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Indiana Academy of Science
SPRING MEETING
OF THE EXECUTIVE COMMITTEE
April 22, 1983

MINUTES

The meeting was called to order by President Alice S. Bennett at 4:15 p.m. in Room 21-21A Walb Memorial Union, on the campus of Indiana University-Purdue University at Fort Wayne.

Minutes of the October 29 meeting were not available. It was moved that their approval be deferred until the Fall meeting.

TREASURER'S REPORT

Treasurer Duvall A. Jones reported Academy finances as of 21 April 1983:

Current Assets

Checking Account	\$ 6,120.22
Savings Accounts	\$18,453.06
	<hr/>
Total	\$24,573.28

These are distributed in

Academy Accounts	\$ 9,056.41
Administered Accounts	<u>\$15,516.87</u>
	\$24,573.28

1983 income to date has been \$11,053.26

1983 expenditures to date are \$ 6,232.33

Acceptance of the report was moved, seconded, and carried.

REPORTS OF ELECTED COMMITTEES

Academy Foundation Committee

William A. Daily, chairman, reported that as of 31 March 1983 the John S. Wright Fund has a market value of \$599,553. The John S. Wright Investment Income Account holds \$108,000 available for use, primarily for research grants. The Academy Foundation account has a market value of \$36,685.

Bonding Committee

No report needed at this time.

Research Grants Committee

Ernest E. Campaigne, chairman, reported that the committee had received 25 research applications, totalling nearly \$24,000. The average request was for \$960, with three requesting more than the \$1500 limit set by the Academy. The total amount granted was \$10,743; the average award was \$565. Of the 25 applications, 6 were fully funded, 13 were partially funded, one was withdrawn, and 5 were not funded. A list of the approved applications and amounts granted follows, at end of minutes.

REPORTS OF APPOINTED COMMITTEES

Program

Co-Chairman Douglas Lyng and James Haddock reported that at the Fall meeting the Friday afternoon program will include a symposium on chemical demonstrations. The American Chemical Society is providing travel funds for the speakers. The Saturday morning program will center on acid rain, ground water pollution, and hazardous waste.

Youth Activities

Susan M. Johnson, chairman, presented the following report:

“At the meeting of the committee on February 22, 1983, in Indianapolis during the Hoosier Association of Science Teachers Conference, a major item of discussion was how to involve more high school and middle school students in Academy sponsored programs. This fall, the Junior Academy meeting will again take place on a state-wide teacher study day. In order to get more high school teachers to attend and bring students, the committee will ask that the Academy Meeting be listed as a suggested ISTA teacher education activity. The committee also recommended that the Academy President write to public school superintendents and administrators of private schools to inform them of the Junior and Senior Academy meetings.

With the goals of encouraging high quality science and, at the same time, attracting more students from more schools to participate in the Junior Academy, plans are underway to modify the meeting format of the Junior Academy. The modification includes a spring meeting, the first of which will be held on April 30, 1983. The spring meeting will include field trips and other hands-on science learning activities. Student participation will not require prior research and scholarly preparation. The Fall meeting will continue to feature presentation of research papers by students. A chance for junior members to hear about senior level research is also planned for the fall meeting.

At this time, winners of regional science fairs have been selected, and those students, advisors, and regional fair directors who plan to attend the International Science and Engineering Fair on May 9-14 in Albuquerque, New Mexico, have made reservations with Karl Kaufman. In order to facilitate the fund-raising efforts of regional science fair directors, the Academy is supporting production of a science fair brochure. Lloyd Anderson is doing this work. The plan is to deliver the brochure to regional directors by the fall, so that the directors can distribute brochure copies to potential contributors.

Under the leadership of Walter Cory, 47 high school juniors and seniors participated in the Indiana Science Talent Search. Fifteen students were introduced as winners at the awards luncheon on March 12, 1983, at the Student Union of IUPUI. The Academy was represented officially by Alice Bennett and Duvall Jones. Susan Johnson represented the Youth Activities Committee.

In other business, the Youth Activities Committee approved a motion that Keith Hunnings, former Director of the Junior Academy, be recognized for his work. The motion was forwarded to the President.”

Chairman Johnson moved that the amount allocated for production of the brochure for science fair directors be increased from \$400 to \$600. Discussion of the motion brought out that although the Academy does not sponsor science fairs, it does foster them, and this brochure should be helpful. The motion carried.

Walter Cory spoke to the value of the Science Talent Search to the students and teachers involved. Winners are automatically members of the Academy for one

year, and several continue their membership. Science fair winners also are eligible to apply for scholarships through an interview process.

Junior Academy of Science

Leota Skirvin, director, was unable to attend. Her report was presented by Susan Johnson.

The trophy for "Best Overall School" has been eliminated because it generated unhealthy rivalry.

The Spring meeting is to be held April 30 at Brown County High School in Nashville. The theme will be "Caves" and it will include an afternoon of spelunking. Susan Johnson will lead a workshop on inspiring students to do research. Several awards will be announced.

Library

Lois Burton, chairman, was unable to attend. Her report was presented by William Daily.

Volume 91 of the *Proceedings* has not yet been received from the binder. It will be distributed immediately upon being received.

The "Requisition for Printing" for Volume 92 was prepared for the Editor and submitted March 29 to the Department of Administration. The amount paid from the allotment for 1983-84.

Notification has been received from the State Budget Agency that the state funds for printing of the *Proceedings* for 1983-84 will be \$8400, and for 1984-85 will be \$8900.

Editor

Donald R. Winslow, Editor, reported that Vol. 91 of the *Proceedings* is at the binder.

Publications

William R. Eberly, acting for Benjamin Moulton, chairman, reported that copies of *Ectoparasites of Indiana* are available.

The next publication will be the *History of the Indiana Academy of Science* being prepared by William and Fay Daily. Eberly suggested it be printed for free distribution.

Climate of Indiana is in progress.

Butterflies of Indiana will not be complete for several years. It is to include photographs of all Indiana butterfly species.

Relations of Academy to the State

Alice S. Bennett reported for Robert Henderson, chairman. President Bennett has written to Lieutenant Governor John M. Mutz welcoming him to membership in the Academy and informing him of the existence of this committee and the hope that it and his office will find ways to work together.

Invitations

Invitations are needed for meeting sites for 1986 and beyond.

Parliamentarian

No report. President Bennett spoke of the need for a review of the Constitution and By-laws. See discussion under "Old and New Business."

