

**HONORS GROUP**

**IN**

**THE *31st* ANNUAL**

***Science Talent Search*<sup>®</sup>**

**for the**

**Westinghouse Science Scholarships  
and Awards**

***1972***



**SCIENCE CLUBS OF AMERICA**

*Administered By Science Service*

1719 N STREET N. W. WASHINGTON, D. C. 20036

# The Meaning of Honors in the Science Talent Search

The achieving of Honors in the Science Talent Search, is an evidence of science ability and interest which can be taken into consideration by colleges and universities in admissions and granting of scholarships. For this reason this Honors List is distributed to all universities and colleges of the United States utilizing a list furnished by the American Council on Education.

All boys and girls awarded Honors in the Science Talent Search are considered so outstanding that any institution of higher learning will be justified in considering their abilities carefully.

In past years members of the Honors Group have made creditable records in the colleges and universities to which they have been admitted.

From the list of 300 Honors, 40 are being chosen as Winners of the Washington trip. Among these \$67,500 in scholarships and awards will be distributed. The Winners are being announced subsequent to the distribution of this list and their names will be published in Science News of February 5, 1972, and it will be sent upon request accompanied by a self-addressed stamped envelope.

Each of those winning honors is being furnished with multiple certifications intended to accompany applications for college admissions and scholarships, but a listing in this pamphlet should be accepted as an equivalent certification.

The proportion of boys and girls in this list is determined by the ratio of boys and girls entering the contest. Listed are 90 girls and 210 boys. Of the Honors Group 62.2% of the boys and 75.8% of the girls rank in the upper 5% in their high school classes.

## The Annual Science Talent Search

The Science Talent Search was the pioneering endeavor to discover at the high school senior year level those who have the potentialities to become the research scientists of the future. It has fulfilled this function far beyond the hopes entertained when this educational project was conceived. Many millions of dollars in scholarships in colleges and universities throughout the nation, supplementing the Westinghouse Science Scholarships, have been given to those who have thus been discovered to have high science talent.

This selection of students with research ability in science has become an institution and tradition due to approval from the educational world and the creditable records of winners in colleges, universities and professional positions.

In a real sense the annual Science Talent Search is more than a scholarship contest. It is a major step toward making scientific talent available for important tasks in our civilization.

The participation of a great industrial organization in the financing of the annual Science Talent Search is a notable contribution to the advancement of science in America. This activity can be considered a support of "pure research" of importance equal to the fundamental researches in the Westinghouse Research Laboratories. Science and education are grateful for the financial support of the thirty-one Science Talent Searches by the Westinghouse Educational Foundation, an organization endowed by the Westinghouse Electric Corporation for the promotion of education and science.

Science Service, engaged in the interpretation and popularization of science on a broad front, is proud of administering, through Science Clubs of America, the annual Science Talent Search. From the newspapers, educators and scientists of America there has been enthusiastic cooperation in this annual activity that means so much to high school seniors interested in science. The Science Talent Search is a continuing opportunity and responsibility of the science groups affiliated with Science Clubs of America.

## Honors Group

### in the Thirty-first Annual Science Talent Search

\* Indicates girls  
 H.S. indicates High School  
 Title of project report submitted is on next line

#### ALABAMA

- Birmingham Crider, David Bruce 17 Minor H.S. Rt. 15, Box 1022 35224  
 Effects of Pollution on the Flora of an Affected Area as Compared to the Flora of a Natural Area  
 Decatur Standridge, Kerry Lynn 17 Austin H.S. 1915 Westmeade 35601  
 Alarm Pheromone in the Earthworm *Lumbricus terrestris*  
 Demopolis Hansard, Fred Roger 18 Demopolis H.S. 1305 Spencer St. 36732  
 Interrelation of Environmental Factors on Invertebrates  
 Florence \*Ferguson, Linda Ann 17 Bradshaw H.S. 413 Roxe Dr. 35630  
 Artificial Photosynthesis in *Escherichia coli*  
 Huntsville \*Luessen, Bonnie Jean 17 Virgil I. Grissom H.S. 1013 San Ramon Ave., S.E. 35802  
 Demonstration of Von Karman's Vortex Street in a Wind Tunnel  
 Moulton Waters, Rory Cole 17 Lawrence County H.S. 512 Coffey St. 35650  
 Changes in the Lunar Periodicity as Shown by Mississippiian Corals

#### ALASKA

- Anchorage \*Agosti, Jan Marie 16 West Anchorage H.S. 2324 Loussac Dr. 99503  
 Oxidation of Certain Prudhoe Bay Hydrocarbons by Microorganisms Indigenous to a Natural Oil Seep at Unat, Alaska

#### ARIZONA

- Phoenix \*Peters, Nancy Anne 17 Xavier H.S. 322 W. Mariette Ave. 85013  
 Comparison of the Effects of Antiseptics on Aerobic Spore Forming and Non-Spore Forming Bacteria  
 Scottsdale Gale, Ross Stockton 17 Saguardo H.S. P. O. Box 364 85252  
 Pendulum Interaction: Computer Simulation of Harmonic Motion

#### ARKANSAS

- Fayetteville \*Brown, Jocelyn Elaine 17 Fayetteville H.S. Rt. 1, Altus Dr. 72701  
 Adsorption of a Herbicide by Soils

#### CALIFORNIA

- Anaheim Green, James DeWayne 17 Loara H.S. 1536 W. Harriet Lane 92802  
 Endogenous Circadian Rhythm in *Phaseolus vulgaris* L. Grown Under Continuous Light: Evidence of a Biological Clock?  
 Fair Oaks Buxton, Richard Bruce 17 Bella Vista H.S. 9800 Golden Dr. Orangevale  
 Construction of Regular Polygons by Plane Folding  
 Granada Hills \*Wischhusen, Nancy Kay 17 Granada Hills H.S. 10112 Wish Ave., Northridge 91324  
 Some Characteristics of Multiple RNA Components Isolated From Tobacco Mosaic Virus  
 Los Angeles Gershenzon, Jonathan 16 Hollywood H.S. 5433 Red Oak Dr. 90068  
 Indicator Plants of the Hillside Chaparral Plant Association

\*Puchalski, Christina Maria 17 Immaculate Heart H.S. 850 S. Mansfield  
Incorporation of 3 H Leucine by the Y-organ Ave. 90036

Black, Shuan Dennis 17 Daniel Murphy H.S. 845 S. Kemiston Ave. 90005  
Qualitative and Quantitative Effects of Pteromone Production  
and Receptivity in the Cockroach *Blaberus discoidalis*

\*Atchmer, Regina Ann 17 St. Bernard H.S. 8100 Westlawn Ave., Los  
Angeles 90045  
Evaluation of CO, CH<sub>4</sub>, NO<sub>2</sub>, SO<sub>2</sub> Permeation Angles 90045  
Into Neurons Through Microscopy and Chronoatography

\*Anderson, Cheryl Beth 17 Claremont H.S. 2248 Tokalon St. 92110  
Sensitivity of Bacteria to Antiseptics and Antibiotics

\*King, Maurree Lucille 17 Claremont H.S. 3904 Southview Dr. 92117  
Electrophoretic Study of Two X-Chromosome Coded  
Enzymes During Human Fetal Development

\*Reidinger, Jodi Nancy Jo 17 Claremont H.S. 5925 Sugebrush Rd., La  
Jolla 92037  
Characterization of Naturally Occurring pH  
Indicators Jolla 92037

\*Gordon, Lynn Kathryn 17 Crawford H.S. 5311 Saxon St. 92115  
Bacterial Production of Cytochrom

Rubin, Scott Alvin 17 Crawford H.S. 5002 Chaparral Way 92115  
An Abnormal Photoperiodic Rhythmical System, Causing  
Abnormalities in the American Cockroach, Periplaneta  
americana

Nachman, Ronald James 17 Patrick Henry H.S. 7060 Murray Park Dr.  
Role and Origin of Fluorescent Pigments Produced  
by Iron-Deficient Azotobacter 92119

Eaton, John Kelly 17 Madison H.S. 4417 Mt. Everest Blvd. 92117  
Wind Tunnel Comparisons of Flat, Circular and  
Elliptical Wings

