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TABLE OF CONTENTS

	Page
Officers and Committees for 1986	3
Minutes of the Spring Meeting (Executive Committee)	11
Minutes of the Spring Meeting (Council)	12
Minutes of the Fall Meeting (Executive Committee)	17
Minutes of the Fall Meeting (Council)	18
Minutes of the Fall Meeting (General Meeting)	24
Minutes of the Budget Committee Meeting	29
Annual Financial Report	33
Annual Report, Youth Activities	38
Hoosier Science and Engineering Fair	41
Indiana Science Talent Search	41
Necrology, Fay Kenoyer Daily, Necrologist	44
Corporate Members of the Academy	50
New Members for 1986	51

ADDRESSES AND CONTRIBUTED PAPERS

Presidential Address

"Quo Vadis or If Nobody Does Anything, Nothing Will Be Done," Ernest E. Campaigne	57
"Speaker of the Year" Address, 1986-87 "Science and National Security," Ruth H. Howes	61

Anthropology

C. MICHAEL ANSLINGER—Archaeological Excavations at the Lattas Creek Site (12-Gr-29), Greene County, Indiana*	71
RUTH A. BRINKER—Progress in the Treatment of Cultural Resources in the Coal Fields of Indiana*	71
MARK E. CANTIN—Preliminary Report of Test Excavation of Swan's Landing Site (12Hr 304), Harrison County, Indiana, 1986*	71
DONALD R. COCHRAN—Ceramics and Ceramic Sites in the Upper Wabash Drainage: A Regional Problem	72
JAMES W. KENDRICK AND ROBERT E. PACE—A Comparison of Site Frequencies and Natural Settings in the Tennyson and Shoals Survey Areas in Southwestern Indiana*	72
BRIAN G. REDMOND—The Yankeetown Phase: An Emergent Mississippian Cultural Manifestation in the Lower Ohio River Valley*	72
KENNETH B. TANKERSLEY—Significant Clovis Sites in Southwestern Indiana* .	72
CURTIS H. TOMACK—Archaeological Research in the Coal Mining Area of Southwestern Indiana*	72

*Abstracts

	Page
MARY E. WAITE, HOLLY A. WAGNER AND ROBERT E. PACE—Archaeological Investigation of the DeWeese-Preston House*	73
FRANK N. BURKETT AND RONALD HICKS—Site Distribution and Physiographic Zones along the Big Blue River Glacial Sluiceway	75
SHERRI L. HILGEMAN AND MARK R. SCHURR—The 1986 IU/GBL Excavations of the Stephan-Steinkamp Site (12Po33)	83
MARK R. SCHURR—A "Partial Cremation" from the Angel Site, Vanderburgh County, Indiana	91

Botany

PRADEEP K. BHATTACHARYA—Changes in Host-nuclear Macromolecules in Resistant and Susceptible Barley to Infection by <i>Erysiphe graminis</i> f. sp. <i>hordei</i> Culture CR3*	95
K. MICHAEL FOOS AND JUDITH A. ROYER—Optimum Growth Temperature for <i>Pilobolus</i> *	95
R.J. GREEN, JR. AND G.L. WILEY— <i>Verticillium dahliae</i> as a Biocontrol Agent of Velvetleaf <i>Abutilon theophrasti</i> *	95
ALAM KHAN AND C.M. WEAVER—Efficiency and Pattern of ⁶⁵ Zn Incorporation into Soybean Seeds by Root Absorption, Stem Injection, and Foliar Application*	96
RICHARD X. LATIN—Incidence and Control of Cucurbit Powdery Mildew in Indiana*	96
THOMAS E. MAXAM AND KATHRYN J. WILSON—Ultrastructure of Articulated Laticifers in <i>Stapelia bella</i> (Asclepiadaceae)*	96
PEGGY L. RUCKMAN AND RICHARD L. WHITMAN—Aquatic Plant Distribution and Mapping of Selected Ponds of Miller Woods, Indiana Dunes National Lakeshore*	96
WILLIAM STILLWELL, DANIEL BELCHER AND STEPHEN WASSALL—Comparative Effects of Abscisic Acid and Indole Acetic Acid on Phospholipid Bilayers*	97
KATHRYN J. WILSON AND KERRY B. DUNBAR—Histochemical Observations of Embryogenesis in Suspension Cultures of <i>Asclepias tuberosa</i> (Asclepiadaceae)*	97
GARY E. DOLPH—The Variation of Four Bioclimatic Indexes in Indiana	99
JERRY J. NISBET AND MARILYN SUE VESELACK—Cell and Tissue Development in One and Two Year Old Culms of <i>Arundo donax</i> L.	113
GAIL E. RUHL, DONALD H. SCOTT, RICHARD X. LATIN AND PAUL C. PECKNOLD—A Compilation of Plant Diseases and Disorders in Indiana - 1986	115
MICHAEL SIMINI, RICHARD G. SNYDER AND JAMES E. SIMON—Differential Sensitivity of Muskmelon and Watermelon Cultivars to Ozone-induced Foliar Injury	121

Cell Biology

MARK ALBRECHT, WILLIAM STILLWELL AND STEPHEN R. WASSALL—Effects of Retinoids on Phospholipid Bilayers*	129
--	-----

	Page
SHIRLEY A. BAYER—Development of the Neostriatum in the Rat Brain*	129
ANGELA M. BURKE AND PANG FAI MA—A Comparative Study of the Hamster Kidney Cell Line BHK-21 (C-13) and Normal Hamster Kidney Tissues*	129
E.A.G. CHERNOFF—Adhesion and Expansion of Epithelial Cell Sheets*	130
THOMAS A. COLE, WILLIS H. JOHNSON AND RUCHIR SEHRA—Identification of Members of Species-groups of Genus <i>Paramecium</i> with Fluorescent, DNA- binding Dyes*	130
DAVID M. GIBSON, STEVEN J. MILLER AND TED GOODSON, III—Degradation of Liver HMGCoA Reductase in Vitro*	130
A. GUBITOSI AND R.J. STARK—Effects of Extracellular Sodium and Calcium on Acetylcholine Induced Hyperpolarizations in Mouse Parotid Cells*	131
MICHAEL I. LEE, SCOTT A. SMITH AND ALICE S. BENNETT—Influence of Dietary Fatty Acids on Murine Mammary Cell Types*	131
MICHAEL S. MALONEY AND JEANNETTE L. DANIEL—Con A Binding Sites in the Ciliate <i>Stentor coeruleus</i> Are Located in the Membranellar and Somatic Cilia*	131
JOHN W. MUNFORD AND JOSEPH E. TRUMPEY—Diabetes-induced Decrease in Sodium Pump Activity in Rat Soleus Muscle*	132
BRUCE PICKELHEIMER AND RICHARD S. MANALIS—Effect of Caffeine on Contractil- ity of Frog Skeletal Muscle*	132
DANNY LEE ROBERSON AND RICHARD S. MANALIS—Neurotransmitter Release Simulation*	132
PATRICIA R. WALSH AND MICHAEL S. MALONEY—Calmodulin Antagonists Inhibit Oral Regeneration in the Ciliate <i>Stentor coeruleus</i> *	132
STEPHEN P. ZIMMER AND JOAN E. LAFUZE—Serum Angiotensin Converting Enzyme Changes in Rabbits Following Neutrophil Activation <i>in vivo</i> *	133
TORSTEN ALVAGER AND THOMAS KING—Energy Expenditure and Maximum Life Span	135
RITA BARR, OWEN MARTIN, JR. AND FREDERICK L. CRANE—Redox-induced Proton Excretion by Cultured Carrot Cells Is Affected by Protonophores and Inhibitors of ATPase	139
CHARLES L. SCHAUF AND FLOYD A. DAVIS—Symptomatic Therapy for Demyelinating Diseases: The Role of Basic Science	145

Chemistry

JOHN BAIN, VIDA FARAZI AND BRUCE N. STORHOFF—Functionalized Crown Ethers: Benzo Crowns with P(III) Centers*	159
MOHAMMAD BEHFOROZ, HAMIDEH ZARRINMAYEH AND MARK A. HORN—Studies Toward the Total Synthesis of Lavendamycin Methyl Ester, an Antitumor Antibiotic Agent*	159
KENNETH L. BUSCH—Applications of Chromotography/Secondary Ion Mass Spectrometry*	159

	Page
CHERYL A. BYE AND JAMES P. RYBARCZYK—Atomic Spectroscopic and Neutron Activation Analyses of Trace Heavy Metals in Water Supplies Surrounding a Municipal Landfill*	160
S.W. DHAWALE—Interaction of Some Metals and Tetrathionate Ions*	160
VIDA FARAZI, M. BRIAN ARNOLD AND BRUCE N. STORHOFF—The Preparation of Functionalized Aza Crown Ethers*	160
SUSAN J. GANION, PAUL L. BOCK AND LYNN R. SOUSA—Potassium Ion Induced Enhancement of Crown Fluorescence by Displacement of a Complexed Quencher*	160
MARY E. HUSS, JEROME I. KAPLAN, STEPHEN R. WASSALL AND WILLIAM STILLWELL—Electron Spin Resonance of Membranes*	161
RICHARD A. KJONAAS AND DOUGLAS SANQUENETTI—Reactions of Lithium Triorganozincates with Acid Halides*	161
TERRY L. KRUGER, TIMOTHY T. CURRAN AND MOHAMMAD BEHFOROZ—Electron Impact Mass Spectrometry of β -Alkylhydrocinnamate Methyl Esters* ..	161
DAVID L. MCCOLLUM AND PAUL L. BOCK—Validation of a Test to Identify Erythro and Threo Diastereomers of RCHDCHDX Compounds: Variable-temperature NMR Studies of 2-Chloroethanol*	161
PANG FAI MA AND JEFFREY T. STARKEY—A Study of Adenosine Deaminase and Its Conversion Factor in Normal and Pathological Human Serum*	162
THOMAS E. MABRY, C. DAVID WHITESELL AND LYNN R. SOUSA—A Search for a Flashier Crown: Synthesis of a Crown Ether with Potassium Ion Enhanced Fluorescence*	162
JOHN SHARKITT, GREGORY A. STEPHENSON AND JAMES P. RYBARCZYK—Three-dimensional Profiling of Matrix-interferences in the ICP*	162
KAY STEPHENS, SUZY POPE, ERIC R. JOHNSON AND TERRY L. KRUGER—The Use of Pyridine to Quench the Dansylation of Amino Acids*	163
KIMBERLY K. STROUSE AND ABBAS PEZESHK—Magnetic Resonance Investigation of Metal Complexes of Antidiabetic Drugs*	163
STEPHEN C. SWINNEY AND ABBAS PEZESHK—Spectroscopic Studies of Spin-labeled Tetracycline Metal Complexes*	163
ATILLA TUNCAY AND ROBERT M. MORIARTY—Reactions of Phenyl (β -N-benzenesulfonyl indolyl) Iodonium Chloride with Soft Anions*	163
WILLIAM E. WHITE AND EUGENE S. WAGNER—The Mechanism of L-Ascorbic Acid Entrapment in Human Erythrocytes*	164
E. CAMPAIGNE AND DAVID TEMPLER—Michael Addition and Derivatives of 2-Carboxamido-3-phenylindenone	165
E. CAMPAIGNE AND DAVID TEMPLER—Substituted Derivatives of 3a,4,5,6-Tetrahydrosuccinimido[3,4-b]acenaphthen-10-one.II	173
MARIE HANKINS—Who's Teaching Chemistry in Indiana High Schools?	181
J.L. KIRSCH AND L.J. LUCCHESI—Solution Calorimetry Studies of Hydrogen Bonding in Aliphatic Alcohols	185