Preservation of Natural Areas

Marion T. Jackson, chairman, was unable to attend. His report was presented by Alice Bennett. The committee's two active concerns are:

Developing a standardized inventory methodology for natural areas that can be used by a number of field workers across the state.

Exploring ways to better utilize the diverse talents of IAS members with natural areas interests to help natural areas professionals (e.g., Division of Nature Preserves, Indiana Natural Heritage Program, and The Nature Conservancy.)

Emeritus Membership

Robert H. Cooper, chairman, sent a report nominating the following persons for Emeritus membership:

Robert M. Brooker	1951-1982	32 years
Harold D. Caylor	1931-1982	52 years
Margaret Fulford	1929-1982	54 years
Keith Hunnings	1954-1982	29 years
Willis H. Johnson	1928-1982	55 years
Preston McGrain	1940-1981	42 years
Frank Streightoff	1954-1981	28 years

Election to Emeritus membership was moved, seconded, and carried.

Biological Survey

Reporting for John A. Bacone, chairman, Theodore J. Crovello said that the committee is planning publication, as a Centennial volume, of a summary of information on biota and the environment.

OLD AND NEW BUSINESS

Registration Fee for Meetings

Duvall A. Jones moved the following Amendment to the Academy By-Laws:

Article XII

Registration Fee for Meetings

- Section 1. Registration fees for Spring and Fall meetings of the Academy shall be determined annually by the Executive Committee (at the annual meeting).
- Section 2. Honorary, Emeritus, and Life members shall be exempt from registration fees.
- Section 3. Registration fees may be collected by the host institution, but must be transmitted to the Treasurer of the Academy for disbursement.

Jones explained the need for such a fee due to escalating costs. In response to a question, President Bennett said that even if the host institution did not request reimbursement, the Executive Committee should set a non-zero fee to build up an account for funding meetings.

The motion was seconded and carried.

Development Fellowship for Secondary-School Science Teachers

Ernest Campaigne reported on the current status of this project, which has been fostered by the Research Grants committee. The Fellowship would provide to the teachers \$120 per week for 8 to 10 weeks, and to the sponsor up to \$300 for materials. One or two teachers will be sponsored this year on a trial basis; then outside help, such as NSF, will be sought. A separate committee, under the chairmanship of Walter Cory, has been named to review applications and to oversee the program.

Operations Manual

Duvall Jones distributed without discussion drafts for statements of the duties of Section Chairperson, Program Requirements for Meetings, and Program Chairperson.

Publication of Saturday Meeting Presentations

President Bennett reported the suggestion of the Academy Council that transcripts of the Saturday morning symposia be published and distributed as a separate publication of the Academy. William Eberly said there was ample precedent for special publications. There was objection from the floor to funding such a project outside the regular budget procedure. Walter Cory suggested that the topics of Saturday meetings are within the purview of the Science and Society Committee, and perhaps that committee would have time and funds to pursue the matter.

Constitutional Review

Copies of the Constitution of the Academy appear in the *Proceedings* for 1964 and 1980, but it is not clear that all Amendments voted at intervening meetings are in operation. The matter needs study by a special committee. The President will pursue the matter.

ANNOUNCEMENTS

Changes in Committee Directory

Geology and Geography Section—Gerald Showalter has resigned as chairperson-elect.

Preservation of Natural Areas Committee—add William Weeks, State Director Indiana Chapter, The Nature Conservancy.

“Speaker of the Year” Selection Committee—Donald Gray has resigned as Chairman

Youth Activities Committee—add John A. Ricketts, Department of Chemistry DePauw University

Academy Telephone

The Academy has no central office, but general calls may be handled by Mrs. Lois Burton at the Indiana State Library, 317/232-3686

ADJOURNMENT

The meeting was adjourned at 6:35 p.m.

Respectfully submitted,

Richard L. Conklin
Secretary

Indiana Academy of Science
Spring, 1983, Grant Applications Funded
Research Grants Committee Actions

No.	Principal Investigator/ Institution	Title	Funded
1	Mohammad Behforouz Ball State University	Heterocyclic Synthesis: Lavendamycin and Other Pyridine Derivatives	\$ 1,100
2	Bartholomew G. Corsaro University of Notre Dame	Role of Imaginal Disc Cell Death in Expression of the Eyeless Mutant of <i>Drosophila melanogaster</i>	\$ 350
3	Christine Dougherty Ball State University	Determination of Nitrogen and Sulfur Content of Radish Plants Exposed to Simulated Acid Rain	\$ 139
4	Mary Ann K. Hughes Indiana University	Thermoregulation in <i>Sternotherus odoratus</i> : Behavior and Ecology	\$ 330
5	Austin L. Hughes Indiana University	Seasonal Trends in Adult Male Life History in the Western Mosquitofish and their Adaptive Significance	\$ 375
6	Mary L. Jaynes University of Notre Dame	Effects of Submersed Plants on Lake Sediment Redox and Solute Profiles	\$ 700
7	Richard J. Jensen, Ph.D. Saint Mary's College	Patterns of Variation Within and Between Two Indiana Red Oaks	\$ 475
8	Kenny Lipkowitz Indiana University-Purdue University at Indianapolis	Symposium on Molecular Mechanics	\$ 500
9	James R. Lovvorn and Charles M. Kirkpatrick Purdue University	Vigilance and Flock Edge Affinity of Sandhill Crane Family Groups	\$ 500
10	Michael J. Mandracchia University of Notre Dame	Glochidium Larva: Its Role in the Ecology and Evolution of Freshwater Clams	\$ 475
11	Molly Morris Indiana University	Call Order and Call Site in Relation to Female Choice: A Study of Anuran Mating Behavior	\$ 669
12	William E. Nellist Indiana University	Large and Small-Scale Cyclicity in the Kokomo Limestone Member of the Wabash Formation	\$ 400
13	William J. Rowland Indiana University	An Experimental Investigation of Releasing Mechanisms in the Threespine Stickleback, <i>Gasterosteus aculeatus</i>	\$ 760
14	Raymond J. Russo Indiana University-Purdue University at Indianapolis	The Hormonal Basis of a Change in Predation Behavior of Toxorhynchites, a predator on container-breeding mosquitoes	\$ 860
15	Robert J. Stark DePauw University	A Study of Transmembrane and Transcellular Ion Transport during Stimulus-Secretion Coupling in the Salivary Gland	\$ 740

16	Licia Wolf Indiana University	Biparental Care in the Monoga- mous Dark-eyed Junco: Testing an Assumption	\$ 600
17	Robert James Autio Indiana University	Glacial Lakes Quincy and Emin- ence Stratigraphic Study	\$ 420
18	Steve Gilbert Purdue University	Use of Analogy in Promoting Achievement in High School Biol- ogy	\$ 600
19	Catherine Zmachinski Ball State University	Investigation of the Relationship Between Testosterone and Domi- nance in Male Syrian Golden Hamsters	\$ 750
		Total	\$10,743

Indiana Academy of Science
MINUTES OF THE ACADEMY COUNCIL
October 27, 1983

The Council of the Indiana Academy of Science met at Ted Gouloff's Restaurant, 3311 N. Anthony Blvd., Fort Wayne, on Thursday, October 27, 1983.