\*Buddour, Julia Dawn Pearl 16 San Diego H.S. 2454 C St. 92102  
Study of Current Psychological Attitudes Toward  
the Women's Rights Movement

Chan, Anthony Kwikwong 17 Galileo H.S. 1165 Clay St., Apt. 3 94108  
Influence of the Hydrocarbon Skeleton in Alcohols on  
the Heat of Combustion

Owens, Vance Philip 17 Marina H.S. 1330 Mersey Ave. 94579  
Prebiological Hydrocarbon Synthesis Related to  
the Origin of Life

South

San Gabriel

Jenil, James Paul 17 Don Bosco Technical Institute 2500 Swanow Dr.,  
An Experimental Approach to Model Alhambra 91803  
Rocket Simulation

Makowka, Claus Dieter 17 Lynbrook H.S. 1093 Avondale St., San Jose  
Images Produced by Multiple Reflections in Two 95129  
Plane Mirrors

Britman, Steven Lee 16 Ulysses S. Grant H.S. 6118 Longridge Ave.  
Calculus of Finite and Infinitesimal Radius 91401

\*Campion, Catherine Anne 17 Louisville H.S. 19410 Vintage St.,  
Measurements of Human Pulmonary Function Northridge 91324  
and Factors Which Affect It

\*Guernsey, Anne Elizabeth 18 Louisville H.S. 18339 Bassett St., Reseda  
Chloride and Nitrate Concentrations: Their Possible 91335  
Origins in the Lakes of Western Washington

COLORADO

Denver

Fast, Bruce Alan 17 John F. Kennedy H.S. 3129 S. Lowell Blvd. 80236  
Investigation of the Barch Function

Lakewood

Sommers, Craig Lynn 17 Alameda Sr. H.S. 1305 S. Benton 80226  
South Platte River Pollution: Sources and Effects

West Hartford

\*Harris, Lucinda Anne 17 Northwest Catholic H.S. 54 Blue Ridge Lane  
Electrifying Effects of the Black Ghost Knife Fish 06117

CONNECTICUT

Camden

Garner, Geoffrey Mark 16 Caesar Rodney H.S. P. O. Box 857, Dover  
Ordering the Set of Complex Numbers 19901

Claymont

Usala, Stephen Jon 16 Archmere Academy 2506 Fairlee Rd., Wilmington  
Studies of the Electron Transport Properties of 19810  
Liquid Water

DELAWARE

Fort

Lauderdale

Branse, Jody Michael 17 Nova H.S. 2116 N. 37th Ave., Hollywood 33021  
Functional Completeness in a Generalized Logical  
System

FLORIDA

Coleman, Robert Frederick 17 Nova H.S. 450 Paradise Isle Blvd.,  
Analysis of Irreflexive Symmetric Relations Halandale 33009

Deuschle, Jeffery Charles 17 Nova H.S. 2601 N. E. 12th St. 33304  
Purification and Properties of a New D-Amino  
Acid Oxidase

Heller, Douglas Felton, Jr. 17 Nova H.S. 789 N. W. 12th Ave., Dania  
Identification of the Structural Proteins of 33004  
Sindbis Virus

Hopen, Gary Robert 17 Nova H.S. 707 N. Crescent Dr., Hollywood 33021  
Isolation of Submicrohondrial Particles From Bean  
Plants and a Characterization of Their ATPase Activity

Jones, Kenneth Dale 17 Nova H.S. 6981 N. W. 7th St., Plantation 33313  
Analysis of an Algebraic System

Russin, John Walter 17 Nova H.S. 4110 N. W. 65th Ave., Hollywood 33024  
Chemical Basis for Computability in the True Slime  
Mold *Didymium iridis*

Privatere, Peter Burniss 17 Fort Pierce Central H.S. 215 Airsoe Blvd.  
Reflection Effect in Close Binary Star Systems 33490

Brown, Victor Cornell 17 William M. Raines H.S. 2817 Calloway Cir.  
pH Changes During Peptic Digestion 32709

Skyles, Reginald Leroy 16 William M. Raines H.S. 5832 Iris Blvd. 32209  
Rate of Anaerobic Glycolysis of Yeast as a Function  
of Glucose Concentration

Doherty, Mark Fitzgerald 18 Central Catholic H.S. 515 Andros Lane,  
Activation of the Feeding Response of Indian Harbor Beach  
Hydra littoralis Through the Use of Cyclic AMP 32937

Verlander, Joseph Michael, Jr. 17 Central Catholic H.S. 333 Deland Ave.,  
Auxin Chemistry: Mechanism of 2, 4-D Indianhatch 32903  
Herbicide Action

Billets, Barry Dwight 17 Melbourne H.S. 329 E. Earl Ave. 32901  
Gene Expression: Distribution of Satellite DNA  
Sequences in Fractionated Marine Crab Chromatin

Gluckman, Jeffrey Lee 17 Melbourne H.S. 412 Oak Ridge Dr., Indianhatch  
Cyclic AMP: Mediator of the Mating Response in the 32903  
Yeast, *Saccharomyces cerevisiae*

\*Dunninghoff, Karin Sue 17 Merritt Island H.S. 1665 Mars St. 32952  
Possible Linkage of the Acridavin Gene to Those  
Controlling Fast Linear Growth Rate in *Neurospora crassa*

Mullins, Corey Jon 18 Merritt Island H.S. 365 Needle Blvd. 32952  
Water, Water Everywhere, Nor Any Drop to Drink

\*Rittmanite, Teresa Lynn 17 Merritt Island H.S. 60 Uranus Ave. 32952  
Quick Method to Assay for Common Sedatives and  
Tranquilizers

Appleby, Donald Scott 17 Miami Central H.S. 857 N. W. 109th St. 33108  
Study in Human Conceptual Behavior

McLean, Douglas Malcolm 17 Miami Norland Sr. H.S. 1482 N. W. 196th St.  
Computer Solutions of Two-Person Zero-Sum Games 33169

Landy, Howard Jay 17 Miami Palmetto Sr. H.S. 7381 S. W. 116th Ter.,  
Forecasting Aircraft Fuel Consumption by Computer 33156

Goldberg, Mark Alan 17 Southwest Miami Sr. H.S. 3620 S. W. 92nd Ave.  
Study of Oxygen Transport in Various Mammalian 33143  
Erythrocytes by the Use of Oxygen Dissociation Curves

Swan, Edward Patrick 17 Southwest Miami Sr. H.S. 5845 S. W. 94th Ave.  
Analysis of the Upper Level of a Tropical Cyclone 33143

Miami Beach Hark, Clifford Barry 17 Miami Beach Sr. H.S. 4640 Post Ave. 33140  
In vitro Production of Histamine After the Addition of Niacin to Whole Blood  
 Mondschein, Benjamin Max 17 Miami Beach Sr. H.S. 4551 Post Ave.  
 Pathological and Chemical Significance of Magnesium 33140  
 Dupletion Appearing in Cardiovascular Disease  
 North Miami Trach, Mark Lubomyr 17 North Miami Sr. H.S. 850 N. E. 144th St. 33161  
Study of the Metabolism of Phenolic Compounds by Pseudomonas aeruginosa T1  
 Opa-Locka Reid, Steven Allen 17 Miami Carol City Sr. H.S. 1215 Kasim St. 33054  
Analysis of Trace Hydrolysis Products in N,N-Dimethylformamide  
 Stuart \*Ellrott, Amelia Marie 17 Martin County H.S. 2092 St. Lucie Blvd. 33494  
Simultaneous Movement of Terbacol and NaCl Through Soil Columns  
 Tampa \*Carrdeguas, Raquel Juana 17 Academy of the Holy Names 3207 W. Osborne  
Deriving the Vapor Pressure Equations of Halides 33614