	Page
J.L. KIRSCH AND B.F. VOLKMAN—An Ab Initio Molecular Calculation on Aromatic-tetracyanoethylene Charge Transfer Complexes	189
JOSEPH R. SIEFKER AND LESTER A. PAGE, JR.—A Study of the Coordination Compounds of Some Transition Metals with 2-amino-2-methyl-1,3-propanediol	197
Ecology	
CHARLES L. BAUBE—Mechanisms of Reproductive Isolation in Two Sympatric Stickleback Species*	199
JAMES W. BERRY—Notes on the Life History of the Intertidal Spider <i>Paratheuma insulana</i> (Araneae; Desidae)*	199
SPENCER A. CORTWRIGHT—Bimodal Size Distributions of Even-aged Populations: Their Origins and Effects on Community Structure in Larval Salamanders*	199
L.D. FARLEE AND B.C. FISCHER—Early Root Development of Planted Red Oak Seedlings in Clearcut Forest Openings*	200
ANGEL V. GOCHEE AND RICHARD L. WHITMAN—Aquatic Invertebrates and Phytoplankton of Miller Woods Ponds, Indiana Dunes National Lakeshore*	200
MARION T. JACKSON AND D. BRIAN ABRELL—Two Decades of Change in the Forest Structure of Virgin Coast Redwoods (<i>Sequoia sempervirens</i>) D. Don (Endl.) in Stout Grove, Del Norte County, California*	200
JANE F. KOSKA—Evolution of Reproductive Isolation in Two Species of Toad*	200
MARK S. McCLAIN—Ginn Woods: An Undisturbed Virgin Forest in East-central Indiana*	201
THOMAS S. McCOMISH—Microcosm Acid Rain Experiments with Water from Oriole Pond, Perry County, Indiana*	201
CRAIG E. NELSON, SCOTT J. BARTON AND DAVID F. PARKHURST—More on: Do Tadpoles Die for Their Siblings?*	201
GUSTAVO A. ROMERO—Pollination, Nutrient and Energy-limited Female Reproductive Success in <i>Catasetum ochraceum</i> Lindl. (Orchidaceae)* . . .	202
PAUL E. ROTHROCK—Aspects of the Biology of <i>Carex woodii</i> Dew. (Cyperaceae)*	202
W.J. ROWLAND—Aggression versus Courtship in Sticklebacks: The Role of Habituation*	202
WILLIAM J. SHEPHERD AND STEPHEN A. PERRILL—Analysis of Playback-record Responses in the Male Cricket Frog, <i>Acris crepitans</i> *	202
PAUL T. SHERWOOD AND GEORGE R. PARKER—Disturbance Effects in Oak Dominated Forests of Central Indiana*	203
EDWIN R. SQUIERS AND LEONARD H. ROBBINS—The Relationship between Weed Community Development and Tillage Type in Grant County, Indiana*	203
ROD WALTON—The Assessment of Interactions among Ovipositing Goldenrod Gall Flies, <i>Eurosta solidaginis</i> , Fitch*	203

	Page
JEFFREY S. WARD AND GEORGE R. PARKER—Gap Structure in a Mature Till Plain Forest*	204
JOHN A. BACONE AND THOMAS W. POST—Effects of Prescribed Burning on Woody and Herbaceous Vegetation in Black Oak Sand Savannas at Hoosier Prairie Nature Preserve, Lake County, Indiana	205
JAMES D. BARTON AND DAMIAN V. SCHMELZ—Thirty Years of Growth Records in Donaldson's Woods	209
JOHN S. CASTRALE—Pesticide Use in No-till Row-crop Fields Relative to Wildlife.	215
JOHN CASTRALE, STEVE E. BACKS AND DAVID HOWELL—Avian Surveys along Two River Segments in Southern Indiana.	223
B.C. FISCHER, J.A. KERSHAW, JR., D.W. GEORGE, C.A. GEORGE AND W.L. MILLS—Tree Regeneration Response to Clearcutting on the USFS Brownstown Ranger District	231
DAVID HOWELL, DONALD E. BUCKLAND AND ROY GRIMES—Indiana's Property Tax Incentive Program for Wildlife Habitat Protection	243
ROBERT E. ROLLEY AND JIMMY F. NEW—Abundance and Characteristics of Northern Indiana Wetlands	249
JOHN RICHARD SCHROCK AND JACK R. MUNSEE—A Comparison of Surface Vegetation on Unreclaimed 1949 Indiana Coal Spoilbanks in 1964 and 1981.	257
KIMBERLY A. WADE AND ERIC S. MENGES—Effects of Fire on Invasion and Community Structure of a Southern Indiana Cedar Barrens	273
Engineering	
DAVID D. CHESAK—Fault Tolerant Computing*	287
DONALD T. CHESAK AND DAVID D. CHESAK—Engineering Aspects of Heavy Duty, On and Off Highway, Trailers*	287
BRUCE MUELLER, BRUCE A. BLACK AND DAVID R. VOLTMER—PC-SIG: A Communications Systems Laboratory*	287
JOHN M. ULRICH—The NASA Technology Utilization Program*	287
Entomology	
GENE KRITSKY—Insects in Traditional Chinese Medicine*	289
ROBERT W. MEYER—Insects and Other Arthropods of Economic Importance in Indiana in 1986.	291
MARK H. SHOUR AND DONALD L. SCHUDER—Host Range and Geographic Distribution of <i>Chionaspis heterophyllae</i> Cooley and <i>C. pinifoliae</i> (Fitch) (Homoptera: Diaspididae).	297

Environmental Quality

GREG R. BRIGHT—Background Levels of Potential Toxicants in Indiana Stream and Lake Sediments*	305
PETER A. HIPPENSTEEL—The Water Quality of Northeastern Indiana Lake Inflows*	305
RUSSELL HOLLAND AND DEBORAH D. ROSS—Enhancement of Phenol Biodegradation by Soil Inoculation*	305
ROBERT A. PRIBUSH, PATRICIA S. MUIR, BRADLEY H. CARTER, MICHAEL J. STEVENSON AND KIMBERLY A. WADE—Creation of an Urban Acid Deposition Database*	306
ROBERT A. PRIBUSH AND MICHAEL J. STEVENSON—A Computer Raindrop Model Used to Predict the Equilibrium of pH of Rainfall over Indianapolis*	306
DEBORAH D. ROSS—Impact of Heavy Metal Pollution on Sediment Bacteria in the Maumee River*	306
JEROME RUD, HAROLD BONHOMME, GREG BRIGHT, NEIL PARKE AND JAMES STAHL—Results of Surface Water Investigations of the Grand Calumet River/Indiana Harbor Canal Basin*	306
J.E. SIMON, M. SIMINI, R. GRANT, B. MCFEE AND D. REINERT—Air Quality Monitoring in Southwest Indiana During the 1986 Growing Season*	307
C. LEE BRIDGES, H.L. BONHOMME, G.R. BRIGHT, D.E. CLARK, J.K. RAY, J.L. RUD, J.L. WINTERS AND T.E. LAUER—Summer Primary Productivity and Associated Data for Four Indiana Rivers	309

Geology and Geography

RICHARD F. DUWELIUS—Ground-water Modeling of Small Watersheds in the Coal-mining Region of Southwestern Indiana*	315
W.S. GADDIS AND N.R. SHAFFER—Sulfur Isotope Ratios in Indiana Sulfide Minerals*	315
WILLIAM A. GUSTIN—Examination of a Popular Belief: Is There a Relationship Between Winter and Summer Temperatures?*	316
WALTER A. HASENMUELLER, LOUIS V. MILLER AND JIMMY J. JOHNSON—An Estimate of Indiana's Coal Reserves that Comply with Current Sulfur Dioxide Emission Standards*	316
ROGER F. BONEHAM AND THOMAS E. KESLER—New Reef Structures in Daviess County, Indiana	317
GARRE A. CONNER— <i>Neuropteris</i> Ovata in Lacustrine Facies Sequence below Raben Branch Member (Patoka Fm.) at St. Wendel, Indiana and Related Carboniferous Reconnaissance Investigations	321
PAUL K. DOSS, DAVID E. GROW AND ROBERT D. HALL—Stream-variable Response to a Change in Surficial Geology: Middle Fork, Big Walnut Creek, Hendricks County, Indiana	333

	Page
HENRY H. GRAY—Spotting Spurious Stream Names on Topographic Maps of Indiana	345
History of Science	
DONALD J. COOK—Chemistry at Indiana Asbury-DePauw in the Nineteenth Century*	351
N. GARY LANE—The Richard Owen Geological Survey of Indiana 1859-1860	353
FRANK N. YOUNG—Fernandus Payne, Educator and Scientist	361
Microbiology and Molecular Biology	
SHEILA M. BAILEY AND CARL E. WARNES—Separation and Characterization of Chitinase and Chitobiase from CDC Group <i>EF4a</i> *	367
M. BARD, A.S. BURNETT, L.S. BURROWS AND R.A. PARKER—Isolation of Mevinolin Resistant Strains in Yeast*	367
NANCY C. BEHFOROUZ AND CHARLOTTE WENGER—Decreased Survival of <i>Leishmania tropica</i> in Macrophages Treated with Cyclosporine A*	367
JAY G. CALVERT AND EDWARD H. SIMON—Bathocuproine Disulfonate and Interferon: Progress and Prospects*	368
FREDERICK FAUST AND HARRY W. JARRETT—Location of Sites on Calmodulin that React with a Phenothiazine*	368
ROBERT GARCIA—S-Adenosylmethionine Synthetase and Spore Germination in <i>Mucor racemosus</i> *	368
EDWIN M. GOEBEL, JENNY I. JOCKEL AND JAMES K. MATCHUNY—Isolation and Identification of <i>Azospirillum</i> and <i>Herbaspirillum</i> Strains from Soil of Several Eastern States*	368
EDWIN M. GOEBEL, JAMES J. TOBOLSKI AND DENNIS A. FRIEDLE—The Effect of <i>Azospirillum</i> and <i>Herbaspirillum</i> Inoculation upon the Yield of Winter Wheat (<i>Triticum aestivum</i>)*	369
STANLEY N. GROVE, RICHARD F. IANNAONE, CARMELO A. MILANO AND MARY J. CLANCY—Characterization of SPR6, a Sporulation Regulated Gene in Yeast*	369
KATHLEEN HARDY, CAROL BRANKA, ELIZABETH WATSON AND KARA EBERLY—Dietary Effects of Tannic Acid on the Gut Microflora of Sprague-Dawley Rats*	369
LARRY R. MASSOM AND HARRY W. JARRETT—Synthesis and Characterization of Protein A-silica for High Performance Affinity Chromatography*	370
MARTHA M. RITTER AND ROBERT PINGER—Lyme Disease in Indiana: Isolation of <i>Borrelia burgdorferi</i> from Ticks (<i>Dermacentor variabilis</i> and <i>Amblyomma americanum</i>) and White-footed Mice*	370
CAROLYN N. VANN, LAUREN A. PLAYL AND LOUIS A. SHERMAN—The Construction of Three Hybrid Cloning Vectors and the Use of Low Iron Medium to Improve Transformation Efficiency in the Cyanobacteria <i>Anacystis nidulans</i> R2 and <i>A. nidulans</i> R2 SPC.	370

RICHARD M. KLINE AND CHRISTOPHER A. SCHMALZ—The Use of Aniline as an Indicator of Persistence in Environmental Studies	371
I.L. SUN, P. NAVAS, D.J. MORRÉ AND F.L. CRANE—Modification of Pyridine Nucleotide Pools in Hela Cells Grown under Growth Promoting Factors	377

Physics and Astronomy

TORSTEN ALVAGER, ANGEL ANEZ, DAVID BEACH AND CINDY THOMAS—Fiber Optic System for Sensor Applications and Environmental Control*	385
MALCOM E. HULTS AND ROGER L. SCOTT—Observing Halley's Comet from Indiana and Brazil*	385
ELMER N. NUSSBAUM, ROGER W. ROTH AND JON A. ROTH—Radon Daughter Concentrations in Selected Homes in Indiana, Illinois and Michigan* . . .	385
GERALD P. THOMAS AND SUE THOMPSON—Voice Recognition and Speech Synthesis as Aids in Real-time, Computer-aided Measurements of High Energy Physics Star Events in Nuclear Emulsion*	386
DIANA S. BENNETT, MATTHEW J. BUCHKOWSKI, CHERYL A. BYE, DAVID L. LOEWENSTEIN AND DAVID R. OBER—Fast-neutron-Activation Analysis of Various Water Sources of East Central Indiana	387
WILLIAM W. WONG, CHERYL A. BYE AND DAVID R. OBER—An Investigation of the April 1986 Chernobyl Radioactivity Releases as Detected in Muncie, Indiana	397