The meeting was called to order by President Alice S. Bennett at 3:20 p.m. Council members present were Dr. Bennett, Duvall Jones, Theodore Crovello, Donald Winslow, Walter Cory, Douglas Lyng, James Haddock, Benjamin Moulton, and Richard Conklin.

President Bennett announced appointment of a new nominating committee: J. Dan Webster, chair; William Eberly, and John Patton.

In preparation for a change of officers, the President suggested that all Council members gather information on deadlines for action by the officers. She will ask at the Executive Committee meeting that each committee chair do likewise.

The program chairs raised two matters of concern: Slow delivery of bulk mailings is a problem. The laboratory equipment display was cancelled. Since the displayers had agreed to provide some fund for coffee, this raised the question of whether program chairs in the future should solicit funds for coffee and list in the program names of sponsors.

At the time of the vote on the constitutional amendment authorizing registration fees, Council will suggest the following fee schedule for the Fall meeting:

\$5.00 Members, except those specifically exempted

\$7.00 Non-members

\$2.00 Students

Council will suggest to the committee studying the constitution that additional chairs (e.g., Publications Committee) be added to the membership of the Council.

Minor publications, such as pamphlets and list of speakers, should be managed by the Publications Committee. The speakers bureau list has been published by the Director of Public Relations with the understanding that his budget would be reimbursed, perhaps from Science and Society or the President's Fund. New Academy brochures are needed. Cory will prepare a design and circulate it to Council.

Cory announced that both winners of Secondary School Teacher Fellowships will be presenting papers at their sections of the meeting.

Dr. Robert Fischer of Ball State Department of Psychological Sciences has received positive response from several persons around the state concerning reactivation of the Psychology Section. Council granted approval, and it will be taken to the Executive Committee for final approval.

There was considerable discussion about a resolution stating the Academy's position on elementary and secondary science education. It was decided that Jones and Bennett would prepare such a resolution to be presented to the membership at the General Meeting. The essence of that resolution would be strong support of public education and possible reorganization of the educational structure in the state.

The meeting adjourned to dinner at 5:00 p.m.

Respectfully submitted,

Richard L. Conklin, Secretary

Indiana Academy of Science
FALL MEETING
OF THE EXECUTIVE COMMITTEE
October 27, 1983

MINUTES

President Alice S. Bennett called the meeting to order at 7:15 p.m. in Room 21-21A, Walb Memorial Union, Indiana University-Purdue University at Fort Wayne, Fort Wayne, Indiana.

Minutes of the Executive Committee meeting of April 22, 1983, were approved as corrected (Minutes of the Executive Committee meeting of October 29, 1982, approval of which was deferred at the Spring meeting, had already been approved at the October 30, 1982, General Meeting).

TREASURER'S REPORT

Treasurer Duvall A. Jones reported the Academy finances as of October 26, 1983:

Current Assets

Checking Account	\$ 5,252.58
Savings Accounts	\$18,422.56
Total	<u>\$23,675.14</u>

These are distributed in

Academy Accounts	10,203.49
Administered Accounts	13,471.55
Total	<u>\$23,674.14</u>

Membership total as of October 26, 1983 was 954.

It was moved and seconded and voted that the treasurer's report be accepted.

REPORTS OF ELECTED COMMITTEES

Academy Foundation Committee

William A. Daily, chairman, reported that on September 30, 1983, the Foundation Account had a market value of \$40,796 and had earned \$2,688.85 during the past year. The John S. Wright Fund had income of \$37,056.22, all of which was transferred to the Invested Income account. The Fund had a market value of \$731,483.00. The Invested Income Account earned \$13,677.95 in the same period and had assets of \$109,295.81 as of September 30, 1983.

Bonding Committee

No report necessary at this time.

Research Grants Committee

Ernest E. Campaigne, chair, announced that Academy Research Grants in the amount of \$9550 and Secondary School Research Grants totaling \$1,036 had been approved in the Fall round. A list of those grants is appended at the end of these minutes.

Walter Cory described the new High School Fellowship program for teachers, and announced that the two recipients of these fellowships this year will be presenting papers in their respective sections. They are Cynthia K. Brown of Angola and Arthur Middleton of Rensselaer.

REPORTS OF STANDING COMMITTEES

Program

Co-chair R. Douglas Lyng and James Haddock reported on details of the Fall meeting.

Auditing

No report at this time.

Youth Activities

Susan Johnson, Chair, reported that the Indiana Science Talent Search, directed by Walter Cory, is in its 37th year of operation. Brochures and entry forms have been sent to all senior high schools in Indiana. Finalists will be interviewed and honored at an awards luncheon in Indianapolis on March 10. Kappa Kappa Kappa sorority is sponsoring the competition and is awarding two \$1,000 scholarships. Dr. Cory distributed a brochure and report of finalists in the 1982-83 Search.

The number of students who participated in regional science fairs increased last Spring, and thirty students from Indiana received awards at the International Science Fair. A brochure for science fair directors will be available in January.

Teacher workshops are being offered to help increase the quantity and quality of high school research. One thousand dollars of the money awarded for high school research was provided by a grant from the AAAS.

Junior Academy of Science

Leota Skirvin Smith, Director, announced that the second Spring meeting of the Junior Academy will be held at Hammond and will feature the ecology of the dunes. There have been some changes in format at the Fall meeting to avoid having competitions taking place during the paper presentations.

The practice of awarding a year's membership in the AAAS to the outstanding junior scientist in the senior division has been reinstated.