GEORGIA

Atlanta \*Williams, Debra Jean 18 Archer H.S. 2624 Abner Pl., N.W. 30318  
Detecting Water Pollution  
 Bird, Wendell Raleigh 17 W. F. Dykes H.S. 4100 Beechwood Dr., N.W.  
 Biochemical Differentiation Between Homozygotes. 30327  
 Heterozygotes and Hemizygotes in *Moronelela vitripennis* (Waller) and *Drosophila melanogaster*  
 Durfee, Hugh Dowdy 17 Glenville H.S. 508 N. Caswell St. 30427  
 Aerosol Microorganisms of a Sewage Treatment Plant  
 Glenville Brandfield, Jeffrey Alan 17 Wayne County H.S. 1030 Seven Oaks Rd. 31545  
Isolating a Beta Galactosidase Instability Strip  
 Moultrie Destaphano, Don Bernard 17 Moultrie H.S. 519 - 1st Ave., S.W. 31768  
Biological Control of Insects

HAWAII

Aiea \*Hiral, Carol 17 Aiea H.S. 99-819 Halekua Dr. 96701  
Statistical Outlook on the Reproduction of Cichla ocellaris  
 Hilo \*Nakamura, Kay Chiemi 17 Aiea H.S. 98-850 Iluee St. 96701  
Cellular Responses to Growth Regulatory Substances Found in Kentucky Wonder Beans  
 Honolulu \*Shisido, Roxanne Yumie 17 Hilo H.S. 53 Mohouli St. 96720  
Role of Proteins in Platelet Aggregation  
\*Uyenura, Gail Makiko 17 Kaimuki H.S. 932 Kapahuhi Ave. 96816  
Marijuana Culture of *Crossosirex virginica* in Mohi Fishpond  
\*Zeilin, Pamela Leslie 17 Kalaui H.S. 5418 Oahu St. 96821  
Maternal, Paternal and Neonatal Lymphocyte Transformation  
 Kawahato, Alan Harumi 17 Roosevelt H.S. 2830 Kolovalu St. 96822  
 Electron Spin Resonance of Nitroxide Probes in Surfactant Solutions

ILLINOIS

Champaign Banks, Daniel Lewis 17 Centennial H.S. 1904 Crescent Dr. 61820  
Propeller-Driven Rotors on Helicopters  
 Chicago \*Pauksys, Victoria 16 Austin H.S. 5524 W. Kamerling Ave. 60651  
Immunochromatological Analysis of a Lectin With Anti-A Activity  
\*Pastowski, Bernadette Marie 17 Lourdes H.S. 8138 S. Albana,  
Effects of Amphetamine Sulfate and Phenobarbital on the Chick Embryo. Clarendon Hills 60514  
 Deerfield Woll, Rodney Alan 17 Deerfield H.S. 2148 Magnolia Lane, Highland Park  
Characteristics of Shingel Bands as Determined by Means of a New Velocimeter 60035  
 Dolton \*Bourse, Lynette Edith 17 Thornridge H.S. 13912 Lincoln Ave. 60419  
Investigation of Sasmology Through the Use of a Sasmograph

Franklin Park \*Candfield, Denise Margaret 17 East Leyden H.S. 2529 Scott 60131  
Effects of Molten Potassium Chlorate on the Tensile Strength of Soft Glass  
 Libertyville Isleib, Thomas George 17 Libertyville H.S. 1981 Lockwood Dr. 60048  
Phosphates, Detergent Bases and Algal Growth  
 Olympia Fields \*Liang, Mabel Kuo-Chin 17 Rich Central H.S. 400 Todd St., Park Forest  
Effect of Light and Organic Nutrients on Aquatic Ecosystems 60466  
 Park Ridge Burton, Ronald Scott 17 Maine Twp. H.S. East 9058 Church St., Des  
Post-Spawning Parental Behavior in Trichogaster trichopterus Palms 60016  
 Querturth, Henry William 17 Maine Twp. H.S. East 8538 Madison Dr.,  
 Investigation into the Photoconditioning of *Campylus bartoni* Niles 60648  
 Virden \*Braun, Odeha 17 Virden H.S. 290 Melody Lane 62690  
Apochlorasis and Phototactic Activity of the Euglena gracilis

INDIANA

Bloomington Rudman, David Albert 17 Bloomington Sr. H.S. 1008 E. 2nd St. 47401  
Crystallographic Study of cis-, cis-1,3,5-Tris(salicylalidimino)-cyclohexanecobalt(III)  
 Evansville Taber, Terry Ray 17 North H.S. 1254 E. Morgan 47711  
Inhibitory Substances in Bean Seeds  
 Highland Pope, David Lee 17 Highland Sr. H.S. 3713 - 43rd St. 46322  
Use of Ultraviolet Light in Intraoral Diagnosis  
 Shelbyville \*Vidmos, Robin Ann 17 Highland Sr. H.S. 8802 Woodward 46322  
Effect of Cyanide Contamination on Daphnia  
Held, Jeffrey Joel 18 Shelbyville H.S. R.R. 1, Box 46 46176  
Thermally Stimulated Currents of Type I and Type II CDS Crystals

IOWA

Davenport Knouse, Charles William 18 Davenport Central H.S. 2422 Lillie Ave.  
Design, Implementation and Usage of a General Purpose Programming Language Written for a Time-Shared Minicomputer 52804  
 Wichita \*Latas, Patricia Jan 17 Wichita East H.S. 1226 Del Mar 67216  
Sedimentary Layering in the Greater Arkansas River

KANSAS

LOUISIANA

New Orleans \*Fitzpatrick, Colleen Mary 16 Mt. Carmel Academy 5965 Memphis St.  
Evidence Supporting a Relatively New Theory of Color Vision by an Analysis of the Benham Disc 70124  
 Plaquemine Ristroph, Don Louis 17 St. John H.S. Rt. 3, Box 463 70764  
Converting Waste Cellulose Into Usable Protein  
 Sulphur Lewis, Alvin Lee, Jr. 17 Sulphur H.S. 1200 E. Burton 70663  
Practical Life Support Systems

MAINE

MARYLAND

Bethesda Jacobs, Rodney Andrew 17 Bucksport H.S. Pine St. Ext. 04416  
Motion of Charged Particles in Electric and Magnetic Fields  
 Bethesda Jensen, Peder Jan 18 Bethesda-Chevy Chase H.S. 6005 Caltrn Ter. 20034  
Isolation of an Endogenous Inhibitor of Dopamine-B-Hydroxylase in Human Plasma  
 Baldinger, John Charles 17 Walt Whitman H.S. 5631 Old Chester Rd.  
 Structural Changes in the Mitochondria Brought About by 5-Hydroxytryptamine 20014