Plant Taxonomy

D. BRIAN ABRELL AND MARION T. JACKSON—Two Decades of Change in the Tree Stratum of Hoot Woods, Owen County, Indiana*	401
JAMES R. ALDRICH AND LEE A. CASEBERE—Leatherleaf Bogs of Indiana*	401
CHARLES HEISER—New Artificial Hybrids in <i>Helianthus</i> *	401
RICHARD J. JENSEN—Within Tree Leaf Variability and Evidence for a Developmental Difference Between Pin Oak and Black Oak*	402
JOHN W. MCCAIN AND JAMES V. GROTH—Preliminary Polyacrylamide Gel Electrophoresis (PAGE) Survey of Isozymes in Populations of the Bean Rust Fungus*	402
KAY MCCRARY YATSKIEVYCH—Progress toward a Photographic Field Guide to Indiana Wildflowers*	402
FAY KENOYER DAILY—Cryptograms Collected by Thomas G. Lea from Indiana and Ohio, 1836-1842	403
MICHAEL A. HOMOYA—A Floristic Survey of a Limestone Glade in Versailles State Park, Ripley County, Indiana	407
RICHARD H. MAXWELL—Natural Area Remnants within the Indiana Army Ammunition Plant, Charlestown, Indiana: The Little Bluestem Glades	413

	Page
REBECCA A. STRAIT, MARION T. JACKSON AND D. BRIAN ABRELL—Comparison of Groundlayer and Shrublayer Communities in Full Canopy and Light Gap Areas of Hoot Woods, Owen County, Indiana	421
GEORGE YATSHIEVYCH, MICHAEL A. HOMOYA AND DONALD R. FARRAR—The Fern Genera <i>Vittaria</i> and <i>Trichomanes</i> in Indiana	429
GEORGE YATSKIEVYCH AND KAY McCRARY YATSKIEVYCH—A Floristic Survey of the Yellow Birch Ravine Nature Preserve, Crawford County, Indiana . . .	435

Psychology

LEAH J. FREELAND AND MICHAEL R. STEVENSON—Changing Attitudes toward Homosexuality*	447
WALTER HARTMANN—A Note on Dangers in Hypnosis*	447
SAMUEL B. SCHNITZER AND ROY W. GEIB—Later Immune Reactivity as a Function of Experience before Weaning and Strain of Mouse: A Preliminary Investigation*	447
KATHRYN N. BLACK, CATHERINE M. ROE AND JULIE A. KABLE—Self-ratings of Masculinity and Femininity by High School Students	449
MARTIN B. WOLSKE, ELIZA HUI CHIEN LIAN AND CURTIS K. LEECH—Kindling Rates in Sprague Dawley Rats as a Function of Copper and Nichrome Electrodes	453

Science Education

CLAUDE D. BAKER—Friends with Fins: Using Fish as an Educational Tool*	459
CARL CHRISTENSON, JACQUELINE CHRISTENSON AND CLAUDE D. BAKER—Experiential Training: Evaluation and Grading of Extended Field Trip Courses*	459
KARL K. KING AND ROSALIE J. KRAMER—Project Map: An Evaluation of a Community*	459
JOHN T. SNOW, DAVID R. SMITH AND SHAWN B. HARLEY—The Purdue Atmospheric Science Education Program for Junior High Science Teachers*	459
PATRICIA DODSON AND RUTH H. HOWES—First Activities of the Physics Kind: Physical Science Activities for the Primary Grades	461
A.J.C.L. HOGARTH—Weight Titrations: A Forgotten Art?	467
GENE KRITSKY—Darwinism in Modern China	473
MARY ANN MORSE—Nature Study: A Practical Science Course for the Non-science Major	477

Soil and Atmospheric Sciences

RICHARD H. GRANT AND WILLIAM W. MCFEE—The Relationship between Cl and SO ₄ Particulate Concentrations and Air Masses*	481
C.W. LOVELL AND TIMOTHY CROWL—Construction of Highway Embankments over Amorphous Peats and Mucks*	481

	Page
E.M. OSSOM, N.O. ISIRIMAH, A.G. OJANUGA AND C.L. RHYKERD—Acid Sulfate Soils of the Mangrove Swamps of Rivers State, Nigeria	483
ALBERT PETERLIN, JAMES R. MCINTYRE, KEN L. SCHEERINGA AND JAMES E. NEWMAN—A Polar Area Index Methodology for Forecasting Hemispheric Surface Temperature Trends	489
G.C. STEINHARDT, W.C. MOLDENHAUER AND D.P. FRANZMEIER—The Effects of Bulk Density on Available Moisture in Selected Surface Mine Soil Materials	497
Zoology	
CLAUDE D. BAKER—A Pigmented Northern Blindfish, <i>Amblyopsis spelaea</i> , and Notes on Pigmentation in Amblyopsid Cavefishes*	503
AMY K. BERNDTSON AND FREDERICK W. GOETZ—Proteolytic Enzymes in Brook Trout and Goldfish Follicles during Final Maturation and Ovulation* ...	503
DAVID L. BRAND AND PANG F. MA—A Study of Adenosine Deaminase in the Fruit Fly, <i>Drosophila melanogaster</i> *	503
PRISCILLA COSTELLO—Studies of Ecology, Ectoparasites, and Other Associates of the Eastern Box Turtle, <i>Terrapene carolina</i> *	504
DAVID L. DANIELL—Histopathology of Experimental <i>Dendritobilharzia pulverulenta</i> Infections in Avian Hosts*	504
GRAYSON S. DAVIS—Improved Analysis of Physical Forces and Tissue Rheology in Amphibian Gastrulation*	504
LARRY R. GANION AND MARY E. MOHR—Localization of Acetylcholine Binding Sites in Prepubertal Mouse Ovaries*	504
FREDERICK W. GOETZ, F.P. BINKOWSKI, P.D. LORSCH AND S.E. YEO—Sterilization of Chinook Salmon, <i>O. tshawytscha</i> , Fry by 17 α -methyltestosterone*	505
RONALD L. HELMS—Habitat and Food Interrelationships of Shrews in West Central Vigo County*	505
MOHINDER S. JARIAL AND MARGARET W. EGAR—Ultrastructural Changes in the Proximal Tubule of the Axolotl*	505
SCOTT A. LEATHERLAND AND THOMAS H. CERVONE—Winter Fishes in Bayou Creek Drainage*	506
CHARISSA M. URBANO AND SIDNEY L. BECK—Coteratogenesis of Caffeine and Acetazolamide in Mice*	506
DAVID M. AGEE, WILLIAM J. ALVEY, KENNETH D. BERGER, BRAD J. LEINENBACH AND THOMAS H. CERVONE—Winter Fishes of Stinking Fork	507
RONALD L. RICHARDS—The Quaternary Distribution of the Eastern Woodrat, <i>Neotoma floridana</i> , in Indiana	513
SUSAN J. SCHULTHEISS, KENNETH D. BERGER, RUSTY K. YEAGER, DAVID M. AGEE AND THOMAS H. CERVONE—Summer Fishes of Pigeon Creek Drainage ..	523
DAVID M. SEVER, STEPHANIE A. KRAMER AND SUSAN DUFF—The Relation between Ovum Variability and Larval Growth in <i>Ambystome tigrinum</i> (Amphibia: Urodela)	531

	Page
DAVID L. SNYDER, VICTOR RIEMENSCHNEIDER AND VIRGIL W. INMAN—The Upland Sandpiper, <i>Bartramia longicauda</i> , Breeding Area in South Bend, Indiana	537
JOHN O. WHITAKER, JR. AND WYNN W. CUDMORE—Food and Ectoparasites of Shrews of South Central Indiana with Emphasis on <i>Sorex fumeus</i> and <i>Sorex hoyi</i>	543
RUSTY K. YEAGER, DAVID S. NICHOLS, SUSAN J. SCHULTHEIS, MICHAEL T. GALBRAITH, SUSAN E. LENN AND THOMAS H. CERVONE—Fishes of Goose Pond and Its Drainage Basin	553
Instructions for Contributors	559
Index	563

Proceedings
of the
Indiana Academy
of Science

INDIANA ACADEMY OF SCIENCE
SPRING MEETING OF THE EXECUTIVE COMMITTEE

April 25, 1986

MINUTES

President Ernest E. Campaigne called the meeting to order at 2:45 p.m. in the Oak Room, Spring Mill Inn, Spring Mill State Park. All members of the Executive Committee were present.

Minutes of the November, 1985, meeting of the Council, the body corresponding to the present Executive Committee under the previous constitution, were approved.

The Secretary reported that a copy of the Resolution regarding science education approved at the 1985 General Meeting had been sent to Dr. H. Dean Evans, State Superintendent of Public Instruction, and that Dr. Evans had expressed his appreciation. In discussion of how the Academy might implement the resolution, it was pointed out that several Academy members serve on the Advisory Council to the Science Education Committee of the Corporation for Science and Technology. They can inform the Science and Society Committee when action seems appropriate. The Indiana Congress for Education is also preparing to enlist public support.

Recommendation will be made to the Council that Kappa Kappa Kappa become an Affiliated Organization.

Appointment of an *ad hoc* committee to make recommendations on school textbooks was approved.

The possibility of a logo for the Academy was discussed. If there seems to be a consensus that one should be designed, Duvall Jones will consider initiating a contest and an appropriate prize.

The need for liability insurance for Academy officers was discussed briefly and will be considered again when more information is available.

Council will be asked to approve an additional \$5,000 allocation for research grants.

The President displayed a diagram of the structure of the Academy's organization. If Council approves, it will be published in the *Newsletter*.

Indiana State University invited the Academy to hold its 1987 meetings there. If possible, the Fall meeting will be in late October.

A letter from Ronald Richards of the Indiana State Museum sparked a discussion of how the Academy could help him by suggesting members who could provide advice, programs, etc.

Campaigne introduced amendments to the By-Laws which will be presented to the Council.

The meeting was adjourned at 3:30 p.m.

Respectfully submitted,
Richard L. Conklin, Secretary

INDIANA ACADEMY OF SCIENCE
SPRING MEETING OF THE COUNCIL

April 25, 1986

MINUTES

The meeting was called to order by President Ernest E. Campaigne at 3:35 p.m. in the Oak Room, Spring Mill Inn, Spring Mill State Park. Twenty-seven members were present. Minutes from the Fall 1985 meetings of the Council and the Executive Committee were distributed and approved.

TREASURER'S REPORT

Treasurer Duvall Jones presented a financial report of transactions from January 1 to April 24, 1986. Expenditures are within budgeted limits. 570 members have renewed their memberships for 1986; 600 have not done so as of April 24.

1986 Income to date	\$15,110.84
1986 Expenditures	12,419.49
<i>Balance</i>	
Academy Accounts	\$17,340.41
Administered Accounts	<u>18,786.78</u>
Total	\$36,127.19

Upon motions by Jones, the following modifications in the budget were approved:
Increase Research Grants allocations for 1986 by \$5,000
Increase allocation for *Proceedings* by \$8,000 to cover anticipated publication costs.
Transfer funds in the operating reserve to Research Grants.
Jones moved that Kappa Kappa Beta be declared an Affiliated Organization to the Academy in recognition of its long support of the Science Talent Search.
The motion carried.

PRESIDENT'S REPORT

The President distributed a chart depicting the organization of the Academy and recommended that it be published in the *Newsletter*. Alice Bennett suggested that organization of Sections might also be studied.

Campaigne and Donald Winslow are suggesting the publication of a book of abstracts of all the papers to be presented at the Fall meeting. The book would be distributed at the registration table. To facilitate publication, all abstracts must be submitted on a special form which will be distributed with the June *Newsletter*. Additional copies will be available from the Secretary. This year the abstracts will be published in the *Proceedings* as usual; it is possible that a separate volume of *Abstracts* might be published in the future.