Library Committee

Volume 91 of the *Proceedings* has been distributed to Academy members and science clubs. Copies of the *Proceedings* and Monograph Number Four were distributed to approximately 500 libraries, institutions, and societies.

The requisition for printing of Volume 92 of the *Proceedings* was prepared for the Editor and presented to the Department of Administration on March 29. The 1983/84 state appropriation of \$8400 for printing Volume 92 has been encumbered.

Publications Committee

Benjamin Moulton, chair, distributed the report. The first draft of the Daily volume on the History of the Academy is complete and is being reviewed. *The Climate of Indiana* is in progress.

The committee is considering means for formalizing procedures for acquiring budgeting, and distributing monographs.

Committee on Fellows

Wilton S. Melhorn, chair, presented the names of six persons to be placed in nomination at the General meeting. They were approved for recommendation to the membership as candidates for the rank of Fellow.

There was some discussion of the qualifications for Fellows, and the possibility of making them more specific when the Constitution is revised.

Committee on Emeritus Members

Robert I. Fletcher of Greencastle, IN, was granted Emeritus Membership.

Representative to Natural Resources Commission

A brief report sent by Damian Schmelz, the present representative, described the responsibilities of the Commission and reminded the Academy that its representative brings the only input from the professional scientific community.

Editor

Donald Winslow, Editor, reported that Volume 91 of the *Proceedings* was printed by Western Newspaper Publishing Company, Inc. of Indianapolis. Eight hundred hard bound and 525 paper bound copies of 700 pages each, including the cumulative index were printed at a cost of \$8,000 to the State and \$10,896.50 to the Academy.

The same company will print Volume 92. Delivery date is scheduled for December 15, 1983.

Volume 93 is in preparation. A set of guidelines has been prepared to help the Editorial Board identify the outstanding research papers submitted for publication.

Speaker of the Year

Ernest E. Campaigne, Professor of Chemistry, Indiana University, is Speaker of the Year.

Centennial

Walter Cory reported that the Spring meeting in the Centennial Year will be held in Brookville on April 27-28 and the Fall meeting at Butler University on October 26-27. Several program sections are encouraged to feature their histories at the Fall meeting.

Constitutional Revision

William Eberly, chair, reported that the Committee hopes to have suggestions ready for discussion at the Spring meeting, and final action at the Fall meeting.

Chairs of all committees were requested to prepare outlines of their duties, schedules, etc., and send them to President-Elect Crovello.

Resolutions

William Davies, chair, moved approval of a resolution of appreciation he will present at the General Session. The motion was seconded and carried.

Duvall Jones discussed the present status of elementary and secondary education in Indiana. He proposed a resolution to be presented to the membership at the General meeting. J. Dan Webster moved that the Executive Committee approve the first two portions of the three-part resolution. The motion was seconded and carried.

Nominating

J. Dan Webster, chair, reported the slate of officers who will be presented to the Academy for election at the General meeting. His motion to nominate these people was seconded and carried.

OTHER BUSINESS

Psychology Section

Robert Fischer of the Department of Psychological Sciences at Ball State University, has requested that the Psychology Section of the Academy be reactivated. He has submitted some thirty-five petitions expressing interest in such a section

and has agreed to chair it for the first year. Theodore Crovello moved reactivation of the Psychology Section of the Academy. The motion was seconded and carried.

Registration Fee

At the General Meeting the membership will be asked to vote on a constitutional amendment empowering the Executive Committee to establish registration fees for the Spring and Fall meetings.

Duvall Jones moved that if that amendment is passed, the fees for the Fall meeting, 1984, be \$5.00 for members not exempted in the amendment, \$7.00 for non-members, and \$2.00 for students. There would be no fee for the Spring, 1984, meeting. The motion was seconded and carried.

Adjournment: 10:00 p.m.

Respectfully submitted,

Richard L. Conklin
Secretary

Indiana Academy of Science
 Fall, 1983, Grant Applications Funded
Research Grants Committee Actions

No.	Principal Investigator/Institution	Title	Funded
1	G. P. Alberici Notre Dame	Response of Ascending Auditor Fibers of the Cricket. . .	\$ 350
2	T. L. Derting Indiana University	Basal Metabolic Rate, Thyroid Gland Activity, and Assimi- lated. . .	680
3	K. W. Eberly Saint Mary's College	Skin Microflora of the Indiana Red Squirrel. . .	600
4	Dr. J.D. Haddock Indiana University- Purdue University at Fort Wayne	The Effect of Prey Diet on Pre- dation Efficiency of the Coccinel- lid, . . .	510
5	J.H. Jones Indiana University	A Leaf Architectural and Cuticu- lar Analysis of Extant Rhamna- ceae	612
6	W.L. Kovach Indiana University	Dispersed Plant Remains from the Cenomanian of Kansas: . . .	680
7	M.P. Kowalski	The Effect of Nest Parasites on the Growth and Survivorship of. . .	210
8	Vicki J. Martin Notre Dame	The Role of the Nervous System in Metamorphosis of Cnidar- ian. . .	650
9	Marsha Lakes Matyas Purdue University	Prediction of Achievement and Attrition among Male and. . .	730
10	R.O. McCracken Indiana University- Purdue University at Indianapolis	The Effect of Single and Divided Dose Administration on the Effi- cacy of. . .	775
11	Eric Mould St. Mary's College	Effects of Phenolics on Forage Utilization by Monogastric. . .	445
12	Cheryl Ann Niemi Ball State University	Pupillary Diameter as a Psycho- physiological Marker of Vulnera- bility. . .	405
13	I. Okonkwo Purdue University	Engineering Geology Evaluation of an Earth Rock-Fill Dam in an. . .	650
14	R.J. Olsen Wabash College	Fragmentation Reactions of Tri- methylene Sulfites	700
15	C.M. Rogers Indiana University	Genetic and Environmental Com- ponents of Winter Fat stores in a. . .	640
16	J.C. Schumm Purdue University	The Relationship Between Student Locus of Control Orientation and. . .	413
17	E.M. Shull N. Manchester, IN	The Butterflies of Indiana	500
TOTAL. . .			\$9,550