Bateau, Brandon Lamothe 17 Walt Whitman H.S. 5209 Wyoming Rd., Glen  
Echo Heights 20018  
 Study of the Properties of Artificial  
 Intelligence Networks  
 Perez, Jose Augustin 17 Great Mills Sr. H.S. 107 E. Sunrise Dr.,  
 Lexington Park 20653  
 Observing Cell Spectrum Using Laser Light  
 Hyattsville Chen, Harry 18 Northwestern Sr. H.S. 1306 Pickering Cir., Upper  
 Marlboro 20870  
 Emission of Wingtip Vortices by Counter-  
 Vortex Generator  
 \*Moster, Marianne 18 Springbrook H.S. 2124 Gatewood Pl. 20903  
 Generation of Magic Squares and Magic Cubes  
 MASSACHUSETTS  
 Cambridge Gill, Thomas-Grandon 16 The Browne and Nichols School 96 Knollton Rd.,  
 Allendale, N.J. 07401  
 Mathematical Method of Determining  
 Human Reactions and the Joke Matrix  
 \*McCormick, Kathleen Ann 17 St. Peter's H.S. 128 Garden St. 02138  
 School and the Nature of Students  
 Corbin, John Holmes 18 Wachusett Regional H.S. 28 Orchard Rd. 01520  
 Zeolite Synthesis in the NaOH-NaAlO<sub>2</sub>-SiO<sub>2</sub>-H<sub>2</sub>O System  
 Holden Mackenzie, William Gray 17 Wachusett Regional H.S. 318 Chapel St. 01520  
 Optimum Cooling Rates for Cryopreservation of Human  
 Erythrocytes  
 Borth, Lawrence Craig 17 Lexington H.S. 30 Partridge Rd. 02173  
 Characterization of Valinomycin Induced Transport  
 of Potassium Ions Across the Mitochondrial Membrane  
 Margolis, Robert Franklin 17 Lexington H.S. 23 Peachtree Rd. 02173  
 Isolation and Purification of Nucleic Acid Components  
 Contained in Human Irine  
 Lutz, Donald John 17 Randolph H.S. 207 North St. 02368  
 Implementation of Fortran IV in the Recognition  
 of 3-Dimensional Geometric Solids  
 \*Rounds, Donna Elaine 17 Taunton H.S. 235 Alfred Lord Blvd. 02780  
 Comparison of Habitats and Their Effects on the  
 Freshwater Ecology of a Small Farm Pond  
 MICHIGAN  
 Ann Arbor Carter, Michael Joel 17 Ann Arbor Pioneer H.S. 1724 Glastonbury 48103  
 Investigation of Factors Determining the Rate of Ion  
 Migration in Aqueous Solutions  
 Auburn Heights Newby, William Arthur 18 Avondale H.S. 3125 Grant, Pontiac 48057  
 Acid-Base Indicators of Some Well-Known Flowers  
 Center Line \*Kulczycki, Christine Natalie 17 Center Line H.S. 8081 Menige St. 48015  
 Response of Diioda Ieres to Density  
 Stannard, Jan Gregory 18 Northwestern H.S. 3706 Comstock 48504  
 Spectrographic Analysis of a Polyether-Based  
 Polyurethane Foam System to Correlate Structure-  
 Property Relationships  
 Lathrup Village Thomas, Peter Lynn 18 Southfield-Lathrup H.S. 28540 Glasgow, Southfield  
 48075  
 Isomerization of Allyl Alcohol  
 Southfield Schiller, Andrew David 17 Southfield H.S. 18470 New Hampshire Rd.  
 48075  
 Charge Transfer Complex in Crystall Form  
 MINNESOTA  
 Elkton \*Flinn, Mary Ann 18 Elkton H.S. R.R. 1, Dexter 55926  
 Effect of Lycopodium in Cell Culture in vitro  
 South St. Paul Gaylord, Thomas Alan 18 South St. Paul Sr. H.S. 215 W. MacArthur  
 55075  
 Distribution Symmetry and Drift of Selected  
 Photospheric Plages  
 West St. Paul Marriman, Joseph Vincent 17 Brady H.S. 1485 Lone Oak Rd., St. Paul  
 55121  
 Design and Building of a Variable Split Beam  
 Spectrophotometer

MISSOURI  
 Palmyra \*Happel, Ann Margaret 18 Palmyra R-1 H.S. R.R. 1 63461  
 Inheritance of Mutant Genes in Zea Mays and  
 the Reaction of Corn Seedlings to Helminthosporium  
 maydis  
 \*Meyer, Linda Gayle 17 Palmyra R-1 H.S. R.F.D. 2 63461  
 Mosaics: Math Invades Art  
 St. Louis O'Brien, James Dennis 17 St. Louis Priory School 713 W. Jewel Ave.,  
 Kirkwood 63122  
 Understanding Intuitive Reasoning Processes  
 in Terms of Computer-Programmed Algorithms  
 MONTANA  
 Bozeman \*Dayton, Melissa 16 Bozeman H.S. Sourdough Rd. 59715  
 Study of Pollution in Sourdough Creek  
 Choteau \*Hensley, Mary Claire 18 Choteau H.S. 30 7th Ave., S.W. 59422  
 Diagnostic Test for Cognitive Development  
 Lincoln Johnson, Harold James 17 Lincoln H.S. 1933 B St. 68502  
 Transmission of Transshipment Problem With  
 Forward Flow Only  
 NEBRASKA  
 Bergentfield Fedyna, John Stephen 17 Bergentfield H.S. 101 Highland Ave. 07621  
 Accommodating Gaseous Detonation Requirements:  
 Development of an Ultra High-Speed Stroboscope  
 Lawrenceville Herko, Robert John 17 The Lawrenceville School 121 Hadley St.,  
 Piscataway 08854  
 Ionization Spectroscopy  
 Livingston Ting, Ernest S. 17 Livingston H.S. 17 Balmoral Dr. 07039  
 Model of Suburban Development as a Dynamic  
 System  
 Madison D'Asaro, Eric Arthur 17 Madison H.S. 7 Woodcliff Dr. 07940  
 Determination of Avogadro's Number From  
 Atmospheric Scattering Intensity  
 Pompton Plains \*Massa, Barbara Mary 17 Pegannock Twp. H.S. 14 Lincoln Park Rd.,  
 Pegannock 07440  
 Determination of the Charge and Mass of  
 an Electron  
 Princeton \*Brodsky, Frances Martha 16 Princeton H.S. 59 Castle Howard Cr. 08540  
 Design and Implementation of an Experiment in  
 Protein Extraction and Analysis  
 NEW MEXICO  
 Los Alamos \*Gammel, Cheryl Ann 17 Los Alamos H.S. 421 Estante 87544  
 Morphology of Crayfish Closer Muscles and Its  
 Implications for Excitation-Contraction Coupling  
 NEW YORK  
 Baldwin Allen, Todd Andrew 17 Baldwin Sr. H.S. 1430 Grand Ave. 11510  
 Describing the Syntax of Programming Languages  
 Blederman, Andrew Robert 17 Baldwin Sr. H.S. 627 Mead Ter., South  
 Hempstead 11550  
 Determination of Active Imagination in  
 Children in the Kindergarten Grade Level  
 Bayside Aldoroty, Robert Arthur 17 Bayside H.S. 23-44A Corporal Kennedy St.  
 11360  
 Effects of Cigarette Smoke on Molluscan Gill Cilia  
 Aromowitz, Jason Hal 16 Bayside H.S. 16-26 212th St. 11360  
 Construction of a Low-Noise, High Input Sensitivity  
 Integrated Circuit Amplifier and Application Thereof  
 in Medical Science  
 Frimer, Richard Bruce 16 Bayside H.S. 23-45 Bell Blvd. 11360  
 Interpretation of Seismograms of the San Fernando  
 Earthquake Using a Proposed Modified Omori Formula  
 for Determining Epicentral Distances