The following amendments to the By-Laws of the Academy were circulated to the members in the March *Newsletter*, presented at this meeting by Campaigne, and approved by a vote of those in attendance:

1) Amend By-Laws, Art. VI, Sect. 3, to include a new paragraph (25), as follows:
(25) *Committee on Amendments*. This committee shall consist of three members, with Parliamentarian as Chair. It shall be responsible for all amendments to the Con-

stitution and By-Laws. It shall receive all recommended amendments and review them in terms of their effect on the present Constitution or By-Laws, including conflicting language and impact on Articles and Sections other than those being amended. In case of any such conflict, the Committee on Amendments may revise the language to bring it to agreement with the present Constitution, and, with the consent of the proposer, present it at the next regular meeting of the Council, or it may be returned to the proposer with suggestions for revision. In no case may an amendment to the Constitution or By-Laws be presented for approval by the Council without being first reviewed by the Committee on Amendments. Each proposed amendment must be accompanied by a review statement by the Committee on Amendments.

2) Amend By-Laws, Art. VI, Sect. 3, paragraph (16) *Parliamentarian*, add the sentence: "The Parliamentarian shall serve as Chair of the Committee on Amendments."

3) Amend By-Laws, Art. XII, *Amendments*, to add: Section 2. No amendment, either to the Constitution or By-Laws, may be submitted to the Council for approval unless certified by the Committee on Amendments that the language is not in conflict with other Articles of the Constitution and By-Laws.

REPORTS OF ELECTED COMMITTEES

Academy Foundation Committee

William A. Daily, chair, reported that on March 31, 1986, the Invested Income Account had a total market value of \$128,506.79. The market value of the Foundation Account was \$47,795.00, and the market value of the John S. Wright Fund was \$1,240,118.00.

Research Grants Committee

The Secretary read the report from Austin E. Brooks, chair. Of 30 proposals, 26 were funded at a total cost of \$13,964; the average amount awarded was \$537. A list of the grants is appended to these minutes.

REPORTS OF STANDING COMMITTEE

Editorial Board

Editor Donald Winslow reported that Volume 94 of the *Proceedings*, the Centennial volume, will be released soon. It will have several added features, including a physiographic map of Indiana and expanded sections reporting the Spring and Fall meetings of 1984. It also contains abstracts or papers representing 225 section presentations.

Emeritus Members Selection Committee

Robert Cooper, chair, recommended that the following members be granted Emeritus status:

Miss Betty VanDerbilt, Nashville, Indiana

Dr. and Mrs. Frank N. Young, Indiana University, Bloomington, Indiana

Dr. Edward J. Compau, Greenfield, Indiana

Dr. Earl C. Smith, Terre Haute, Indiana

The recommendation was approved.

Committee on Fellows

Marvin Carmack, chair, discussed the need for new guidelines, forms, and procedures. The committee will discuss these and present a report at the Fall meeting.

Indiana Science Talent Search

Donald R. Winslow, Director, reported that 51 students participated in the 39th

Annual Science Talent Search. 24 were declared finalists by the committee and were invited to participate in the Honors Program on the weekend of March 7-8, 1986, at the Medical Center Union Building, Indiana University-Purdue University at Indianapolis. \$1,000 scholarships were awarded by Kappa Kappa Kappa to Mae-Mae Shieh of West Lafayette (Harrison High School) and Craig Claussen of Kouts High School. George Hudock, Associate Professor of Biology, Indiana University, presented the main address: "Current Applications of Diagnostic Genetic Techniques."

An added dimension of the weekend activities was provided by the Public Service Indiana Symposium, which was designed to invite "new" teachers to the Honors Program and to provide them with ideas for sponsoring students in future talent searches.

Library Committee

Holly Oster, chair, reported that a project begun by Lois Burton is near completion. Its object is to identify and acknowledge services either indexing or abstracting Indiana Academy of Science publications. The information will be made available by the Editor of the *Proceedings*.

Science and Society Committee

Alice Bennett, chair, reported that the committee is considering several matters: 1) A symposium on AIDS for the Fall meeting; 2) Implementation of a Speakers Bureau; 3) A major effort to provide a technical basis for state policy on ground water quality; 4) A group to react to recommend science textbooks; 5) A "master plan" for science education in Indiana.

Youth Activities Committee

Virginia Rhodes, chair, reported on several activities: 1) The committee has been meeting to discuss funding of Academy-supported youth activities; 2) Indiana Science Talent Search was held March 7-8; 3) Twelve regional Science Fairs have been held and 24 students have been named to go to the International Science Fair in Fort Worth, Texas; 4) The Indiana Science Olympiad was held in Michigan City on March 22. Eleven schools participated in the High School division and nine in the Middle School divisions; 5) The first Hoosier Science and Engineering Fair was held at the Children's Museum in Indianapolis on April 17-19, with 70 students participating, six from each Regional Science Fair. It is hoped this will become an annual event.

Dean Christakis, Director of the Junior Academy and the Science Olympiad, submitted a detailed report on their activities. Interested persons may obtain copies from the Secretary.

Representative to the Natural Resources Commission

Damien Schmelz reported that a new nature center will be dedicated at Turkey Run State park. A worsening problem for the Commission pertains to the collapse of bonding companies and the difficulties of coal mine operators needing to obtain new bonds.

Old Business

Benjamin Moulton reported that the *ad hoc* committee to consider appointment of an Executive Secretary has met and will report more fully at the Fall meeting.

The invitation of Indiana State University to act as host for the 1987 meetings was accepted.

The appointment of a Science Education Committee was approved.

The meeting was adjourned at 5:00 p.m.

Respectfully submitted,
Richard L. Conklin, Secretary

INDIANA ACADEMY OF SCIENCE
Spring 1986, Grant Applications Funded

Research Grants Committee Actions		
Principal Investigator/ No. Institution & Dept.	Title	Funded
1. Len Archer ISU-Life Sciences	Temporal Immunglobulin Responses During Trypanosoma cruzi Infections . . .	\$ 500.00
2. Charles Baube IU-Blmg.-Biology	Mechanisms of Reproductive Isolation in the Genus Gasterosteus	385.00
3. Mark Binkley ISU—Geography & Geology	Spacial Perspective of Meteorotropisms . . .	700.00
4. Arvind Chaturvedi Purdue-Geosciences	Application of Landsai Thenatic Mapper Data to Kimberlite Exploration in Brazil . . .	700.00
5. Spencer Cortwright IU-Blmg.-Biology	Predation and Completion as Factors Determining the Relative Abundance of Aquatic Larvai Amphibian Species	659.00
6. Douglas Duff IU-So. Bend-Biology	Atrial Natriuretic Factor's Physiological Function . . . in Teleosts	550.00
7. William Flurkey ISU-Chemistry	Affinity Chromatography of Mushroom Polyphenoxidase	550.00
8. Uwe Hansen ISU-Physics	Studies of Vibrating Surfaces Using Holographic Interferometry	600.00
9. James Hengeveld IU-Blmg.-Biology	Experimental Analysis of Brood Reduction in the Red-winged Blackbird	500.00
10. Torgeir Johnsen IU-Blmg.-Biology	The Influence of Reproductive Experience and Plasma Testosterone Level . . . in the Red-winged Blackbird	400.00
11. Jong Wook Kim ISU-Life Sciences	Analysis of Genomic Double Stranded RNA's from Penicillium stolonifera Virus Complex	500.00
12. Young-ho Kim ISU-Life Sciences	Construction and Cloning of a Double-stranded cDNA . . .	500.00
13. Jane Koska IU-Blmg.-Biology	Hybridization Dynamics and Reproductive Isolating Mechanisms in Toads . . .	450.00
14. Gene Kritsky	Darwinism in China	450.00
15. Olga Kikal Notre Dame-Biology	Control of Cold Hardiness in Arctic Insects	500.00
16. Denny McGrath Nature Conserv./Ind. Field Officer	Collection of Rare Plant and Community Baseline Data at Post Oak Barrens Nature Preserve	550.00
17. Eric Menges Holcomb Res. Institute- Butler	Population Dynamics and Controlling Factors in Silene regia . . . in Indiana	650.00
18. Marilyn Milberger IU-Blmg.-Biology	Evolution of the Lower Vertebrates	775.00

19. Paul Sniegowski IU-Blmg.-Biology	Field Experiments on the Role of Experience in Controlling Avian Migration	500.00
20. David Snyder Lobund Lab- Notre Dame	Study of the Upland Sandpiper Breed- ing Area in South Bend, Indiana	785.00
21. Sue Sudar Purdue-Geosciences	Subsurface and Hydrogeologic Investi- gation Concerning . . . Southside Sanitary Landfill . . . Marion County	500.00
22. Thomas Waldron ISU-Geography & Geology	Geology & Hydrology of the Cider Fork Karst Valley . . .	500.00
23. Louise Weber Notre Dame-Biology	Periphyton, Substrates and the Distri- bution of Grazing Snails	400.00
24. Licia Wolf IU-Blmg.-Biology	Biparental Care in the Monogamous Dark-eyed Junco . . .	400.00
25. Theodore Wright IU-Blmg.-Biology	Allozyme Selection in <i>Bufo</i> <i>americanus</i> Tadpoles	400.00
26. Sewon Yie ISU-Life Sciences	The Study of Replication of <i>Ustilago</i> <i>maydis</i> P-1 Virus . . .	560.00
	Total—	<hr/> \$13,964.00

INDIANA ACADEMY OF SCIENCE
FALL MEETING OF THE EXECUTIVE COMMITTEE

November 13, 1986

MINUTES

President Ernest E. Campaigne called the meeting to order at 1:00 p.m. in the Kraft Conference Room of the Krannert Memorial Library, University of Indianapolis. All members of the Executive Committee were present except the Program Co-chairs.

Minutes of the April 25 meeting of the Executive Committee were approved.

The booklet of *Abstracts* of papers to be presented at Section meetings was distributed by Campaigne. He reported that he had assembled the abstracts in booklet form in approximately twelve hours, and that they had been printed in about two weeks at a cost of approximately \$1,150.00, for 750 copies. There was considerable discussion of the future of this publication. A consensus developed to the effect that the *Abstracts* should continue to be printed separately and that the program of the Fall meeting be included in the book, which would be mailed to all members of the Academy well before the meeting. *Abstracts* would then not be published in the *Proceedings*. The opinions of the full membership would be solicited before such a policy would be implemented. The Program Chairs will be asked to distribute a questionnaire at the Friday meeting, and the *Newsletter* will ask for written opinions.

Treasurer Jones presented his report. He is making some changes in his bookkeeping practices, changing from a single - to a double - entry ledger and allocating the management and General Expenses portions of the budget more in keeping with the Internal Revenue Service categories. The question of cost of mailing by Section Chairs to the members of their sections was raised and referred to the Budget Committee. Jones recommended the purchase of a MacIntosh computer for maintaining membership records and preparing mailing labels. The purchase was approved and will be recommended to the Budget Committee. Liability insurance for Academy officers is not available, but Campaigne reported that Indiana University's legal counsel had advised him that such insurance is not necessary. Accident insurance for such events as nature walks might be advisable; the question will be referred to the Budget Committee.

Several amendments to the Constitution will be brought to the Council for their approval. They have been published in the *Newsletter* and will be presented as published except for changing the word "Council" to "Executive Committee" in Article V, Section 3.

Jones reported for the *ad hoc* Logo Committee that eight designs will be displayed at the Registration desk and members will be asked to vote for their choice.

Proceedings

Editor Winslow reported that extensive changes in proof by authors of papers are substantially increasing the cost of publishing the *Proceedings*. A policy for passing these charges on to the authors will be presented to the Council.

Newsletter Editor Schmidt said that more issues per year would be possible and desirable, subject to approval by the Council.

Chair Moulton reported that he has submitted to the Executive Secretary Feasibility Committee a plan for a trial year, but the Committee has not acted. It will meet this evening and consider a recommendation to the Budget Committee.

Marvin Carmack, chair of the Committee on Fellows, presented a proposal to establish an award for 50-year Fellows. He was given permission to address it to the Council.

The meeting adjourned at 3:00 p.m.

Respectfully submitted,
Richard L. Conklin, Secretary

INDIANA ACADEMY OF SCIENCE
FALL MEETING OF THE COUNCIL

November 13, 1986

MINUTES

The meeting was called to order by President Ernest Campaigne at 3:10 p.m. in the Krafft Conference Room, Krannert Memorial Library, University of Indianapolis. Twenty-one members were present.