Fall 1983

Secondary School Research Grants

No.	Name/School/Sponsor	Title	Funded
1	Loretta M. Baker East Noble H.S. Virginia Rhodes	Studies on Gossypol: II. Antifer- tility Effects in Nutritionally De- prived Rats	150
2	Thomas Barker East Noble H.S. Virginia Rhodes	Recovery and Identification of Viruses from Wastewater Sludge	115
3	Matt Booty John Adams H.S. Nevin Longenecker	Possible Effects of an Induced Magnetic Field on <i>Staph. epider- mis</i>	93
4	Ted Couillard Highland Senior H.S. Mrs. Cheryl Mason	Physiological Effects of Fluoride Concentration on <i>Azo. chroococ- cum</i>	75
5	Julie Goldmann The GAGE Institute Matthew J. Goldberg	Effects of Psychological Stress upon Rate and Extent of Tumor Growth	120
6	Betsy Killeen John Adams H.S. Nevin Longenecker	Study of Biochemical Changes Underlying Behavioral Modifica- tion Associated with Ingestion of Caffeine and Acetylsalicylic Acid	48.50
7	Mary Kudrak Northwestern H.S. Mrs. Patricia Zeck	Effects on Hidden Sodium on the Heartbeat of <i>Daphnia</i>	98
8	Derek Lannuier John Adams H.S. Nevin Longenecker	The Possible Effects of Valium on the Immunosuppressive Re- sponse to Audiogenic Stress in Laboratory Mice	66.50
9	Dawn J. O'Connor East Noble H.S. Virginia Rhodes	Comparative Study of Androgens and Anabolic Steroids in Relation to the Immune Response	95
10	Mark D. Owens Marquette H.S. Dean Christakis	Holographic Interferometry: Measurement of Pressure- Mediated Nanometric Movement as Applied to Industrial Bearings	95
11	Kathleen Ramos Donald G. Gavit H.S. Michael Kobe	Effects of Cigarette Smoke on Nasal Bacteria	80
		TOTAL . . .	\$1,036

Indiana Academy of Science
October 29, 1983
MINUTES OF THE GENERAL MEETING

The General Meeting of the Indiana Academy of Science was called to order by President Alice S. Bennett at 1:15 p.m. on Friday, October 29, 1983, in the Classroom-Medical Building 159 at Indiana University-Purdue University at Fort Wayne.

Dr. James Bundschuh, Dean of Science and Humanities, welcomed the Academy on behalf of the universities.

President Bennett made several housekeeping announcements.

Secretary Richard L. Conklin reported on the 1983 meeting of the Executive Committee. A motion to accept the report carried.

Dr. J. Dan Webster, Nominating Committee chair, moved the election of the following persons as officers and members of elected committees for 1984:

President: Theodore S. Crovello

President-Elect: Benjamin Moulton

Academy Foundation Committee: William A. Dailey (2-year term)

John A. Ricketts (1-year term)

Bonding Committee: Mary Lee Richeson (2-year term)

Donald Hendricks (1-year term)

Research Grants Committee: James E. Newman (5-year term)

A motion to approve the report of the Nominating Committee was seconded and carried. A motion that those nominated be declared elected unanimously was seconded and carried.

Dr. Wilton S. Melhorn, Fellows Committee chair, moved that the following persons who had been approved by the Executive Committee, be elected to the rank of Fellow:

Jack L. Albright, Purdue University

James H. Kellar, Indiana University

Victor L. Riemenschneider, Indiana University, South Bend

Gary C. Steinhardt, Purdue University

Terry R. West, Purdue University

Eliot C. Williams, Wabash College

The motion was seconded and carried. Congratulations and certificates of recognition were extended to those newly-elected Fellows who were present.

Fay Kenoyer Daily, Necrologist, reported the deaths of four Academy members whose deaths had been recorded during the past year:

Roderic Malcolm Koch

B. Elwood Montgomery

Eberhard Hopf

Herman George Wilhelm, Jr.

Treasurer Duvall Jones presented the following amendment to the Constitution of the Academy:

Article XII

Registration Fees for Meetings

Section 1. Registration fees for Spring and Fall meetings of the Academy shall be determined annually by the Executive Committee (at the annual meeting).

Section 2. Honorary, Emeritus, and Life members shall be exempt from registration fees.

Section 3. Registration fees may be collected by the host institution, but must be transmitted to the Treasurer of the Academy for disbursement.

A motion to adopt the amendment was made, seconded, and carried without a dissenting vote.

Dr. William Davies, Resolutions Committee chair, proposed the following resolution:

WHEREAS: The Indiana Academy is deeply grateful to Indiana University-Purdue University at Fort Wayne for its invitation to hold its 99th annual meeting on their campus; and

WHEREAS: The administration, faculty, and students alike have cooperated in providing us their facilities for this meeting; be it

RESOLVED: That the Academy members here assembled express their sincere appreciation to Dr. Joseph P. Giusti, Chancellor of Indiana University-Purdue University at Fort Wayne, for all the courtesies that have been extended to the Academy during this meeting. We are especially grateful to Dr. James D. Haddock and Dr. Robert D. Lyng and their committee for the arrangements of the entire program and the comfort and conveniences provided the membership. We also express our sincere thanks to all members who organized and participated in the special symposia "Groundwater and Hazardous Waste Management," "Acid Rain," and "Chemical Demonstration Symposium."

The resolution was adopted unanimously.

Dr. Davies moved adoption of a second resolution:

WHEREAS: There is a recognized need to establish a vigorous program for the improvement of science education in Indiana; and

WHEREAS: State agencies are attempting to develop a strong state Board of Education which can exercise leadership in developing more effective programs in science education; and

WHEREAS: The Indiana Academy of Science is directed, constitutionally, to improve education in science in Indiana; be it

RESOLVED: That the Indiana Academy of Science commend the Indiana Commission of General Education and the Governor for setting higher standards for graduation from high school, which include two years of natural sciences, be it further

RESOLVED: That the Indiana Academy of Science strongly urge that three years of natural sciences (including both physical and biological sciences) be required for high school graduation.

Dr. Jones moved the following amendment:

BE IT FURTHER RESOLVED: That the Indiana Academy of Science provide appropriate leadership in the development of effective statewide programs for improving in the scientific expertise and scientific literacy of Indiana citizens of all ages.

The amendment and the main motion were seconded and carried without a dissenting vote.

The meeting adjourned at 2:05 p.m.

Respectfully submitted,

Richard L. Conklin, Secretary

Immediately following the meeting Dr. Ernest Campaigne presented his address as Speaker of the Year, "Drugs and the Mind."

During the afternoon a symposium on lecture demonstrations in chemistry was presented before large and appreciative audiences.