Kaye, Jonathan George 16 Bayside H.S. 28-30 210th St. 11360  
Effects of Chemical Changes in Environment  
on *Daphnia magna*  
Sands, Joel 16 Bayside H.S. 166-65 17th Rd., Whitestone 11357  
Effects of Toxic Industrial Chemical Pollutants  
on *Physoculus leptomusca*  
\*Sun, Jan 17 Bayside H.S. 33-50 162nd St., Flushing 11358  
Proofs of Some of the Properties of Fibrinacci  
Numbers  
Winterfeld, Philip Henry 16 Bayside H.S. 160-34 Cross Island Pkwy.,  
Study of the Reaction-Producing Thiolol  
Whitestone 11357  
Rubber and Other Related Polymers  
\*Trahcunk, Nina Felice 16 Benjamin N. Cardozo H.S. 49-40 Little Neck  
Effects of Aldehydes Upon the  
Chlorophyll Content of *Euglena gracilis*  
Zollo, Anthony Joseph 17 Benjamin N. Cardozo H.S. 216-10 68th Ave.  
Effects of Antibiotics on 7-alpha Dehydroxylation  
of Cholic Acid in vitro  
11364  
Klingsberg, Gary Alan 17 Wellington C. Mepham H.S. 2885 Saw Mill Rd.,  
Colorimetric Determination of Free Fatty  
Wanamag 11793  
Acid Using the Nomme Extract of a  
Triglyceride Determination  
Adler, Ira Russell 16 Brooklyn Technical H.S. 156-33 85th St., Howard  
Partitions  
Beach 11414  
Ho, Tommy Kai 18 Brooklyn Technical H.S. 61-35 98th St., Rego Park  
Symmetric Functions of Roots  
11374  
Verkmann, Alan Samuel 16 Brooklyn Technical H.S. 75-42 Metropolitan  
Ave., Queens 11379  
Spontaneous Synthesis of  
Fundamental Biochemical Substances  
Gallo, Robert C. 16 James Madison H.S. 2227 E. 70th St. 11234  
Determination of the Mass of Saturn From the  
Orbital Motion of Its Satellite, Rhea  
Gutman, Michael Scott 17 Midwood H.S. 4211 Avenue K 11210  
Radioimmunoassay of Rat Somatotropic Hormone  
Greenberg, Michael Eldon 17 Midwood H.S. 723 E. 18th St. 11230  
Factors That Affect the Binding of the Inhibitor  
2' (3')-Uridylic Acid to Carboxymethylated  
Ribonuclease Histidine-119  
Harrnau, David Alan 17 Midwood H.S. 706 E. 18th St. 11230  
General Solution of a Linear Diophantine Equation  
for Three Variables  
Meistrich, William Mark 16 Midwood H.S. 2316 Avenue L 11210  
Comparative Study of Normal Rat Liver Lactate  
Dehydrogenase and Morris Hepatoma Lactate  
Dehydrogenase  
Novack, Mark Stuart 16 Midwood H.S. 1245 E. 48th St. 11234  
Assay of Lysozyme in Human Cervical Mucus  
Maron, Charles Scott 16 New Utrecht H.S. 4515 12th Ave., Apt. F2  
Diagnosis of Patients' Illnesses by Computer  
11219  
Retch, Iman Katriel 17 Yeshiva of Flatbush H.S. 1061 E. 19th St. 11230  
Correlation of Pollutants to Weather in New York  
City, 1970  
Buffalo  
Cheng, Keith C. 17 Sweet Home Sr. H.S. 359 Sunrise Blvd. 14221  
Immunologic Studies of a Carogenic Streptococcus:  
*Streptococcus mutans*  
Far Rockaway  
Schlansky, Mark Michael 17 Far Rockaway H.S. 542 Meekin Ave. 11691  
In vitro Study of Estril Conjugation in Mouse Liver  
Joblove, George Howard 16 John Bowne H.S. 137-28 70th Rd. 11367  
Computer Generation of Radial Distribution Curves  
for Hydrogen-Like Orbitals Using an XDS Sigma 7  
Felgenhult, Ronald Ira 16 Forest Hills H.S. 67-07 Yellowstone Blvd.  
Design for the PDP-8/L Based on the Empirical  
11375  
Characteristics of This Commercially Available  
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Great Neck  
Lempert, Norbert 17 Forest Hills H.S. 102-40 67th Dr. 11375  
Quantitative Distribution of Aldolase Isozymes  
in Normal and Neoplastic Rat Tissues  
Warrach, Joshua David 17 Great Neck North Sr. H.S. 10 Hampshire Rd.  
Photic Driving With a Non-epileptic Population  
11023  
Feldman, Lee Toben 17 Great Neck South Sr. H.S. 7 Linden Blvd. 11021  
In vitro Matagenesis of *I* Bacteriophage DNA  
Lieblch, Neil Steven 17 Great Neck South Sr. H.S. 18 Rivers Dr. 11020  
Effect of Glucose on the Heart With EKG Studies  
Sailer, Lowell Franklin 17 G. W. Hewlett H.S. 1046 E. Broadway,  
Woodmere 11598  
Localization of Aldehyde Dehydrogenase  
\*LeCroy, Sara Ellen 17 Irvington H.S. 116 S. Buekhout St. 10533  
Egg Recognition in the Common Tern  
\*Cohen, Janet Esther 18 Jamaica H.S. 223-02 104th Ave., Queens  
Is Academic Grade Level Related to Degree  
of Trust of Peers?  
Village 11429  
\*Ebrahimi, Rana Denise Ruth 17 Jamaica H.S. 118-70 80th Rd.,  
Kew Gardens 11415  
Comparative Effects of Positive Verbal  
Reinforcement on Achievement and Underachievement  
Groups  
Feldman, Richard Samuel 16 Jamaica H.S. 144-45 71st Ave., Flushing  
Chemical and Biological Variations of Different  
Areas of Lake Appeldoorn  
11367  
Kryger, Sanford Gary 16 Jamaica H.S. 186-15 80th Dr. 11432  
Correlation Between the Separate Parts of the Verbal  
Section and the Math Section of the Scholastic Aptitude  
Test  
\*Lesser, Laurie Meg 17 Jamaica H.S. 102-25 67th Dr., Forest Hills  
Role of Education in the Development of a Child's  
Creativity  
11375  
Rothberg, Paul Glen 16 Jamaica H.S. 65-94 162nd St., Flushing 11365  
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Schwarz, Thomas Lewis 16 Jamaica H.S. 81-29 166th St. 11432  
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in the Chloroplasts of Pea Leaves  
Marks, Bennet Harvey 17 Division Avenue H.S. 341 Blacksmith Rd. 11756  
Generalized Trigonometric Functions and Spiral  
Trigonometry  
Lewittown  
Lindenhurst  
Maier, Bruce Albert 17 Lindenhurst Sr. H.S. 423 N. Delaware Ave. 11757  
Compiler for the Crypik Programming Language  
Smith, Michael William 17 Long Island City H.S. 11-31 47th Rd. 11101  
Cryosurgery Suction: An Ophthalmic Technique  
Abeles, Joseph Hy 16 Bronx H.S. of Science 166-60 22nd Ave., Whitestone  
Special Relativity and Hyperbolic Functions  
11357  
Chernak, Jessie Rene 17 Bronx H.S. of Science 86-11 188th St., Jamaica  
Extensions of the Harvard Chart - Computerized  
11423  
Chinsky, Jeffrey Mark 16 Bronx H.S. of Science 757 Waring Ave., Bronx  
Production of Viral Interferon in Plant Tissue  
10467  
Cholst, David Jacob 17 Bronx H.S. of Science 1435 Lexington Ave. 10028  
Left Absorption by Ordinal Numbers of Lesser Ordinal  
Numbers  
\*Dan, Helen 18 Bronx H.S. of Science 24-25 Parsons Blvd., Whitestone  
Stimulating the Microbial Response to Crop Residues  
11357  
Horowitz, Tony Giordano 17 Bronx H.S. of Science 19-01 21st Ave., Long  
Island City 11105  
Algebraic Language Model  
Huey, Hugo Eng 17 Bronx H.S. of Science 3310 Wilson Ave., Bronx 10469  
Investigation of Modul Systems and Pascal's Triangle  
Jaffee, David Philip 17 Bronx H.S. of Science 70 E. 96th St. 10028  
Correlational Analysis of International Events  
\*Landa, Susan Eva 17 Bronx H.S. of Science 303 W. 66th St. 10023  
An Investigation of Perfect Numbers: Both Even  
and Odd  
\*Lee, Dora Yuen-Kie 17 Bronx H.S. of Science 32-80 30th St., Long  
Island City 11106  
Use of Algebraic Field Extension in the  
Solving of Two Classical Problems

Meister, Todd Alan 16 Bronx H.S. of Science 33-04 93rd St., Jackson Heights 11372  
In vivo Discovery and Immunogenic Description of an Invertebrate Immunity System

\*Paloy, Carole Selma 17 Bronx H.S. of Science 2575 Palisade Ave. 10463  
 Interferon Mediated Inhibition of Virus Replication

Poltorzky, Stephen 16 Bronx H.S. of Science 1522 Gover St., Bronx Religious Authoritarianism as Related to Family Background 10462

Rodriguez, Raymond 16 Bronx H.S. of Science 1805 Crotola Ave., Bronx Transfer and Transduction of the R Factor and Other Genetic Material 10457

\*Rubinfeld, Myrtan Ruth 16 Bronx H.S. of Science 3021 Briggs Ave. 10458  
 Influence of Carbohydrate Sources on Gamma Radiation Induced Mutations in *E. coli*

Schick, Garry R. 18 Bronx H.S. of Science 5610 Post Rd. 10471  
 Permutations and Their Computer Solutions

Tendl, William Philip 18 Bronx H.S. of Science 3121 Middletown Rd., Effect of Gamma Rays on the Base-Pair Ratio of *E. coli* 10461

\*Steinmetz, Pearl Ruth 17 Ramaz School 949 W. End Ave. 10025  
 Elucidation of the Basis of the Resistance of *Pseudomonas putida* to Penicillin

Swerzold, Gary David 16 Ramaz School 450 W. End Ave. 10024  
 Biochemical and Ecological Properties of the Bipyridyl Pesticide Formed by *Arthrobacter pyridinolis*

\*Goryun, Regina Marie 17 St. Helena H.S. 2033 McGraw Ave. 10462  
 Effects of Glutellonic Acid on the Formation of Pyrimidines in Algae

