng., Journalism, various schools 47-56; Ad. As. to Dean of Women, Utah State 46-48.

MEMBER: AAAS, ACS, AERA, AETS, Maryland STA, NEA, NSTA, PDK, PKP, AAHE.

PROFESSIONAL ACTIVITIES: AAAS-Chr. Sec. Q, AAAS Council, Comm. Sc. Ed.; ACS-Chr. Curr. Comm., Adv. Bd. Chemistry, Nat. Conv. Comm., Int. Act. Comm.; NSTA-Bld. Fund.,

(GARDNER, cont.) Conv. Comm., Chr. Materials Review; Fulbright Association Bd. 76-81, Pres. Elect 80; CIES-Chr. 78-80; Nat. Acad. Sciences-Comm. on Int. Relations. Invited Lectures and Consultant to Sc. Ed. groups in Australia, Yugoslavia, United Kingdom and eight other countries. Consultant to many private and government agencies, NSF review panels and task forces.

HONORS: Honorary Doctorate Harvard 75; Honorary Doctorate Utah State 75; Hon. Life Mem. ACS; OHAUS Award 72; Fulbright 73; Robert H. Carleton NSTA Award 74; Wash. Acad. Science 78.

SELECTED PUBLICATIONS: CHEMISTRY IN THE SPACE AGE, Holt Rinehart 65; NEW PERSPECTIVES IN CHEMISTRY, Silo Burdett 80; INV. THE EARTH (ESCP), Houghton-Mifflin; IAC CHEM. PROJECT, 73 and 79 (Ed.). Numerous articles in NATIONS SCHOOLS, TST, JRST, Jr. Chem. Ed., Jr. Coll. Sc. Teach., Sc. Ed., SSMA Jr1. Reviews, Chapters in books, etc.

EDUCATION: B.S. Utah State 46; M.A. Ohio State 58; PhD Ohio State 60; (Hon. Doc. Harvard and Utah State).

#### CANDIDATES FOR EXECUTIVE BOARD

##### RODGER W. BYBEE

As. Professor Carleton College 1973-Present.

NYU 73-74; Un. N. Colorado, Earth Sc. & Sc. Ed. 67-71. H.S. Teacher 65-70. Elem. Sch. Teacher 68-70.

MEMBER: NSTA, AETS, CESI, NAGT, LST, DPD, PDK, Assoc. Hum. Psychology, AAAS, NABT.

PROFESSIONAL ACTIVITIES: AETS-N-C Reg. Pres. 77-78; NSTA - Comm. on Instruc. Prog. 73-74, Nom. Comm. 74; AETS - Comm. on Sm. Colleges Sc. Ed., Prog. Comm. 80; NARST - Ed. Bd. 76-81; NY Urban Coalition Consultant; Project Synthesis; Rand-McNally Interaction of Earth & Time; BSCS Writer 75, 79-80; D. C. Heath Consultant; Nat. Assessment Ed. Progress Consultant.

HONORS: Outstanding Young Man in America - 70; NAGT Outstanding ES Teacher SW, 71; Outstanding Educator of America - 75; Listed in 11 directories of outstanding persons in US.

SELECTED PUBLICATIONS: BECOMING A BETTER SCIENCE TEACHER, Charles Merrill 73; VIOLENCE, VALUES & JUSTICE IN AM. ED., Allyn & Bacon 80; BECOMING A SCIENCE TEACHER, Chas. Merrill 81; Sc. Super. Role in Fac. Environment in SOURCEBOOK FOR SC. SUPERVISORS, NSTA 76. Over 40 articles in JRST, SAC, TST, Sc. Ed., SSMA, Am. Bio. Teach., Jr1. of Social Issues. Numerous speeches and presentations to state and national professional groups.

EDUCATION: B.A. Northern Colorado, M.A. N. Colorado, PhD. New York University.

##### DOROTHY L. GABEL

Assoc. Professor Education, Indiana University 79-Present.

As. Prof. 74-79, Dir. Sec. Sc. Teach. Prog. 74-77, Indiana U. Ins. Chem. & Ed. Purdue 71-74, Ins. Bio. Purdue 70-71. Dept. Chr. Science, Omaha 66-70, Sc. Teach. Madison WI 59-66.

MEMBER: PKP, NSTA, CESI, Hoosier STA, SSMA, PDK, AETS.

PROFESSIONAL ACTIVITIES: Hoosier STA Pres. 79-80, VP 78-79. Rosary College Bd. of Trustees.

HONORS: NARST Award for most significant manuscript pub. in JRST V. 14 1977 and V. 16 1979; Profitt Grant 78, Spencer Grant 79.