On Saturday morning the Science and Society Committee, chaired by Dr. William Beranek, presented symposia on hazardous waste management, groundwater, and acid rain, which were attended by about fifty people, mostly Academy members joined by a few people from the Fort Wayne community.

Indiana Academy of Science
Budget Committee Meeting
December 10, 1983

Minutes

The 1983 meeting of the Budget Committee of the Indiana Academy of Science was called to order by President-elect Theodore Crovello at 10:00 a.m. Saturday, December 10, in the Medical Center Union Building, Indiana University-Purdue University, Indianapolis.

Present were Alice Bennett, Lois Burton, Richard Conklin, Walter Cory, Theodore Crovello, William Daily, Frank Guthrie, Uve Hanson, Susan Johnson, Duvall Jones, Benjamin Moulton, John Patton, Donald Winslow.

Crovello announced four committee appointments and assignments: Alice Bennett, will chair the Science and Society Committee. This committee will absorb the functions of the former committee on the relation of the Academy to the State. Frank Guthrie will chair a new *ad hoc* advisory committee on financial planning. Other members are William Daily, Duvall Jones, and John Ricketts. Walter Cory will chair the membership committee. Philip St. John will act as program chair for both the Spring and Fall meetings.

A proposed budget for 1984 was presented by the Treasurer. In a discussion of this budget, the following items were discussed and actions taken:

\$600 was allotted to Membership for printing a new brochure

\$100 was added to the Newsletter budget

The Centennial Committee allocation of \$2,600 is subdivided as follows:

Space Rental (Brookville)	\$ 150.00
Honoraria (Fall Meeting)	\$1,000.00
Speakers' Travel	950.00
Speakers' Expenses	350.00
Misc. Administrative	150.00

(A one-page letter from the President detailing Centennial plans will accompany dues notices to be mailed in March.)

The Allocation to the Youth Activities Committee is \$1,650:

Brochure for Science Fair Directors \$600.00

AAAS Grant Matching Funds:

1983-1984 300.00

1984-1985 300.00

Recognition of pre-college science teachers 450.00

The new Finance Committee is budgeted \$450.00 to pay legal, CPA, etc. fees. An increased fee by the CPA formerly employed resulted in a change to Blue, Inc., of Rensselaer.

The Junior Academy of Science was allocated \$1,000:

Awards \$300.00

Travel Expenses 600.00

Administrative 100.00

This was moved from Administered accounts to Academy accounts.

The spirit of the registration fee recently approved by the Academy is that such money not spent on a given meeting should accumulate. Guthrie suggested that this money should be placed in the reserves to pay fees when needed.

Publication of the *History of the Academy* will be financed from the John S.

Wright fund. The *History* will be distributed free to all members. The price to non-members will be based on publication cost.

A request for \$27,900 for publication of *Butterflies of Indiana* (5000 copies) was submitted by the Publications committee. Decision on this was delayed to the Spring meeting of the Executive Committee, at which time the Publications Committee should report its recommendations as to number of copies, distribution, and prices to members and non-members. Similar decisions must be made on the forthcoming *Climate of Indiana*.

Bennett suggested that the announcement of participants in the Speakers' Bureau be allocated \$500 and another \$2000 be authorized for publication of the proceedings of the Saturday morning symposium at the Fall meeting. No action was taken.

A special award for the best research paper in the *Proceedings* was funded by adding \$300 to the budget.

The proposed budget was approved unanimously. The Treasurer will prepare copies of the budget as revised in this meeting and circulate them to those who need to see them.

The meeting adjourned at 12:35 p.m.

Respectfully submitted,

Richard L. Conklin
Secretary

Indiana Academy of Science
Financial Report
1 January - 31 December 1983

I. ACADEMY ACCOUNTS

	<u>Income</u>	<u>Budgeted</u>	<u>Expenditures</u>	<u>Budgeted</u>
Dues	\$ 8,114.00	\$ 8,000.00		
Reprints: Vol. 91	2,579.09	3,250.00	\$ 2,445.50	\$ 2,850.00
Vol. 92	456.90			
Interest	2,169.22	1,750.00		
Meal Tickets	25.00			
Secretary			315.33	600.00
Treasurer			585.56	600.00
General Office			247.53	250.00
Officer Honoraria			150.00	150.00
Membership Committee			144.66	400.00
President's Contingency Fund			185.00	225.00
Newsletter			800.00	800.00
Speaker of the Year			700.00	700.00
Program Committee			1,451.14	2,300.00
Editor's Expenses			700.00	700.00
Youth Activities Committee			0.00	600.00
Biological Survey Committee			0.00	1,000.00
Centennial Committee			0.00	200.00
AAAS Representative			250.00	250.00
Section Chairmen's Expenses			0.00	50.00
Public Relations			150.00	150.00
Research Grants			100.00	100.00
CPA Fees for Tax Returns			500.00	500.00
Miscellaneous			25.00	100.00
Transfers to Administered Accounts			2,450.00	2,450.00
TOTALS	<u>\$13,344.21</u>	<u>\$13,000.00</u>	<u>\$11,199.72</u>	<u>\$14,975.00</u>

II. ADMINISTERED ACCOUNTS

	<u>January 1 Balance</u>	<u>1983 Transfers & Income*</u>	<u>1983 Expenditures</u>	<u>December 31 Balance</u>
Junior Academy	\$ 1,211.76	\$ 0.00	\$ 777.18	\$ 434.58
Science Talent Search	619.18	2,577.00 (I) 500.00 (T ₁)	2,747.94	948.24
Science & Society	1,447.89	0.00	152.80	1,295.09
Research Grants	-6,271.51	21,593.00 (T ₂)	20,532.25	-5,210.76
Natural Areas	0.00	0.00	0.00	0.00
J.S. Wright Library Fund	134.28	0.00	0.00	134.28
Lilly III Library Fund	2,632.76	0.00	13.00	2,619.76
Lilly V Library Fund	4,500.20	0.00	0.00	4,500.20
Library Binding	1,500.65	1,500.00 (T ₁)	0.00	3,000.65
<i>Proceedings</i> : Printing & Awards	1,589.89	8,892.00 (T ₂)	8,529.00**	1,952.89
<i>Proceedings</i> : Mailing	756.87	450.00 (T ₁)	656.78	550.09
Publications: Sales & Expenses	2,964.91	1,259.14 (I)	788.70	3,435.35
Research Fellowships	0.00	2,560.00 (T ₂)	2,410.75	149.25
TOTALS	<u>\$11,086.88</u>	<u>\$39,331.14</u>	<u>\$36,608.40</u>	<u>\$13,809.62</u>

I: Income from external sources.