Louise, Stephen Yee-Yan 17 Shuyesant H.S. 45 Catherine St., Apt. 3 Study of the Number of Divisors of an Integer 10038

Weinberger, Judith Zelig 16 Yeshiva University H.S. 594 Locust Ave., New Rochelle 10801  
 Protein Patterns in Geocarins

Lateralis Hemolymph Plasma

\*Seltman, Gwen Riva 16 Oceanside Sr. H.S. 3241 Perry Ave. 11572  
 Analysis of the Symmetric Group of Degree Four and Its Relationship to Eigenvalues

Grenadier, Alan Stuart 17 Martin Van Buren H.S. 221-22 Manor Rd. 11427  
 A Generalization of Moebius Inversion

Abramczyk, Edward Ronald 17 Rome Catholic H.S. 712 S. Madison St. Consumm Beta in Alloy Junction Transistors 13440

Brown, Kenneth Conter 18 Rye H.S. 160 Theodore Fremd Ave., Apt. B-2 Utilizing Magnetic Fields 10580

Paluszek, Michael Adam 17 Rye H.S. 90 North St. 10580  
 Complex Decision Making by Digital Computer

\*Sheppard, Ellen Louise 17 Roy C. Ketchum H.S. 38 Kinry Rd., Chemical Modification of a Lysine Residue Poughkeepsie 12603

NORTH CAROLINA

Hodgkin, Perry Tillman 17 Ben L. Smith H.S. 3805 Groomtown Rd. 27407  
 Applied Research in Laser Communications

\*Bitner, Susan Jane 17 West Carteret H.S. 208 E. Park Ave. 28557  
 Assimilation of Phytoplanktonic Food Sources by Three Species of Bivalves

Goble, Ronald Clay 17 East Rowan Sr. H.S. P. O. Box 234, Granite Quarry 28072  
 Study of Automobile Emissions on Environmental Lead

NORTH DAKOTA

Maus, Carl James 17 Bishop Ryan H.S. 500 8th Ave., S. E. 58701  
 Design and Construction of a Self-Contained Life Support System

OHIO

Bucyrus  
 Rinduss, Robert David 18 Wynford H.S. R. R. 1 44820  
 Minimizing the Effects of Atmospheric Turbulence in Planetary Photography

Cincinnati  
 Stiegler, Mark Douglas 17 Colerain Sr. H.S. 2691 Byrneside Dr. 45239  
 New Method for the Quantitative Analysis of Human Behavior in Technological Societies

Cleveland  
 \*Luther, Pamela June 16 John F. Kennedy H.S. 17514 Holly Hill Dr. 44128  
 Polymerization of Phthalic Anhydride and Glycerol Using Different Weight Ratios

Eucled  
 Higaki, Glenn Teru 17 Euclid Sr. H.S. 20330 Glen Russ Lane 44117  
 Analysis of the Acetic Acid-Water-Toluene Azeotropic Vesel, Richard Warren 17 Euclid Sr. H.S. 939 E. 216th St. 44119  
 Equilibrium and Kinetics in the Reaction Between Ethanol and Acetic Acid

Fort Recovery  
 \*Meiring, Linda Lee 18 Fort Recovery H.S. R. R. 1 Meiring Rd. 45846  
 Prevention and Treatment of Bovine Shipping Fever in Feeder Cattle

New Bremen  
 Poeppelman, Alan David 17 New Bremen H.S. R. R. 1, Anna 45302  
 "Proof" of Goldbach's Conjecture Via Probability

Rocky River  
 \*Fetko, Andrea Kathryn 18 Magnificat H.S. 20967 Morewood Pkwy. Study of Pollution in Big Creek Using Membrane Microfiltration Techniques 44116

Toledo  
 Alexander, Jon Franklin 17 St. John's H.S. 825 River Rd., Maumee Photoluminescence of the  $\text{CuSO}_4 \cdot \text{NaCl}$  Activated ZnS Phosphor 43537

Wakelield, Thomas William 17 St. John's H.S. 857 Atlantic Ave. 43609  
 Detailed Dissection Study of Three Proninent Topographical Features of the Human Coronary Arteries

OKLAHOMA

Bartlesville  
 \*Solop, Summerlyne 17 College H.S. 2003 Skyline Dr. 74003  
 Hereditary Thrombasthenia: Development of Methods for Diagnosis

Enid  
 Hatfield, Ronald Laverne 17 Enid H.S. 509 N. Taylor 73701  
 Theoretical Model of 3C 273: A Collapsed Binary With One Member a Neutron Star

Oklahoma City  
 McClanahan, James Edward 17 Enid H.S. 2617 W. Maine 73701  
 Inorganic Reduction Reactions Catalyzed by Chlorophyll

Stillwater  
 \*Harness, Valeria Jean 17 U. S. Grant H.S. 2805 S. W. 55th St. 73119  
 Chromatographic Comparisons of Capsaicin

Katz, Alan Jerry 17 C. E. Donart H.S. 915 W. Knapp 74074  
 Studies on the Synthesis of RNA in *Mycoplasma laidlawii* B

OREGON

Beaverton  
 Michel, James Laurence 18 Beaverton H.S. 7740 S. W. Brentwood St., Phosphorus Uptake by *Chlorella pyrenoidosa* Portland 97225  
 In Sewage Treatment Processes

Salem  
 Meyer, Herbert W. 17 North Salem H.S. 5695 Center St., N. E. 97301  
 The Lyons Flora of Northwestern Oregon

PENNSYLVANIA

Allquippa  
 \*Oskowski, Mary Christine 17 Allquippa H.S. 2208 McMan St. 15001  
 Habituation of *Macrobella decora* to Light Stimuli

Pulchani, Theodore 17 Allquippa H.S. 1715 Buchanan St. 15001  
 Assay of the Products of External Invertase Activity on Corn Coleoptiles

Ardmore  
 \*Altman, Cynthia Berchen 17 Lower Merton H.S. 1205 Weymouth Rd., Hemodensitometry Philadelphia 19151

Erie  
 \*Wurst, Audrey Anne 17 Villa Maria Academy 5230 Bryant St. 16509  
 Effect of Wavelength on Phototropic Response of *Plasmodium*

Fort Washington Meriton Station Philadelphia Pittsburgh Reading Pottstown Pottsville Wyncote Turbotville Cumberland North Augusta Spartanburg Gainesboro Memphis Powell

Ellis, Christopher Reed 17 Upper Dublin H.S. Welsh Rd., Ambler 19002  
 Study of Photosynthetic Luminescence  
 Wojcik, Stephen D. 17 Akiba Hebrew Academy 5050 Overbrook Ave., Philadelphia 19131  
 Increased Gamma Globulin Levels in Young Mice of the Leukemia-Prone AKR Strain  
 Abrams, Steven Robert 17 Central H.S. 8405 Temple Rd. 19150  
 Anti-Bacterial Action of Sea Animals  
 Radensky, Paul William 16 Central H.S. 124 Alexis Lane 19115  
 Pharmacology of Solanidine From Solanum dulcamara  
 Schiefel, Walter Philip 17 Northeast H.S. 325 Hoffmagle St. 19111  
 Application of Hand Movement in the Process of Character Recognition  
 Demmel, James Weldon II 16 Mt. Lebanon H.S. 404 Salem Dr. 15243  
 Graphing Electron Orbitals  
 Ferrell, James Ellsworth, Jr. 16 Mt. Lebanon H.S. 275 Orchard Dr. A Self-Teaching Computer  
 Sell, Jeffrey Edward 17 Mt. Lebanon H.S. 106 Seneca Dr. 15228  
 Poetry by Computer  
 Zangwill, Andrew Mark 17 Mt. Lebanon H.S. 390 Parker Dr. 15216  
 Computer Uses in Wave Mechanics  
 Lieberman, Marvin Barry 17 Peabody H.S. 3 Coleridge Pl. 15201  
 Mossbauer Effect Study of the Heat Treatments of a Tool Steel  
 \*Lackey, Mary Grace 17 Sacred Heart H.S. 6954 Edgerton Ave. 15208  
 Effect of Ultraviolet Radiation on Calcium Tartrate Crystals  
 Henry, Eric Raymond 16 St. Pius X H.S. 1008 Terrace Lane 19464  
 Mathematics in the Study of Stellar Structure  
 Wachter, Joseph Paul 17 Nativity B.V.M. H.S. 1942 W. Norwegan St. Research and Development of a Bedload Sampler 17901  
 Green, Jeffrey Emmanuel 17 Reading Sr. H.S. 1532 Oak Lane 19604  
 Lactic Dehydrogenase Isoenzymes in Various Animal Tissues  
 Dennen, William Mark 17 Warrior Run H.S. R.D. 3, Danville 17821  
 Biodegradation of Detergent Enzymes and Their Environmental Acceptability  
 Cohen, Sidney Allan 16 Cheltenham Sr. H.S. 232 Barclay Cir., Cheltenham Effect of Indole-3-Acetic Acid and Kinetin on Crown-Gall Tumor Tissue Grown in vitro 19012