The Treasurer's Report in the minutes of the Spring meeting was corrected by the Secretary, deleting the words "with the exception of research grants," correcting the income to \$15,110.84 and the expenditures to \$12,419.49, and correcting one sentence to read "Transfer funds in the operating reserve to Research Grants, in order to eliminate a negative balance that has been carried for several years." The minutes were approved as corrected.

TREASURER'S REPORT

Treasurer Duvall Jones distributed his report of transactions from January 1 to November 11, 1986. There are 1,089 members, 128 of whom joined or were reinstated in 1986. 192 who were members in 1985 have not paid 1986 dues; 103 were dropped for nonpayment of 1985 dues.

In summary:

	Academy Accounts	Administered Accounts	Total
1986 Income	\$16,747.89	\$65,502.99	\$82,250.48
1986 Expenditures	<u>12,999.31</u>	<u>61,457.85</u>	<u>74,457.16</u>
Balance: November 11	\$18,808.76	\$22,420.40	\$41,229.16

No adjustments were needed.

Jones recommended that there be no change in the dues structure.

The report was accepted.

REPORTS OF ELECTED COMMITTEES

Academy Foundation

William Daily, chair, reported that as of October 31, 1986, the Foundation Account had a market value of \$51,847.02. The John S. Wright Fund had a market value of \$1,134,268.90. The Invested Income Account had available to spend assets of \$131,105.33.

Research Grants

Austin Brooks, chair, reported that the Fall round of grants brought 12 requests, all of which were funded for a total of \$8,582.00. During the summer 12 high school grants were awarded, totaling \$1,506.00. Lists of the awards approved are appended to these minutes.

In response to questions, he said that a full report of the work done is required six months after completion. There is no requirement that the work be published, but most recipients present their result at Academy meetings. A request for increased funding will be presented to the Budget Committee. Most of the recipients are graduate students at state universities, in the biological sciences.

REPORTS OF STANDING COMMITTEES

Only those committees whose reports required Council action were heard. Others presented written reports, which are summarized at the end of these minutes.

Nominations

Alice Bennett presented the names of those who will be nominated at the General Meeting.

Fellows

Marvin Carmack presented the names of five members who will be nominated at the General Meeting.

He proposed that special citations be given to people who have been members of the Academy for 50 years, and gold pins to those who have been Fellows for, say, 40 years. After some discussion, the matter was referred back to the committee.

Emeritus

Robert Cooper reviewed the requirements for emeritus membership and presented the names of six people who have recently met these requirements and will be recommended for election at the General Meeting.

Resolutions

William Davies presented two resolutions, one expressing support of the Nature Conservancy and the Division of Nature Preserves of the Indiana Department of Natural Resources, and one expressing thanks to the host institution. The resolutions were approved for presentation at the General Meeting.

Constitutional Amendments

Duvall Jones moved the approval of four proposed amendments, all of which were published in the September, 1986, *Newsletter*. A change in Article III, Section 7, authorizing the Treasurer to sign contracts as authorized by the Executive Committee, was approved.

A change in Article VI, Section 4, clarifying the operation of the Budget Committee, was approved.

A new Article V, Section 3, concerning use of Academy trust funds, was approved.

A replacement of Article VI, Section 3, concerning the composition and operation of the Program Committee was tabled.

The approved amendments will be presented to the membership at the General Meeting.

Publications

Benjamin Moulton, chair, reported that the monograph *Butterflies of Indiana*, by Schull and Schull, edited by Eberly, has been given to the IU Press for publication. It should appear in the Fall of 1987. An estimated cost has been given of \$33,000.00 for 5,000 copies.

Work is proceeding on two other manuscripts, *The Flora of Indiana* by William Crankshaw, and *Endangered Species of Indiana* by John Whitaker and James Gammon.

The Committee will discuss the impact of publishing the abstracts of papers presented at the Fall meeting as a publication separate from the *Proceedings*.

Editorial Board

Donald Winslow, Editor, reported that the awards established in 1982 for excellence in papers published in the *Proceedings* will be awarded for the first time this year. Five papers were nominated by Section chairs. The winners of the two \$150.00 awards are Jeffrey A. Andresen and Robert F. Dale, and John A. Rupp.

Volume 95 of the *Proceedings* is being printed by Western Newspaper Publishing Co., Inc., of Indianapolis. Page proofs are being prepared.

Winslow moved that the Editor be allowed to make an appropriate page charge for excess corrections in proof, in consultation with the Publications Committee. The motion carried.

Science and Society

Alice Bennett, chair, reported that the Committee has arranged a Symposium, "AIDS: Educating the Public" for Saturday, November 15, and has prepared for distribution a booklet about the talks given. The Committee authorized the use of the Academy's name as a sponsor of an *amicus curiae* brief filed in the Supreme Court of the United States in a case involving evolution and scientific creationism.

The Committee has initiated an awards program for graduate students presenting scientific papers at the Fall meeting. Each Section Chair will have the opportunity to identify a graduate student presenter who should receive a membership in AAAS for the coming year.

OTHER BUSINESS

Logo Selection Committee chair Duvall Jones reported that members will be asked to vote on their favorite of eight suggested designs.

Frank Edmondson of the Indiana University Department of Astronomy requested Academy support for the institution of an endowed professorship there in the name of Professor Daniel Kirkwood, distinguished astronomer and a founder of the Academy. Conklin moved that the Resolutions Committee draft a resolution endorsing establishment of a Daniel Kirkwood Professorship at Indiana University. The motion carried.

REPORTS OF OTHER COMMITTEES

Representative to AAAS

Sears Crowell attended the meeting in Philadelphia. Plans to create a Section Y - General Interest, which would be appropriate for state academies, are still under way. He urged appointment of a person concerned with Junior Academy programs.

Representative to Natural Resources Commission

Damien Schmelz attends monthly meetings of the Commission, which sets policies, issues regulations, and grants permits.

Biology Survey

The Committee cosponsors the annual Natural Areas Conference, at IU Northwest and Indiana Dunes this year, New Harmony in 1987. It is developing a list of endangered and threatened bryophytes in Indiana.

Executive Secretary Feasibility

The study is continuing. A trial year seems advisable, if funding can be obtained.

Library

Distribution of Volume 94 of the *Proceedings* has been completed. A total of 801 hardcover and 432 softcover copies were sent. \$8,900.00 to be applied to the cost of printing Volume 95 was received from the State Budget Agency.

During 1986, 192 volumes were added to the library's collection, bringing the total to 11,207. Twenty-four new exchange titles were catalogued and added to the OCLC database. 258 interlibrary loan requests were processed.

Membership

New invitation-to-membership brochures have been printed, 6,000 in all. The effort to obtain more corporate members continues.

Speaker of the Year

Dr. Ruth H. Howes of the Department of Physics and Astronomy, Ball State University, has been named Speaker of the Year. The title of her address, to be presented first at the Fall meeting, is "Science and National Security Policy." She will visit five institutions during the year.

Youth Activities

Dr. Mark Whitman of Lafayette is the new Director of the Junior Academy. The Fall meeting will be held concurrently with the meeting of the Academy on November 14.

Dr. Jan Woerner is the new Director of the Indiana Science Olympiad. The 1987 competition will be at Center Grove High School, Greenwood, on March 21.

The second Indiana Science and Engineering Fair will be held at Indianapolis on April 23 and 24. Financial assistance for regional science fairs will be proposed to the Budget Committee.

A grant of \$1,200.00 was received as a result of a proposal submitted to the AAAS for the support of high school science research projects.

Respectfully submitted,
Richard L. Conklin, Secretary

INDIANA ACADEMY OF SCIENCE
Fall 1986, Grant Applications Funded

Research Grants Committee Actions			
No.	Principal Investigator/ Institution & Dept.	Title	Funded
1.	Amy Berndtson Notre Dame-Biol. Sci.	Characterization and hormonal regulation of proteolytic enzymes . . .	\$ 832.00
2.	James Berry Butler-Biol. Sci.	Biogeography of spiders of the Pacific Islands	650.00
3.	Shree Dhawale Biology-Earlham	Analysis of mitochondrial DNA from host specific isolates . . .	750.00
4.	Frank Knight IU-Blmg.-Biology	The onset of normal and endotoxin affected behavioral responses to thermal stimuli	503.00
5.	David Lipke Notre Dame-Biol. Sci.	. . . aspects of the kallikein-kinin and renin-angiotensin systems in rainbow trout	1,000.00
6.	April Mason Purdue-Foods & Nutrition	Bioavailability of selenium to rats from a soy protein based diet	550.00
7.	Cheryl Mason Purdue-Biology	Improving student attitudes toward science-related careers . . .	1,250.00
8.	Kyoungsook Park ISU-Life Sciences	The effects of ascorbic acid on transcriptional activity in aging human diploid fibroblasts	1,062.00
9.	Charles Sanislow Ball State-Psych. Sci.	Mood and interpersonal perceptions of students . . .	205.00
10.	David Schmitt Notre Dame-Biol. Sci.	Orientation of honeybees in earth-strength magnetic fields	645.00
11.	Horst Siewert Ball State-Nat. Res.	Effects of hazardous waste cleanup on aquatic organisms in Finely Creek	285.00
12.	Kathryn Wilson IUPUI-Biology	Tissue culture methods and selection of disease resistant . . . Gladiolus	850.00
Total—			\$8,582.00

INDIANA ACADEMY OF SCIENCE
1986 High School Student Research Proposals Funded

Research Grants Committee Actions		
Principal Investigator/ No. School/City	Title	Funded
1. Dragica Balc Gavit/Hammond	The Effects of Electrostatics on Callus Growth and Differentiation of <i>Daucus carota</i>	\$ 155.00
2. Pamela Cooper Northside/Muncie	Microbiological Concerns Regarding Home Use of Activated Carbon Filters . . .	165.00
3. Tom Hamilton Adams/South Bend	An Investigation of Altered Diets on the Mechanisms of Systemic Dissemination of <i>Candida albicans</i>	100.00
4. Molly Hooten Paoli/Paoli	A Three Year Study into Calcium and Sodium Influx to Selected Tissue	155.00
5. Deborah Houser E. Noble/Kendallville	The Effect of Enalapril on ANF Levels in Spontaneously Hypertensive <i>Rattus norvegicus</i>	140.00
6. Dave Kantowitz Harrison/W. Lafayette	Design and Construction of a Computer-Assisted Non-Steady State Crystalizer	125.00
7. Ann Koons E. Noble/Kendallville	A Study of the Chemotherapeutic Treatment of Specific Types of Cancer . . .	150.00
8. Sarah Ley Cnt.Noble/Kendallville	The Effects of Smoking on HDL Composition of the Blood	125.00
9. Matt Moore Harrison/W. Lafayette	A Study of the Effects of Weather Variables on Airborne Particulate Matter in Lafayette, IN	100.00
10. Andrij Petryna Gavit/Hammond	Parabolic Solar Water Heater Integrated with a Gas Furnace	150.00
11. Ted Scheel Adams/South Bend	The Possible Prolonged Enhancement of Physiological Processes with Vitamin-Mineral Supplementation . . .	72.00
12. Julie Stante Adams/South Bend	Possible Effect of Imposed Stress Due to Sleeplessness on the Immune Response of Laboratory Mice	69.00
	Total—	\$1,506.00

INDIANA ACADEMY OF SCIENCE GENERAL MEETING

November 14, 1986

MINUTES

The meeting was called to order by President Ernest E. Campaigne at 1:20 p.m. in Ransburg Auditorium, University of Indianapolis.

Dr. Gene E. Sease, President of the University, welcomed the Academy to the campus.

Dr. Daniel Briere, Assistant Professor of Spanish at the University, delivered a brief review of the early history of science under the title, "The Medieval Paradigm Then and Now."

Secretary Richard Conklin reviewed the actions taken and reports given at the meeting of the Council of the Academy.

Treasurer Duvall Jones reported that the finances of the Academy are sound. He announced that Life Membership is available for a single payment of \$300.00.

Fay Daily, Necrologist, reviewed the lives of five members whose deaths became known during 1986:

Donald W. Ash	Theodore Torrey
Henry Shirley Rothrock	Harold E. Wolfe
Ralph Wayne Stark	

A minute of silence was observed in their memory.