* T₁: Transfer from Academy Accounts. T₂: Transfer from Academy Trust Funds.

** The State of Indiana paid an additional \$8,000.00 toward printing of the *Proceedings*.

III. SUMMARY

	Academy Accounts	Administered Accounts	Total
Balance: 1 January 1983	\$ 8,665.17	\$11,086.88	\$19,752.05
1983 Income and transfers	13,344.21	39,331.14	52,675.35
1983 Expenditures and transfers	<u>11,199.72</u>	<u>36,608.40</u>	<u>47,808.12</u>
Balance: 31 December 1983	\$10,809.66	\$13,809.62	\$24,619.28

IV. BANK BALANCE (as of 31 December 1983)

Super NOW Account			
Farmers and Merchants Bank, Rensselaer, IN			\$ 5,656.39
Includes Interest for 1983—\$313.81			
Savings Accounts			
Farmers and Merchants Bank, Rensselaer, IN—CD #90007567			5,522.12
State Bank of Rensselaer, IN—CD #100208266			<u>13,440.77</u>
TOTAL			<u>\$24,619.28</u>

V. SUMMARY OF TRUST FUNDS

A. Foundation Account (00430-00-0)

1. Income Account

Income cash balance (1/1/83)		\$ 0.00	
Dividends and interest of 1983		2,631.32	
Disbursements for 1983			
Research Awards	\$ 300.00		
Investments purchased	900.00		
Transfer to Principal cash	<u>1,431.32</u>		
	\$2,631.32	<u>-2,631.32</u>	
Income cash balance (12/31/83)		\$ 0.00	\$ 0.00
2. Principal Account			
Principal cash balance (1/1/83)		\$ 291.67	
Total receipts for 1983		20,700.00	
Transfer from Income Account		1,431.32	
Total disbursements for 1983			
Investments purchased	\$21,947.18	<u>-21,947.18</u>	
Principal cash balance (12/31/83)		\$ 475.81	475.81
Market value of investments (12/31/83)			<u>40,631.06</u>
Total value of account (12/31/83)			<u>\$41,106.87*</u>

* Carrying value of investments (12/31/83) is \$33,728.68

B. John S. Wright Fund (00430-01-9)

1. Income Account

Income cash balance (1/1/83)		\$ 1,512.50	
Dividends and Interest for 1983		36,291.28	
Investments sold		22,900.00	
Disbursements for 1983			
Commission and fees	\$ 3,828.00		
Miscellaneous expenses	33,975.78		
Investments purchased	<u>22,900.00</u>		
	\$60,703.78	<u>-60,703.78</u>	
Income cash balance (12/31/83)		\$ 0.00	\$ 0.00
2. Principal Account			
Principal cash balance (1/1/83)		\$ 20,009.77	
Total receipts for 1983		72,300.00	
Total disbursements for 1983		<u>-92,307.58</u>	
Principal cash balance (12/31/83)		\$ 2.19	2.19
Market value of investments (12/31/83)			<u>692,425.09</u>
Total value of account (12/31/83)			<u>\$692,427.28*</u>

* Carrying value of investments (12/31/83) is \$316,759.37

C. J.S. Wright Invested Income Account (00430-02-8)

1. Income account

Income cash balance (1/1/83)	\$ 5,925.00	
Total interest for 1983	9,251.32	
Disbursement for 1983		
Investments purchased	-4,500.00	
Research Fellowships	-2,560.00	
Transfer to Principal Account	-8,116.32	
Income cash balance (12/31/83)	\$ 0.00	\$ 0.00

2. Principal Account

Principal cash balance (1/1/83)	\$ 34,890.34	
Total receipts for 1983	200,543.28	
Disbursements for 1983		
Investments purchased	-206,885.23	
Distributions (Grants & Proceedings)	- 31,189.50	
Transfers from Income Account	8,116.32	
Principal cash balance (12/31/83)	\$ 5,475.21	\$ 5,475.21
Market value of investments (12/31/83)		104,785.23
Total value of account		\$110,260.44

VI. NOTES

Membership as of 31 January 1984: The Treasurer's records show that the Academy has 1060 paid memberships for 1983: 38 sustaining, 2 sustaining family, 510 senior, 27 senior family, 272 regular, 11 regular family, 71 students, 108 emeritus, 2 honorary, 3 life, and 16 club memberships.

3 members deceased (included in totals above).

124 members on file from 1982, but not paid for 1983.

112 new members for 1983 (included in totals above).

5 previous members reinstated in 1983 (included in totals above).

5 persons resigned.

89 individuals dropped for nonpayment of 1982 dues.

Dues structure for 1983:

\$ 2.00	for student memberships
5.00	for memberships and club memberships
10.00	for senior memberships
25.00	for sustaining memberships
2.00	additional for family memberships
300.00	for life memberships
150.00-500.00	corporate memberships
50.00-100.00	institutional memberships
1.00	initiation/reinstatement fee (\$2.00 for family membership)

Reprints: All authors of papers in Volume 91 of the *Proceedings* have paid for the reprints which they ordered. Cost of the reprints to the Academy was \$2,445.50. Authors paid the Academy \$2,579.09 for reprints.

Publications: Sales of reprints, monographs and *Proceedings* in 1983 totaled \$1,259.14.