RHODE ISLAND  
 Nicholas, Mark Hadley 17 Cumberland H.S. 71 Boardman Ave. 02864  
 Investigation and Genetics of Isosepiapterin Production in Drosophila melanogaster

SOUTH CAROLINA  
 Dahle, Mark Felker 17 North Augusta Sr. H.S. 1905 Whitebark Ave. Edited of the Chlorine Ion Upon Copper Recovery 29841  
 Baird, Richard William 18 Spartanburg H.S. 1018 Woodburn Rd. 29302  
 An Investigation of Cold Plasma Polymer Film Surface Treatment and Related Chemical Phenomena

TENNESSEE  
 Dyer, Michael Lewis 18 Jackson County H.S. R. 1, Bloomington Springs Processes of Photosynthesis Involving the Use of Radiosotopes to Identify Intermediate Compounds 36545  
 \*Stephens, Diana Patricia 16 White Station H.S. 64 N. Yates Rd. 38117  
 Some Theorems on Edge Coloration of Polyhedra in Three and Four Dimensional Space  
 \*Carry, Janice Ellen 17 Powell H.S. Irwin Rd., Rt. 4 37849  
 Energy Loss of Actual Stream Caused by Air Friction  
 Jennings, David Keith 16 Powell H.S. Rt. 5, Old Clinton Pike 37849  
 Effect of Different Nitrogen Sources on the Toxicity of Victoria

Waverly

\*Billingsley, Edna Mae 17 Waverly Central H.S. 105 Stewart Lane 37185  
 Variations of pH Values in Various Types of Humphreys County Soil  
 Fischer, Robert Paul 17 Waverly Central H.S. 210 Country Club Lane Territorialism: Man's Imperative 37185  
 Miller, Charles Wesley 17 Waverly Central H.S. 305 Lakeview Dr., New Synthesis of Arenechlorodendryltron Johnsonville 37134  
 Cations From Ferrocene Johnsonville 37134

TEXAS  
 Austin  
 \*Muse, Nina Jo 17 William B. Travis H.S. 1500 Betty Jo Dr. 78704  
 Regeneration of the Opener Muscle in Crayfish  
 Canyon  
 Oppe, Thomas Charles 17 Canyon H.S. 2408 12th Ave. 79015  
 The Orbit of the Moon  
 Dallas  
 Fenyves, Andrew Zoltan 18 Hillcrest H.S. 6211 W. Northwest Hwy. 75225  
 On the Method of Molecular Weight Determinations on Polyacrylamide Gel in the SDS System  
 \*Zollars, Laurel Elise 17 Hillcrest H.S. 7020 Chiperton 75225  
 Feasibility of Flavonoids in Differentiating Species of Prosopis  
 Freeport  
 \*Osterman, Debra May 17 Brazoswood H.S. 301 Camella, Lake Jackson In vitro Chromosomal Effects of Oral Contraceptives 77566  
 on Mammalian Leukocytes  
 Grand Prairie  
 Zwernemann, Steven Mark 17 Grand Prairie H.S. 805 Singleton St. 75050  
 Krushnic Effect: Its Nature, Causes and Effects on Model Rockets  
 Houston  
 \*Birdsall, Holly Hyde 17 Memorial Sr. H.S. 12111 Overcup 77024  
 Study in Speedation Employing Serratia marcescens Nima and Escherichia coli K12  
 Solomon, Donald Jeffrey 17 Memorial Sr. H.S. 515 Tallwood, Apt. 31 Selection of Escherichia coli K12 Nal B Mutants 77024  
 \*Eivvin, Julia Ann 18 Huntsville H.S. 2111 Pleasant Influence of Chitosan on the Physical Properties of Sulfite Pulp 77024

Port Arthur  
 \*Smith, Jo Ann 18 Thomas Jefferson H.S. 3147 Allison, Groves 77619  
 Isolation and Characterization of Hemoglobin  
 San Angelo  
 Talley, Stephen Blake 17 San Angelo Central H.S. 2010 Jade Dr. 76901  
 Power Control Occurring With Ionic and High Voltage Fields in Electrolytes and Ionized Materials  
 San Antonio  
 Quist, Terry Charles 16 Thomas Jefferson H.S. 3818 Longridge Dr. Compound Mass Absorption Coefficients for Neutrons 78228

UTAH  
 Haslam, Reed Berg 18 Olympus H.S. 1701 E. 4225 S. 84117  
 Four Year Study of Temperature and Precipitation Variations in the Salt Lake Valley

VIRGINIA  
 Oyster, John Michael 16 Fort Hunt H.S. 820 Emerald Dr. 22308  
 Synthesis and NMR of Some Brominated Eight-Membered Alicyclic Rings  
 Arlington  
 Johnson, Jon Wallace 17 Washington-Lee H.S. 431 N. Kenmore St. 22201  
 Titanium Carbide Formation by the Titrating of Steels  
 Pallasch, Mark Alan 17 Washington-Lee H.S. 509 N. Kenmore St. 22201  
 Determination of Protein Concentrations in Bovine Secretions by Immunochemical Technique  
 \*Webb, Denise Louise 17 Washington-Lee H.S. 5550 15th St., N. 22205  
 Measuring the Plasma Remn Activity in Newborns and Pregnant Women With a Radioimmunoassay  
 Allman, William Thomas III 17 Patrick Henry H.S. P. O. Box 498 23005  
 Temperature Limitations of Marrisia vestita Gametophyte  
 Brown, Edward Ryland, Jr. 18 Liberty H.S. Rt. 1, Forest 24551  
 Evidence of Prehistoric Indian Occupation Along the Upper Roanoke River  
 Blacksburg  
 Gorsline, Gary Bonner 17 Blacksburg H.S. 624 Watson Lane 24060  
 Concordance Building



Bowling Green

\*Cinton, Rebecca Delphine 17 Bowling Green Sr. H.S. Black Marsh Farm, Linnological Investigations of a Rappahannock Academy

Bristol

\*Drunheller, Mary Leah 17 John S. Battle H.S. 95 Pace Dr. 24201  
Effects of Lithium Chloride, Anterior Pituitary, Thyroxin and Testosterone on Planaria Regeneration

Charlottesville

Matlson, Jon Shane 17 John S. Battle H.S. 195 Wildergrass Rd. 24201  
Larrodectus naclans: Its Behavior, Growth and Development  
Ramey, Thomas Lee 17 Lane H.S. 1709 Essex Rd. 22901  
Production of Invertase in Yeast

Fairfax

Strider, David Valentine 17 Lane H.S. 1641 Brandywine Dr. 22901  
Investigation of Water Pollution in the Charlottesville Area  
Wallace, Richard Kent 17 W. T. Woodson H.S. 5015 Glen Park Rd.,  
pH Interdependence of a Copper II Ammandale 22003  
Nitrate-Trihydrate Solution

McLean

Browne, Dana Alan 17 McLean H.S. 7111 Xavier Ct. 22101  
Photoelectric Study of Delta Cephei

Norfolk

\*Eustis, Helen Hall 18 Norfolk Academy 4753 Rivershore Rd., Portsmouth  
Effect of Increased Pressure on the Fragility of the Red Blood Cell and Plasma Hemoglobin Levels 23703