Duvall Jones presented three amendments to the Constitution which had been published in the *Newsletter* and approved by the Council:

1) Article III, Section 7. "Treasurer. The Treasurer shall have been a member of the Academy for at least three years. The Treasurer shall have custody of all funds of the Academy except as otherwise provided, issue statements, receive payment of dues and assessments, and pay bills chargeable to the Academy; sign contracts on behalf of the Academy as authorized by the Executive Committee; promptly submit the Academy's financial records for audit; report to the Council annually on the financial standing of the Academy; and be responsible for filing such financial reports as may be required by state and federal offices."

2) Article VI, Section 4. "The Budget Committee of the Academy shall consist of the following who will hold the specified positions for the next calendar year: the retiring Secretary and Treasurer (in the year in which these offices change), the Director of the Junior Academy of Science, chairs of the Program Committee, Library Committee, Youth Activities Committee, Academy Foundation Committee, Publications Committee, Science and Society Committee, and Research Grants Committee. Others may be present by invitation. The Budget Committee shall meet by December 15th each year to establish the operating budget and to allocate trust income for the following year. Revisions of the budget or allocations of trust income may be made by the Budget Committee at the Spring or Fall meeting."

3) Article V, Section 3. "Income from the Academy trust funds is to be used primarily for the support of research by members of the Academy, including publication of research reports, monographs, and administrative expenses associated with these activities. Allocations of trust income are made by the Budget Committee. Commitment to publish a monograph or other research work requires approval by the Publications Committee and allocation of adequate funds by the Budget Committee; contracts must have approval of the Council prior to signing. All or any part of the income for any given year

may be applied to any purpose other than research with the recommendation of the Executive Committee and the consent of both the Research Grants Committee and the Academy Foundation Committee, and approval of the Council. A majority of the members present and voting at the annual meeting of the Academy also must give approval."

All three new or revised amendments were adopted.

Donald Winslow, Editor of the *Proceedings of the Academy* presented \$150.00 awards for excellence of articles published in the *Proceedings* to Jeffrey Andresen and Robert F. Dale, authors of "Climatic Data Bases," and to John A. Rupp, author of "The Backbone Limestone (Lower Devonian), a Potential Reservoir in Southern Indiana."

Marvin Carmack, chair of the Committee on Fellows, presented the names of the following nominees:

Malcolm Harold Chisholm

Distinguished Professor of Chemistry, Indiana University

Gary E. Dolph

Professor of Botany, Indiana University Kokomo

Uwe J. Hansen

Professor of Physics, Indiana State University

Richard Jensen

Associate Professor of Biology, St. Mary's College

Dennis Gail Peters

Herman T. Briscoe Professor of Chemistry, Indiana University

All five were elected, and certificates were presented to those who were present.

The Secretary read the report of the Committee on Emeritus members, presenting the following applicants:

D.M. Downie, Lafayette

Charles B. Heiser, Bloomington

Kenneth E. Nichols, Valparaiso

Phillip A. Orpurt, North Manchester

John B. Patton, Bloomington

William G. West, Brazil

All were elected to Emeritus membership.

Alice Bennett, Chair of the Nominating Committee, presented the following slate for 1987:

President-Elect: Wilton N. Melhorn

Research Grants Committee: Benjamin Swartz, Jr.

Bonding Committee: John Whitaker

The Secretary was instructed to cast a unanimous ballot for those nominated.

President Campaigne requested members to comment on the booklet of abstracts of papers presented at the Section meetings.

Charlotte Boener, Chair of the 1987 Program Committee, announced that the Spring Meeting will be held at McCormick's Creek State Park on April 10 and 11. The Fall Meeting will be at Indiana State University on November 6 and 7.

William Davies, Resolution Committee Chair, presented several resolutions:

Two resolutions were approved by the Council:

1) WHEREAS: The Indiana Academy of Science is deeply grateful to the University of Indianapolis for its invitation to hold the 102nd annual meeting on its campus; and

WHEREAS: The administrative, faculty, staff and students of the University of Indianapolis have cooperated admirably in providing us their facilities and support for this 102nd annual meeting; be it

RESOLVED: That the Academy members and guests here assembled express their sincere appreciation to Dr. Gene E. Sease, President of the University, for all the courtesies and assistance that have been extended to the Academy during this meeting. We are especially grateful to Drs. John Batey and Gerald Zimmerman, who served as Co-Chairmen of the Program Committee, and other participating faculty members of the University of Indianapolis for the arrangements of the entire program and for the comfort and conveniences provided our members. We also express our sincere thanks to all members who organized and participated in all aspects of the 102nd annual meeting.

2) WHEREAS: The Indiana Academy of Science is directed, constitutionally, to promote scientific research and the diffusion of scientific information in a scholarly manner, and has interest in improving science education, and in informing the general public of the level of scientific knowledge regarding natural areas and rare species; and

WHEREAS: The Indiana Division of Nature Preserves (Department of Natural Resources) and The Nature Conservancy, in following their mandates to protect natural areas and to collect and interpret data regarding elements of Indiana's natural heritage, are pursuing goals that coincide in this area with those of the Academy, and

WHEREAS: The Indiana Division of Nature Preserves and The Nature Conservancy are jointly seeking to increase and enhance support for their program of natural area acquisition and stewardship through the recently enacted Indiana Natural Heritage Protection Campaign (a public-private conservation effort designed to generate \$10 million to complete the Nature Preserve System); it is therefore

RESOLVED: That the Indiana Academy of Science supports the Indiana Natural Heritage Protection Campaign and the efforts of the Indiana Division of Nature Preserves and The Nature Conservancy to complete the Indiana Nature Preserve System; and it is further

RESOLVED: That the Indiana Academy of Science and the Indiana Division of Nature Preserves and The Nature Conservancy, should promote and develop a close working relationship in recognition of their common goals in biological science, in nature study, in education, and in natural area protection.

One was approved in principle by the Council; the exact wording was prepared after the Council meeting.

3) WHEREAS: Daniel Kirkwood was a founding member of the Indiana Academy of Science, and the first Honorary Member of the five who have been so honored; and

WHEREAS: 1986 is the 100th anniversary of Daniel Kirkwood's retirement from the Faculty of Indiana University after thirty years of distinguished service, and

- WHEREAS: The "Kirkwood Gaps" in the orbits of the asteroids between Mars and Jupiter, discovered by Daniel Kirkwood in 1866 at Indiana University, are still referred to by this name in present day research literature; and
- WHEREAS: Daniel Kirkwood was a great teacher, beloved by his students and the people of Bloomington; it is therefore
- RESOLVED: That the Indiana Academy of Science strongly endorses the proposal to establish a DANIEL KIRKWOOD PROFESSORSHIP OF ASTRONOMY at Indiana University, and urges the administration of the University to take all necessary steps to bring this Professorship into being in the near future.

These three resolutions were adopted without debate.

A group of resolutions were presented which had not been presented to the Council:

- WHEREAS: The Indiana Academy of Science is directed, constitutionally, to promote scientific research and the diffusion of scientific information in a scholarly manner, and has interest in improving science education in the public schools, and,
- WHEREAS: Education in the natural sciences is necessary for the full participation of individuals in our technological society, for modern industrial and economic development, and for the strength and unity of our nation, be it
- RESOLVED: That the Indiana Academy of Science urgently recommends that science education be developed into an integral part of curricula in elementary education, and
- WHEREAS: Many elementary teachers are uncomfortable with science and may be inadequately prepared to teach science, be it further
- RESOLVED: That this effort include the development of specialized elementary science teachers and adherence to state requirements for teaching of science by local school corporations.

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- WHEREAS: Textbook publishing companies are being consolidated into large conglomerates often without an educational orientation, and
- WHEREAS: Various special interest groups are attempting to dictate, either directly or indirectly, the science curricula of our public schools, be it
- RESOLVED: That the Indiana Academy of Science supports the continued existence of the State Textbook Adoption Committee and its role in the initial selection of textbooks for students in the public schools of Indiana. Be it further
- RESOLVED: That the Indiana Academy of Science, with a membership of practicing scientists and mathematicians, will recommend qualified members to serve on the State Textbook Adoption Committee.

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- WHEREAS: It has been found that the most significant factor in superior science and mathematics instruction is the classroom teacher, and

- WHEREAS: There are differences in teacher preparation among our teacher education institutions with respect to entry requirements and prescribed courses of study, be it
- RESOLVED: That the Indiana Academy of Science recommend to the Superintendent of Public Instruction that all teacher education institutions within the State of Indiana adhere to the Standards for the Preparation and Certification of Teachers of Science in grades K-12 as adopted by the National Science Teachers Association.

A motion to table the textbook resolution was defeated. The set were then approved by a voice vote.

The business meeting adjourned and the Speaker of the Year, Ruth H. Howes, Professor of Physics and Astronomy at Ball State University, spoke to the title, "Science and National Security Policy." She described personalities and procedures she had encountered during a year as a consultant to the Arms Control and Disarmament Administration.

The afternoon program ended at 3:00 p.m.

Respectfully submitted,
Richard L. Conklin, Secretary

INDIANA ACADEMY OF SCIENCE BUDGET COMMITTEE

December 6, 1986

MINUTES

The meeting was called to order by Stanley Burden at 9:15 a.m. in the Auditorium of the Indiana State Library. Those present and their areas of interest were: Charlotte Boener (Program), Austin Brooks (Research), Stanley Burden (1987 President), E.E. Campaigne (1986 President), Richard Conklin (Secretary), William Daily (Academy Foundation), Duvall Jones (Treasurer), Benjamin Moulton (Publications), Holly Oster (Library), Virginia Rhodes (Youth Activities), David Squiers (Science and Society), Mark Whitman (Junior Academy), and Donald Winslow (Editor).

Minutes of the meeting of 1985 were read and approved.

E. Campaigne reported for the logo committee. Contact has been made with Mr. James Gray of Stone Cabin Design, Gosport, IN, who specializes in logos. He outlined three options under which he could operate. The committee will request him to give an estimate of the cost to the Academy based on his using the suggested logos submitted by the membership as a starting point for his design of a new logo. The Secretary will order stationery for 1987 using the present letterhead style.

Stanley Burden distributed a summary of responses to the survey on members' response to the Abstract booklet at the Fall meeting. Partly on the basis of this response and partly on other considerations, for the Fall, 1987, meeting the program and abstracts will be printed in the same booklet and mailed well before the meeting. This decision and what it means to members presenting papers will be discussed in the *Newsletter*. This is a second experimental year; the abstracts will also be printed in the 1987 *Proceedings*. If the members respond favorably to this and to another questionnaire to be distributed later, the abstracts booklet will be considered the official publication of the abstracts that then will not be printed again in the *Proceedings*.

Due to an oversight, there is a vacancy on the Academy Foundation Committee, John Ricketts' term having expired. President Burden appointed E.E. Campaigne to a three-year term on that committee. The action was endorsed by approval of a motion by Brooks.

Treasurer Duvall Jones presented the proposed budget for 1987, and discussion of several matters arose as specific items were reached. He called attention to the reorganization of the allocations for Management and General Expenses, which now designate line items for particular purposes rather than for particular offices. The Treasurer will be responsible for informing officers if their expenditures are threatening to exceed the budget.

The Executive Committee had requested the budget committee to consider the expenses incurred by section chairs in mailings to their members. After considerable discussion of present practices, the following policy was adopted:

1. The call for papers will continue to be made in the *Newsletter*.
2. Section chairs who wish to communicate with their members should arrange with their own institutions for financing the mailing.
3. In case of hardship, funds can be allocated by the Treasurer from the Executive Committee Contingency Fund.
4. Need for such mailings might be reduced if members would notify section chairs of their intent to publish. A form for this purpose is to be designed for inclusion in the *Newsletter*.

The Secretary is to notify section chairs of this policy.

Charlotte Boener presented itemized estimates of the costs of the Spring and Fall meetings. Moulton moved the allocation of \$2000 from the John S. Wright Fund for the printing of the *Abstracts*. The motion carried.