Research Grants: Funds totalling \$21,329.00 have been awarded to: M. Behforouz (Ball State U.), B. G. Corsaro (Notre Dame), C. Dougherty (Ball State), M. K. Hughes (Indiana U.), A. L. Hughes (Indiana U.), M. L. Jaynes (Notre Dame), R. J. Jensen, (St. Mary's C.), K. Lipkowitz (IUPUI), J. R. Lovvorn & C. M. Kirkpatrick (Purdue U.), M.J. Mandracchia (Notre Dame), M. Morris (Indiana U.), W.E. Nellist (Indiana U.), W. J. Rowland (Indiana U.), R.J. Russo (IUPUI), R.J. Stark (DePauw U.), L. Wolf (Indiana U.), R.J. Autio (Indiana U.), S. Gilbert (Purdue), C. Zmachinski (Ball State U.), G.P. Alberici (Notre Dame), T.L. Derting (Indiana U.), K.W. Eberly (St. Mary's C.), J.D. Haddock & J.K. Averback (IUPUI-Fort Wayne), J.H. Jones (Indiana U.), M.P. Kowalski, V.J. Martin (Notre Dame), M.L. Matyas (Purdue U.), R.O. McCracken (IUPUI), E. Mould (St. Mary's), C.A. Niemi (Ball State U.), I. Okonkwo (Purdue), R.J. Olsen (Wabash C.), C.M. Rogers (Indiana U.), J.C. Schumm (Purdue U.), E.M. Shull (N. Manchester), L.M. Baker (East Noble H.S.), T. Barker (East Noble H.S.), M. Booty (John Adams H.S.), T. Couillard (Highland Senior H.S.), J. Goldmann (The GAGE Institute), B. Killeen (John Adams H.S.), M. Kudrak (Northwestern H.S.), D. Lannuier (John Adams H.S.), D.J. O'Connor (East Noble H.S.), M.D. Owens (Marquette H.S.), and K. Ramos (Donald G. Gavit H.S.), and W.L. Kovach (Indiana U.).

Grants Received: Kappa Kappa Kappa Sorority made \$2,500 available for awards and expenses for the Science Talent Search for Indiana high school students.

The American Association for the Advancement of Science granted \$1,000 to be used by high school students for research.

VII. BUDGET FOR 1984

The following budget was approved by the Budget Committee in the meeting of 10 December 1983.

Academy Accounts

Anticipated Income

Dues, Initiation and Reinstatement Fees (30 @ \$25, 570 @ \$10, 280 @ \$5, 75 @ \$2, \$100 @ \$0)	\$ 8,000.00	
Interest on Savings	2,000.00	
Reprint Charges to Authors: Vol 92 & 93	3,250.00	
Registration Fees	1,500.00	
Junior Academy of Science (Transfer from administered account)	434.58	
Centennial expenses (from reserves)	3,200.00	
TOTAL	\$18,384.58	\$18,384.58

Budgeted Expenditures

Secretary	\$ 600.00	
Treasurer	750.00	
General Office	250.00	
Officer Honoraria	150.00	
Membership Committee	800.00	
President's Contingency Fund	1,000.00	
Newsletter	900.00	
Speaker of the Year	700.00	
Program Committee	2,000.00	
Centennial Committee	2,600.00	
Editor's Expenses	700.00	
Youth Activities Committee	1,650.00	
Junior Academy of Science	1,000.00	
Biological Survey Committee	1,000.00	
AAAS Representative	300.00	
Section Chairmen's Expenses	50.00	
Public Relations	150.00	
CPA Fees for Tax Returns	500.00	
Finance Committee	450.00	
Miscellaneous	100.00	
Reprint Charges to Academy	2,850.00	
Transfers to Administered Accounts	\$ 2,275.00	
Science Talent Search (\$0.00)		
Research Grants (\$0.00)		
Science and Society (\$0.00)		
Natural Areas (\$0.00)		
Library Binding (\$1,500.00)		
Publications (\$0.00)		
<i>Proceedings</i> : Mailing (\$775.00)		
Registration Fees (\$0.00)		
TOTAL	\$20,775.00	\$20,775.00
Budgetary Deficit		\$-2,390.42

Endowment Funds

Anticipated Income

IAS Foundation (00430-00-0)	\$ 2,000.00
J. S. Wright Fund (0043-01-9)	35,000.00
Invested Income Account (0043-02-8)	104,800.00
	<u>\$141,800.00</u>

Budgeted Expenditures

Bank Fee	\$ 3,500.00
Research Grants for Senior Academy Members	22,500.00
Research Fellowships for Secondary School Teachers	3,000.00
Publications	
<i>Proceedings</i> - Volume 92 (\$14,100 - 8,400)	5,700.00
History of the Academy	15,000.00
Other Centennial Publications	2,500.00
Award for Research Paper	300.00
	<u>\$ 52,500.00</u>

Restricted Accounts (accounted for elsewhere)

Anticipated Income

AAAS Funds for High School Research Grants	\$ 1,000.00
Tri-Kappa Funds for Science Talent Search	2,500.00
Registration Fees	1,500.00
Sale of Publications	1,000.00
Income from Foundation Account	300.00
	<u>300.00</u>
	\$ 6,300.00

Anticipated Expenditures

Research Grants Committee - Junior Academy Grants	\$ 1,000.00
Science Talent Search	2,500.00
Meeting Expenses	
Publications	300.00
Award for Outstanding Paper (Funds from Foundation Account)	300.00
	<u>300.00</u>
	\$ 4,100.00

Respectfully submitted,

Duval A. Jones, Treasurer

We, the undersigned, have audited the Treasurer's records for the Indiana Academy of Science for the year 1983 and have found them to be accurate and in order.

 Andrew G. Mehall
 19 January, 1984

 John Ricketts
 1/24/84

INDIANA JUNIOR ACADEMY OF SCIENCE

The Indiana Junior Academy of Science has been more active this year, involving more students and a greater number of schools by virtue of having both a Spring and a Fall meeting. As reported previously, the first Spring meeting was held at Brown County High School in Nashville on April 30. The theme was caves. The 1984 Spring meeting will be hosted by Gavit Jr.-Sr. High School at Hamond. The ecology of the dunes will be the theme.

The Junior Academy is proud to announce that Keith Hunning's special desire for the Academy to send a delegate to the American Junior Academy of Science symposium has been accomplished. Jim Barsic, with his sponsoring teacher, Dean Christakis, attended the AJAS symposium at Detroit in May. Part of the afternoon program tomorrow will be a slide-illustrated account of Jim's experiences for the four days. An amount of six hundred dollars (\$600) was allocated for this activity. The Junior Academy remains within its budget. It is proposed that this activity continue as a special incentive for students and teachers.

Some changes in format have been made for the Fall meeting. The Mouse Trap Car and Paper Plane contest have been eliminated so that there is no competing activity going on during the paper presentations. In a mailing, teachers were asked to urge their students to attend the presentations as a learning experience.

Due to intense competition developing between two schools, the large trophy for Best Over-all School has been eliminated. This also is a monetary saving.

The practice of awarding a year's membership in the AAAS to The Outstanding Junior Scientist-Senior Division has been reactivated. This includes a subscription to *Science* 83.

The subject of a registration fee has been discussed by the Junior Academy Council. In general, the Council is in favor. This will be acted upon after the Senior Academy has made its decision.