Radford

\*Goode, Janet Elizabeth 17 Radford H.S. 103 5th St. 24141  
Effects of Amphetamines on Chicken Embryos  
Weschke, Frank Delfel 17 Radford H.S. Rt. 1, Box 407 24141

Vienna

Bender, Barry Arden 17 James Matlson H.S. 1016 Apon Rd., S. E. 22180  
General Applications of a Homemade Silver-Silver Chloride Electrode and a Calomel Electrode

Winchester

Suger, William Warren 17 John Handley H.S. 500 Jefferson St. 22601  
Experimentation With Stellar Magnitude Using Photographic Photometry

#### WASHINGTON

Bellevue

Ezell, William Joseph 17 Bellevue Sr. H.S. 10900 S.E. 9th St. 98004  
Determining the Distance to the Variable Star Delta Cephei by Means of the Period-Luminosity Relation

Des Moines

Hanill, Douglas Joseph 16 Mt. Rainier H.S. 20315 Marine View Dr., S.W.  
Electrolysis and the OH<sup>-</sup> Ion in Magnesium and Magnesium Oxide Production  
Lehman, Jeffrey Edward 17 Mt. Rainier H.S. 18109 Riviera Pl., S.W.  
Function of Territorial Behavior in Apistogramma Fahnertzi Seattle 98166

Spokane

\*Mcomber, Janice Irene 18 Mt. Rainier H.S. 2207 S. 208th St., Seattle  
Flammability of Fabrics and Flame Retarding Fabrics 98188  
Bore, Timothy Frederick 17 Joel E. Ferris H.S. S. 3921 Lannontle 99203  
Static Production of Antiseptics in Pteropods and Their Effect on Air-Borne Microorganisms  
\*Hyatt, Martha Lynn 18 Joel E. Ferris H.S. West 221 31st Ave. 99203  
Effects of Insecticides on the Genus Rhizobium  
\*Ream, Lyn Rita 18 Joel E. Ferris H.S. E. 3505 Ben Burr Blvd. 99203  
Oxygen Depletion Effect on Chlorophyta Population

#### WISCONSIN

Greendale

Ringland, James Thomas 17 Greendale H.S. 8215 W. Edgerton Ave. 53129  
Tri-Hex and Other Magic Triangles

Kenosha

Knutson, Stanley George 17 Mary D. Bradford H.S. 4020 55th St. 53140  
Computerized Accounting for a Junior Achievement Company

Melwaukee

Koehler, Glen Alan 17 John Marshall H.S. 3275 N. 93rd St. 53222  
Acoustic Physiology of the Tragus of the Little Brown Bat

Muskego

Cole, Michael John 17 Muskego H.S. 11870 Valley Dr., Wind Lake 53185  
Relation Between the Moon and Earthquake Activity

#### WYOMING

Greybull

\*Gerrant, Fern Ellen 18 Greybull H.S. Box 88, Emblem 82422  
Natural Indicators

\*\*\*\*\*

Thirty-first Annual Science Talent Search

for the Westinghouse Science Scholarships and Awards

Oceanside
Queens Village
New Bremen
Beaverton
Salem
Philadelphia
Cumberland
Spartanburg
Galvestoro
Dallas
Houston

OHIO

OREGON

PENNSYLVANIA

RHODE ISLAND

SOUTH CAROLINA

TENNESSEE

TEXAS



SCIENCE SERVICE, INC. - 1719 N Street, N.W. - Washington, D.C. 20036

72 of the

The forty Washington trip winners of the 31st Annual Science Talent Search, among whom \$67,500 of Westinghouse Science Scholarships and Awards will be distributed, represent about 3.5% of those who completed entries in this scientific and educational competition.

Designed to discover and develop scientific ability among high school seniors, the Science Talent Search is conducted annually for the Westinghouse Science Scholarships and Awards by Science Clubs of America, a Science Service activity, 1719 N Street, N.W., Washington, D.C. 20036.

Twelve girls and 28 boys (proportion determined by ratio of boys and girls completing entries) are being invited to Washington, D.C., for an all-expense-paid trip March 1 through March 6, 1972, to attend the Science Talent Institute. Here 10 winners will be selected by the board of judges to receive one of the following four-year Westinghouse Science Scholarships: One \$10,000 (\$2,500 per year), two \$8,000 (\$2,000 per year), three \$6,000 (\$1,500 per year), four \$4,000 (\$1,000 per year). The remaining 30 contestants will be given Westinghouse Science Awards of \$250 each.

The trip winners are 16 to 18 years of age and come from 32 cities in 20 states. They were picked by the judges from among 14,211 contestants of whom 1,133 completed their entries by writing a report on their science project, submitting personal data and teacher recommendations. Completed entries were received from 50 states and the District of Columbia. Girls accounted for 30.3% of the entries this year.

# Washington Trip Winners

\* Indicates girl  
H. S. Indicates High School  
HOME ADDRESS follows name of school  
AGE of winner follows name

## ALABAMA

Huntsville \*Lueseen, Bonde Jean 17 Virgil I. Glesom H. S. 1013 San Ramon Ave., S. E. 35802  
ALASKA

Anchorage \*Agosti, Jan Marie 16 West Anchorage H. S. 2324 Louessac Dr. 98503  
CALIFORNIA

Los Angeles Gerbenzon, Jonathan 16 Hollywood H. S. 5433 Red Oak Dr. 90068  
San Diego Rubin, Scott Alvin 17 Crawford H. S. 5002 Chaparral Way 92115  
Nachman, Ronald James 18 Patrick Henry H. S. 7060 Murray Park Dr. 92119  
COLORADO

Denver East, Bruce Alan 17 John F. Kennedy H. S. 3129 S. Lowell Blvd. 80236  
FLORIDA

Fort Lauderdale Coleman, Robert Frederick 17 Nova H. S. 450 Paradise Isle Blvd., Hallandale 33009  
Melbourne Billele, Barry Dwight 17 Melbourne H. S. 329 F. Earl Ave. 32901  
Merritt Island Mullins, Corey Jon 18 Merritt Island H. S. 385 Needle Blvd. 32952  
Miami Beach Mondscheln, Benjamin Max 17 Miami Beach Sr. H. S. 4551 Post Ave. 33140  
GEORGIA

Atlanta Bird, Wendell Raleigh 17 W. F. Dykes H. S. 4100 Beechwood Dr., N. W. 30327

## HAWAII

Honolulu Kawamoto, Alan Harumi 17 Roosevelt H. S. 2630 Koloala St. 96822

## ILLINOIS

Deerfield Wolf, Rodney Alan 17 Deerfield H. S. 2148 Magnolia Lane, Highland Park 60035

Franklin Park \*Carfield, Denise Margaret 17 East Leyden H. S. 2529 Scott 60131

## INDIANA

Bloomington Rudman, David Albert 17 Bloomington Sr. H. S. 1008 E. 2nd St. 47401

## LOUISIANA

New Orleans \*Fitzpatrick, Colleen Mary 16 Mt. Carmel Academy 5985 Memphis St. 70124

## MASSACHUSETTS

Lexington Borish, Lawrence Craig 17 Lexington H. S. 30 Partridge Rd. 02173  
Taunton \*Rounds, Donna Elaine 17 Taunton H. S. 235 Alfred Lord Blvd. 02780

## NEW JERSEY

Lawrenceville Herko, Robert John 17 The Lawrenceville School 131 Hadley St., Piscataway 08854

## NEW YORK

Bayside \*Tabachnik, Nina Felice 16 Benjamin N. Cardozo H. S. 49-40 Little Neck Pkwy., Little Neck 11362  
Forest Hills Lempert, Norbert 17 Forest Hills H. S. 103-40 67th Dr. 11375  
New York Cholet, David Jacob 17 Bronx H. S. of Science 1435 Lexington Ave. 10028  
Horowitz, Tony Giordano 17 Bronx H. S. of Science 19-01 21st Ave., Long Island City 11105

\*Landau, Susan Eva 17 Bronx H. S. of Science 303 W. 68th St. 10023  
\*Lee, Dora Yuen-Kie 17 Bronx H. S. of Science 32-80 30th St., Long Island City 11106  
Rodriguez, Raymond 16 Bronx H. S. of Science 1805 Crotona Ave., Bronx 10457