Virginia Rhodes spoke to the budget for Youth Activities. The major change requested is an addition of \$3000 so that the Academy can allocate \$250 to each of the Regional Science Fairs to help defray the costs of affiliation with the International Science Fair. \$300 was also requested to help pay for awards and other incidental expenses for the new Science Olympiad program.

Mark Whitman reported that participation in the Junior Academy has increased from fifteen schools to seventy-five, and that sponsors will become members of the Academy. Because of this increased activity and a possible loss of revenue from a corporate sponsor, he requested the increase of the Junior Academy allocation to \$2500. A final figure of \$2000 was approved with the understanding that the Contingency Fund could be used if the corporate support is indeed reduced.

Upon motion by Jones, the registration for the Fall meeting was set at \$5 for members, including clubs, and \$7 for non-members.

Upon motion by Campaigne, \$3000 was approved for the purchase of a personal computer and accessories for use in maintaining membership records and providing dues cards and mailing labels.

Benjamin Moulton spoke on behalf of the Executive Secretary Feasibility Committee. There was general support for continuing the study of the value of such an office and possible means of funding it. Campaigne spoke in favor of using some of the research money allocated from the John S. Wright Fund for administrative purposes. He suggested that the Foundation Committee might consider this and make a recommendation to the Council.

Jones moved the transfer of \$572.25 from reserve funds to the Administered Account for reprints. The motion carried.

Jones moved the transfer of \$10,570 from reserve funds to balance the budget, and the adoption of the budget as thus balanced. The motion carried.

Austin Brooks spoke for the Research Grants Committee. A new brochure is being published, and two modifications seem desirable:

1. Increase the upper limit on an individual grant from \$1500 to \$2500.
2. Remove the word "exceptional" from the conditions on grants for equipment.

The two changes were approved on motion by Campaigne. The amount budgeted for grants was increased from \$25,000 to \$30,000.

Jones moved the approval of allocations from Trust Funds. The motion carried.

The meeting was adjourned at 2:00 p.m.

Respectfully submitted,
Richard L. Conklin, Secretary

**INDIANA ACADEMY OF SCIENCE
1987 Budget**

Anticipated Income

Academy Accounts	
Dues	\$15,000.00
Contributions	250.00
Interest	2,500.00
Reserve Funds	<u>10,570.00</u>
Total	\$28,320.00

Expenditures

Academy Accounts	
Management & General Expenses	
Executive Committee Contingency Fund	\$ 2,200.00
Office Supplies	700.00
Telephone	100.00
Postage and Shipping	1,700.00
Insurance and Fees	250.00
Office Services	900.00
Membership Services (printing, etc.)	500.00
Travel (\$200-PR)	400.00
CPA Fees	550.00
Equipment (computer)	3,000.00
Program Services	
Editorial Board Awards	300.00
Newsletter	900.00
Public Relations	500.00
Meetings: Printing & Mailing (Abstracts)	1,670.00
Youth Activities Committee	3,000.00
Science Olympiad	300.00
Speaker of the Year	700.00
AAAS Representative	250.00
Biological Survey Committee	1,700.00
Science Education Advisory Committee	200.00
Science & Society Committee	1,600.00
Transferable to Administered Accounts	
Junior Academy	2,000.00
Meetings: Meals & Registrations	0.00
Reprints	2,500.00
Library Binding	1,100.00
Publications: Mailing	1,300.00
Science Talent Search	<u>0.00</u>
Total	\$28,320.00
Trust Funds	
Anticipated Income and Expendable Funds	
IAS Fund (00430-00-0)	\$ 2,900.00
John S. Wright Fund (00430-01-9)	41,000.00
Invested Income Account (00430-02-8)	<u>131,000.00</u>
Total	\$174,900.00

Approved Expenditures

Fiduciary Fees	\$ 7,000.00
Research Grants for Senior Academy Members	30,000.00
Research Fellowship for High School Teachers	5,000.00
Research Grants for High School Students	600.00
Publications	
Abstracts	2,000.00
<i>Proceedings</i> (Volume 95)	8,000.00
<i>Climate of Indiana</i>	15,000.00
<i>Butterflies of Indiana</i> (1987)	35,000.00
<i>Endangered Species</i> (1987)	7,000.00
<i>Flora of Indiana</i> (Crankshaw)	8,000.00
Symposium Booklet	1,500.00
Research Grants Brochure & Expenses	800.00
	<hr/>
Total	\$119,900.00

Additional Income

Administered Accounts (dedicated, unbudgeted funds)

Reprints	2,700.00
Junior Academy (IBM)	1,400.00
Science Talent Search	2,500.00
High School Research	1,200.00
Meetings: Meals & Registration	4,000.00
	<hr/>
Total	\$ 11,800.00

INDIANA ACADEMY OF SCIENCE
Financial Report
1 January — 31 December 1986

I. ACADEMY ACCOUNTS

	Income	Budgeted	Expenditures	Budgeted
Dues	\$15,448.00	\$13,800.00		
Contributions	245.00			
Interest	2,877.11	2,100.00		
Reserve funds - general		2,100.00		
Transfer to Administered Account (Reprints)	(572.25)			
Management & General expenses				
President				
General Office			600.00	600.00
President's Contingency Fund			157.80	250.00
Secretary			254.64	400.00
Treasurer			1,381.67	1,550.00
Editor			300.00	750.00
Membership Committee			973.95	1,500.00
Officers Travel			125.00	150.00
CPA Fees			525.00	550.00
Program Services				
Newsletter			523.44	900.00
Public Relations			500.00	500.00
Programs for meetings			2,499.49	2,500.00
Junior Academy			1,196.23	1,200.00
Youth Activities Committee			1,222.72	1,250.00
Speaker of the Year			700.00	700.00
Section Chairs			41.91	50.00
AAAS Representative			300.00	300.00
Biological Survey Committee			1,500.00	1,500.00
Science and Society Committee			279.62	1,600.00
Miscellaneous	40.00		40.00	100.00
Transfers to Administered Accounts				
Library binding			1,500.00	1,500.00
Publications: Mailing			900.00	900.00
Research grants			2,987.63	2,987.63
TOTALS	\$18,037.86	\$18,000.00	\$18,509.10	\$21,737.63

II. ADMINISTERED ACCOUNTS

	January 1 Balance	1986 Transfers & Income*	1986 Transfers Expenditures	31 December Balance
Junior Academy of Science	\$ 0.00	\$ 1,600.00(I)	\$ 1,596.00	\$ 4.00
J.S. Wright Library Fund	134.28	(64.09)(T ₁)	70.19	0.00
Lilly Library Fund	7,003.52	64.09(T ₁)	15.95	7,051.66
Library Binding	3,912.20	1,500.00(T ₁)	1,585.90	3,826.30
Meeting Fees & Expenses	852.68	7,827.47(I)	7,002.93	1,677.22
Publications				
Printing: <i>Proceedings</i>	1,952.89	20,319.05(T ₂)	20,319.05**	1,952.89
Monographs		599.20(T ₂)	599.20	
Mailing: <i>Proceedings</i>	753.46	900.00(T ₁)	1,098.41	555.05
Monographs				
Sale of Publications	5,144.24	1,157.58(I)	307.04	5,994.78
Reprints (Volumes 94 & 95)	0.00	2,888.70	3,273.59	187.36
Transfer from reserves		572.25(T ₁)		
Research Fellowships	149.25	3,500.00(T ₂)	3,500.00	149.25

Research Grants - Senior	-3,765.00	22,646.00(T.) 2,987.63(T.) 1,200.00(I)	23,068.63	0.00
Research Grants - High School	0.00	300.00(I)	0.00	300.00
Science Talent Search	2,238.14	2,577.00(I)	3,440.60	1,374.54
TOTALS	\$18,375.66	\$70,574.88	\$65,877.49	\$23,073.05

*I: Income from external sources.

T₁: Transfer from Academy Accounts.

T₂: Transfer from Academy Trust Funds.

T₃: Transfer from Wright Library Fund to Lilly Library Fund.

** The State of Indiana paid an additional \$8,900.00 toward printing of the *Proceedings*.

III. SUMMARY

	Academy Accounts	Administered Accounts	Total
Balance: 1 January 1986	\$15,060.18	\$18,375.66	\$33,435.84
1986 Income	18,037.86	70,574.88	88,612.74
1986 Expenditures	18,509.10	65,877.49	84,386.59
Balance: 31 December 1986	\$14,588.94	\$23,073.05	\$37,661.99

IV. BANK BALANCES (as of 31 December 1986)

Super NOW Account			
Northwest National Bank, Rensselaer, IN; Acct #21-0497-4			\$ 2,884.36
Hi-Fi Checking Account			
Northwest National Bank, Rensselaer, IN; Acct #70-032504			10,232.62
Savings Accounts			
Farmers National Bank, Remington, IN-CD #2408862			2,421.76
#302641			2,421.76
State Bank of Rensselaer, IN-CD #100211766			8,229.59
Bank One, Lafayette, IN CD #66594185			5,000.00
Indiana Federal S&L, Rensselaer, IN CD #10-0140111			3,370.56
Northwest National Bank, Rensselaer, IN CD #11985			3,101.34
TOTAL			\$37,661.99

V. SUMMARY OF TRUST FUNDS

	Research Acct. (430-00-0)	Wright Fund (430-01-9)	Invested Income (430-02-8)
Assets (1 January 1986)			
Cash	\$ 471.51	\$ -3,132.55*	\$ 8,793.73
Tax Value of Investments	39,228.68	372,702.92	125,145.72
Tax Value of Account	\$39,700.19	\$ 369,570.37	\$133,939.45
Income and Transfers			
Dividends	646.20	26,812.00	0.00
Interest	2,224.93	15,444.21	10,298.08
Income from Sales	0.00		0.00
Transfer from Wright Fund		0.00	36,888.63
Expenditures and Transfers			
Fiduciary Fees	- 12.26	- 5,941.95	- 29.73
Transfer to Invested Income	0.00	- 36,888.63	0.00
Distributions to Programs	- 300.00	0.00	- 47,064.25

Assets (31 December 1986)

Cash	188.19	- 4,264.19*	5,546.54
Tax Value of Investments			
Short Term Investments	3,800.00	52,100.00	5,100.00
Bonds	25,742.19	152,439.24	120,311.11
Stocks	12,181.50	227,996.70	0.00
Tax Value of Account	\$41,911.08	\$ 428,271.75	\$130,957.65
Market Value of Principal	\$49,528.32	\$1,220,594.56	\$131,932.34

*Negative balances due to computer error; corrected on 2 January.

VI. NOTES

Membership

1,188 memberships for 1986 as of 31 January 1987

- 48 sustaining members
- 668 members
- 190 associate members
- 79 student members
- 4 honorary members
- 6 life members
- 109 emeritus members
- 79 clubs
- 5 corporate members
- 5 members deceased (included above)
- 122 on file from 1985 not paid for 1986
- 124 new and reinstated members in 1986
- 102 members and clubs dropped for nonpayment of 1985 dues

Dues structure for 1986: \$

- 5.00 for clubs and student memberships
- 10.00 for associate memberships
- 15.00 for members
- 25.00 for sustaining memberships
- 300.00 for life memberships
- 150.00-500.00 corporate memberships
- 50.00-100.00 institutional memberships

Reprints: All authors of papers in Volume 94 of the *Proceedings* have paid for the reprints which they ordered. Cost of the reprints to the Academy was \$3,273.59. Authors paid the Academy \$3,356.20 for reprints.

Publications: Sales of reprints, monographs and *Proceedings* in 1986 totaled \$4,046.28.

Research Grants: Funds totaling \$23,346.00 have been awarded.

Grants Received: The State of Indiana contributed \$8,900.00 toward publication of the Academy *Proceedings*. Kappa Kappa Kappa Sorority made \$1,500.00 available for awards and expenses for the Science Talent Search for Indiana high school students.

The American Association for the Advancement of Science granted \$1,200 to be used by high school students for research.

Public Service Indiana provided funds for a teacher's workshop in conjunction with the Science Talent Search of 1986.

The John S. Wright Fund, one of the Academy's trust accounts, supports most of the Academy's research grant programs, as well as research-related publications such as the *Proceedings* and monographs.

VII. BUDGET FOR 1987

The following budget was approved by the Budget Committee in its meeting of 6 December 1986.