SELECTED PUBLICATIONS: Two Award Winning Articles in JRST: 1. "The Effects of Grouping and Pacing on Learning Rate, Attitude and Retention in ISCS Classrooms," 14 (5) 77. 2. "The Development and Construct Validation of a Group-Administered Test of Piaget's Formal Thought," 16 (6) 79. A SUMMARY OF RESEARCH IN SC. ED. John Wiley, 79.

(GABEL, cont.) Over 30 articles in JRST, SSMA, Sc. Ed., INVESTIGATIONS IN SC. ED., and others.

EDUCATION: B.A. Rosary College 57, M.S. Purdue 69, PhD. Purdue 74.

JANE BUTLER KAHLE

Assoc. Professor Biology and Education and Chairman Graduate Studies, Dept. Ed. Purdue University 1978-Present.

As. Prof. Biology and Ed. 71-75, Grad. Inst. Bio., Purdue 69-71. Assoc. Fac. Zoology Indiana Univ. 63-69. Biology Teacher, Indiana 56-69.

MEMBER: NABT, NSTA, AETS, Sigma Xi, DKG, PDK, Hoosier STA.

PROFESSIONAL ACTIVITIES: NABT Ed. Bd. 75-81, Pub. Comm. 76-81, Director 79-81; NIE Plan. Comm. 78; NSTA-Research Comm.; Project Synthesis 78-79; Consultant to ISIS program; NAEP consultant.

HONORS: Fulbright to Phillipines 75.

SELECTED PUBLICATIONS: TEACHING SCIENCE IN THE SECONDARY SCHOOL, D. Van Nostrand 79, REVIEW OF READINGS IN SC. ED. FOR EL. SCHOOLS MacMillan Co. 75. Over 30 articles in JRST, SSMA, Am. Bio. Teach., TST, Sc. Ed., Jr. Coll. Sc. Teach., PDK. Many invited lectures.

EDUCATION: A.B. Wellesley 55, M.S. Purdue 63, PhD. Purdue 71.

MICHAEL R. ABRAHAM

Associate Professor Chemistry, U. Oklahoma-Present.

As. Prof. Chem. 74-80 U. Oklahoma; USMES Curr. Specialist 72-75; Lec. California State Bakersfield 72-74; Ins. Florida State 70-72; Teacher Atlanta 64-68.

MEMBER: NSTA, SSMA, ACS, AETS, AERA.

PROFESSIONAL ACTIVITIES: NSTA West. Reg. Plan. Comm. 75; SSMA Pub. Comm. 76-78; NARST Pub. Advisory Comm. 78-81; AETS Ed. Bd. 75-78, Ed. 6th Yrbk., Bd. of Dir. 79-80.

SELECTED PUBLICATIONS: INQUIRIES INTO CHEMISTRY, Waveland Press 79, TEACHERS GUIDE FOR INQUIRES INTO CHEMISTRY, Waveland 79, SCIENCE EDUCATION/SOCIETY: A GUIDE TO INTERACTION AND INFLUENCE, AETS 79 Yearbook Editor. Many articles in SSMA, Jr. Coll. Sci. Teach., Sc. Ed.

EDUCATION: B.A. Grinnell 64, M.A.T. Emory 65, PhD. Florida State 73.

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*For an application form write the Executive Secretary. William Holliday, NARST-EDCI University of Calgary, Calgary ALBERTA, CANADA T2N 1N4.*

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Placement Newsletter....A placement issue of the Newsletter will be assembled in January for February 1st publication. It will include both types of notices referred to above.

Send announcements to.... JOHN PENICK, NARST Placement, Science Education-Physics Building, University of Iowa, Iowa City, IA 52242.

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NEW CURRICULUM BOOK:

*NARST members Graham Orpwood, Hugh Munby and Thomas Russell have edited a book, Seeing Curriculum in a New Light: Essays From Science Education. The book's message is a broad one.....for significant and defensible change to take place in education, the eyes of research must be refocused to "see" present practices anew. Order from OSIE, Publication Sales, 252 Bloor St. W., Toronto, ONTARIO, M5S 1V6. \$8.50. U.S. or Canadian funds by cheque prepaid.*

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HARD WORK IS ITS OWN REWARD??

If so, Jack Renner and Stan Helgeson got theirs.

When it became necessary for Rita Peterson to resign as President Elect, because of her new position with NSF, Jack and Stan took over program planning for the 1981 annual meeting. All members owe them a sincere, "thankyou".

6th Annual Conference on Chemical Education

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Contact: Henry Heikkinen  
Chemistry Department  
Box 419 University of Maryland  
College Park, MD 20742 USA

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