Anticipated Income

Academy Accounts	
Dues	\$ 15,000.00
Contributions	250.00
Interest	2,500.00
Reserve Funds	10,570.00
Total	<u>\$ 28,320.00</u>

Expenditures

Academy Accounts	
Management & General Expenses	
Academy Development Fund	\$ 2,200.00
Office Supplies	700.00
Telephone	100.00
Postage and Shipping	1,700.00
Insurance and Fees	250.00
Office Services	900.00
Membership Services (printing, etc.)	500.00
Travel	400.00
CPA Fees	550.00
Equipment (computer)	3,000.00
Program Services	
Editorial Board Awards	300.00
Newsletter	900.00
Public Relations	500.00
Meetings: Printing & Mailing (Abstracts)	1,670.00
Youth Activities Committee	3,000.00
Science Olympiad	300.00
Speaker of the Year	700.00
AAAS Representative	250.00
Biological Survey Committee	1,700.00
Science Education Advisory Committee	200.00
Science & Society Committee	1,600.00
Transferable to Administered Accounts	
Junior Academy	2,000.00
Meetings: Meals & Registrations	0.00
Reprints	2,500.00
Library Binding	1,100.00
Publications: Mailing	1,300.00
Science Talent Search	0.00
Total	<u>\$ 28,320.00</u>

Trust Funds

Anticipated Income and Expendable Funds as of 1 January 1987

IAS Fund	(00430-00-0)	\$ 2,900.00
John S. Wright Fund	(00430-01-9)	41,000.00
Invested Income Account	(00430-02-8)	131,000.00

Approved Expenditures

Fiduciary Fees		\$ 7,000.00
Research Grants for Senior Academy Members		30,000.00
Research Fellowship for High School Teachers		5,000.00
Research Grants for High School Students		600.00
Publications		
Abstracts		2,000.00
<i>Proceedings (Volume 95) (1987)</i>		8,000.00
<i>Climate of Indiana</i>		15,000.00
<i>Butterflies of Indiana (1987)</i>		35,000.00
<i>Endangered Species (1987)</i>		7,000.00
<i>Flora of Indiana</i>		8,000.00
Symposium Booklet (1987)		1,500.00
Research Grants Brochure & Expenses		800.00

Total	\$119,900.00
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Respectfully submitted,

Duvall A. Jones, Treasurer

We, the undersigned, have audited the Treasurer's records for the Indiana Academy of Science for the year 1986 and have found them to be accurate and in order.

 Andrew G. Mehall

 John Ricketts

 , 1987

 , 1987

John Huffman Wins in Science Fair



BLOOMINGTON, Ind.—John Huffman, an eighth-grader at Bloomington Tri-North Middle School, won first prize in the junior division's mathematics and computers category of the South Central Indiana Regional Science and Engineering Fair, held Saturday (March 22) at Indiana University. Huffman's project was titled "Construction of an Instrument for Computerized Triangulation." His teacher is Donald Bevis. Huffman was one of two overall winners in the junior division who will advance to the statewide Hoosier Science Fair at the Indianapolis Children's Museum April 17-19.

Niki Cummings Wins in Science Fair



BLOOMINGTON, Ind.—Niki Cummings, a seventh-grader at Edgewood Junior High School in Ellettsville, won first prize in the junior division's botany category at the South Central Indiana Regional Science and Engineering Fair Saturday (March 22) at Indiana University. Her project was titled "Is the Plant Hormone Auxin Necessary for Growth?" Her teacher is Barbara Engle. Cummings was one of two overall winners in the junior division who will advance to the statewide Hoosier Science Fair at the Indianapolis Children's Museum April 17-19.

STUDY OF CHLOROPHYLL CONTENT IN SOYBEAN LEAVES AS AFFECTED BY GENETIC DIVERSITY



Professor Austin Brooks, a member of the Science Talent Search Committee, questions Christina Fong from Wm. Henry Harrison High School, West Lafayette, about her research, A Study of Chlorophyll Content in Soybean Leaves as Affected by Genetic Diversity.

ANNUAL REPORT, YOUTH ACTIVITIES

Hoosier Science and Engineering Fair

Seventy-two Indiana students competed for awards in April in the first annual Hoosier Science and Engineering Fair.

Entrants in the event, held at the Indianapolis Children's Museum, were pupils in the seventh through 12th grades who had won top honors in 12 Indiana Regional Science and Engineering Fairs. The statewide competition was sponsored by the Indiana Science Education Fund.

Indiana professional scientists judged the students' projects during the three-day run of the program. Evaluations were based mostly on interviews with the entrants and the innovativeness of their work.

More than \$100,000 in scholarships, science-related trips, medals, cash, certificates and other awards were presented. The awards were given by more than 50 government agencies, colleges and universities, and professional organizations.

Two overall champions at the fair were chosen to enter their projects in the International Science and Engineering Fair, held in May at Fort Worth, Texas. Also awarded the trips were the sponsoring teachers of the winners.

The two state science fair winners joined 24 other Indiana students, chosen at regional fairs, in competing in international judging in Texas.

Four students were chosen at the Hoosier Science Fair to receive scholarships from the Indiana Science Education Fund. The winners were:

James Gibson, Harrison High School, West Lafayette (sponsoring teacher: Dr. Mark Whitman).

Laura A. Hunckler, Central Catholic High School, Lafayette (sponsoring teacher: Patricia Mason).

Donald B. Marti, Adams High School, South Bend (sponsoring teacher: Nevin Longenecker).

Mark D. Owens, Marquette High School, Michigan City (sponsoring teacher: Nevin Longenecker).

Indiana Science Talent Search

Report from Donald R. Winslow, Director of the 39th Annual Indiana Science Talent Search, to: Youth Activities Committee and Indiana Academy of Science Council Spring Meeting, Spring Mill Inn, Mitchell, Indiana, April 25, 1986

Fifty-one students, an increase of about 7% over last year, participated in the 39th Annual Science Talent Search. Twenty four students were declared *Finalists* by the Committee and were invited to participate in the Honors Program the weekend of March 7-8, 1986 at the Medical Center Union Building, Indiana University-Purdue University at Indianapolis.

The activities of the Talent Search were funded at the \$1,500.00 level by Kappa Kappa Kappa. In addition to this amount of money, Mae-Mae Shieh of Wm. Henry Harrison High School, West Lafayette and Craig Claussen of Kouts High School each were awarded \$1,000 scholarships which must be used at an Indiana four-year school of higher education. Elizabeth Chilcott, State Philanthropy Chair, represented Kappa Kappa Kappa, Inc.

After all of these years, a new dimension, the Public Service Indiana Science Sym-

posium, was added to the weekend activities. This program was designed to invite "new" teachers to the Honors Program and to provide them with ideas for sponsoring students in future talent searches. PSI provided a grant of \$800.00 to fund this activity. Special presentations "Why Encourage Students to Conduct Science Investigations?" by Nevin Longenecker; "How Do You Get Started? Where Do You Get Ideas?" by Virginia Rhodes; and "Ideas for High School Science Projects in Chemistry or Physics Using On-Line Microcomputers" by Stanley Burden, President-elect of IAS, were the highlights of the symposium. Sandra McCrocklin, Educational Service Representative, represented Public Service Indiana.

Seventy-two persons attended the Honors Luncheon on Saturday. George Hudock, Associate Professor of Biology, Indiana University, Bloomington, presented the main address: "Current Application of Diagnostic Genetic Techniques."

Next year's Honors Weekend, the 40th, is scheduled for March 6-7, 1987. Deadlines for the submission of research papers is December 15, 1986.

Participants in the 1986 Public Service Indiana Science Symposium

Priscilla Costello	Terre Haute South Vigo High School
Gordon Goodnight	Hagerstown Junior-Senior High School
Steve Makurat	Brown County High School
John Reisert	Salem High School
Karen Richard	Plainfield Junior and Senior High School
Mike Riggle	Bloomington High School South
Richard Schuley	Seymour High School
Keith Shafer	Lawrence Central High School

The Indiana Science Talent Search Committee

Austin Brooks, Department of Biology, Wabash College
 Russell Coverdale, Department of Physics, Purdue University
 Jo Ann Jansing, Division of Natural Sciences, IU-Southeast
 Alfred Schmidt, Department of Mathematics, Rose-Hulman Inst. of Technology
 Harold Zimmack, Department of Zoology, Ball State University
 Donald Winslow, Director, Office of School Programs, IU-Bloomington

"Winners" in the 39th Indiana Science Talent Search March 7-8, 1986

Bloom, Sally, R.R. 1, Kendallville, IN 46755. A Comparative Study in Relation to *Histoplasma capsulatum* in *Mus Muscularis* (Albino Mouse). East Noble High School, Kendallville. Sponsoring Teacher: Virginia Rhodes.

Call, Edward, R.R. 3, Albion, IN 46701. The Effects of Acid Precipitation on the Growth and Oxygen Production of Cultured *Scenedesmus* Algae. Central Noble High School, Albion. Sponsoring Teacher: Harold Sollenberger.

Claussen, Craig, 718 Elizabeth Street, Kouts, IN 46347. Photometric Studies of TX Piscium and Alpha Aurigae. Kouts High School, Kouts. Sponsoring Teacher: James Stone. Kappa Kappa Kappa Scholarship Winner.

Gibson, James, 2504 Derbyshire Court, West Lafayette, IN 47906. Factors Affecting Salivary Cortisol Levels in Trained Adolescent Athletes. Wm. Henry Harrison H.S., West Lafayette. Sponsoring Teacher: Mark Whitman.

Jansen, Douglas, 244 Burnam Street, Kendallville, IN 46755. Environmental Toxicity Testing: Phase II. Secondary Studies with Ethylene Dibromide and a *Xenopus* Indicator System. East Noble High School, Kendallville. Sponsoring Teacher: Virginia Rhodes.

Ma, Alvina, 2608 W. Purdue, Muncie, IN 47304. The Relative Importance of Chemical and Behavioral Inhibition in *Rana catesbeiana*. Northside High School, Muncie. Sponsoring Teacher: Susan McConnell.

Meyer, Hertha, R.R. 2, Box 329, Kendallville, IN 46755. *Cytospora cincta* Infection of Peach Trees. East Noble High School, Kendallville. Sponsoring Teacher: Virginia Rhodes.

Owens, Mark (NW), Box 54, Michiana, New Buffalo, MI 49117. Real Time Transmission Holographic Interferometry: Determination of Nanometric Movement in Transparent Medium as Applied to Water Channel Flow Visualization in Various Test Specimens. Marquette High School, Michigan City. Sponsoring Teacher: Dean Christakis.

Shieh, Mae-Mae, 4912 Hawthorne Ridge, West Lafayette, IN 47906. The Characterization of an Acetyl-CoA Carboxylase Related Protetin. Wm. Henry Harrison H.S., West Lafayette. Sponsoring Teacher: Mark Whitman. Kappa Kappa Kappa Scholarship Winner.

Swain, Sheryl (N), 314 E. 650 N., West Lafayette, IN 47906. Development of an Ultrafiltration Fiber for the Removal of Subcutaneous Tissue Fluid with Possible Applications Toward a Constant Blood Glucose Monitoring System. Wm. Henry Harrison H.S., West Lafayette. Sponsoring Teacher: Mark Whitman.

Tanner, Martha, 628 S 300 W, Kokomo, IN 46902. The Use of Cobalt (III) Octahedral Complexes in Ceramic Glazes for the Achievement of a Variety of Spectral Colors. Kokomo High School, Kokomo. Sponsoring Teacher: Jerry Cook/Gillette.

Winicur, Zev, 1802 Dorwood Drive, South Bend, IN 46617. The Possible Concomitant Effects of Ragweed Pollen and Burned Leaves on Allergenic Response in Laboratory Mice. John Adams High School, South Bend. Sponsoring Teacher: Nevin Longenecker.

Wolven, Charles, 3202 43rd Street, Highland, IN 46332. Concentrations of PCBs in Damaged Human Liver Tissue. Highland Sr. High School, Highland. Sponsoring Teacher: Herb Schmidt.

(N) — National Finalist (1 of 300)

(NW) — National Winner (1 of 40 in the United States)