



# American Association of Physics Teachers

## AAPT Ontario Section

### NEWSLETTER

## From the Editor

The Ontario Section of the American Association of Physics Teachers is one of the largest and most active sections. We are proud of that fact and hope that in the coming year we can build on what we have already achieved and continue to offer services and resources that are of value to the Physics teachers of Ontario and beyond. Membership continues to be strong. If you have not renewed your membership or if you wish to become a member, please send \$1.00 to our Secretary/Treasurer, Mr. Doug Cunningham, Bruce Peninsula District School, Box 178, Lion's Head, Ontario, N0H 1W0. Your mailing label should include Jun 81 or Jun 82 indicating the date to which membership is paid. Please indicate your professional affiliation: university, CAAT, high school. Your membership will be good until June 1982 and you will continue to receive our newsletter and notice of conference and services.

If you have any comments or suggestions either about the activities of AAPT-Ontario or this newsletter, please write to the editor:

Gordon McKye,  
 Etobicoke Board of Education,  
 1 Civic Centre Court  
 Etobicoke, Ontario, M9C 2B3

#### A LIST OF THE PROVINCIAL WINNERS FOR 1981

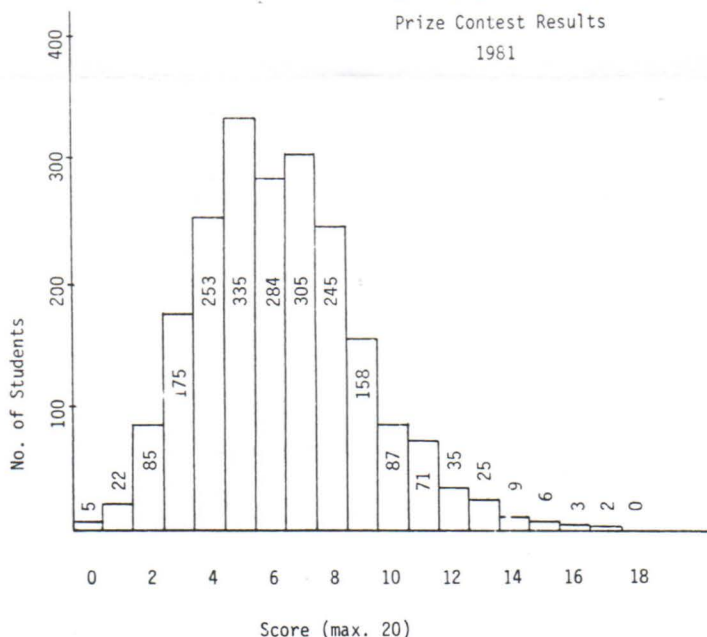
SCORE	STUDENT	SCHOOL	TEACHER
17	N.E. Hunt	MacKenzie HS, Deep River	Doug Moon
17	R.J. Kirkness	Woburn CI, Scarborough	L. Rice
16	R.M. Boeckner	Woburn CI, Ottawa	
16	M. Li	Nepean HS, Ottawa	Doug Ramsden
16	M.G. McKendry	Orangeville DSS, Orangeville	Don Bosomworth
15	P.T. Shannon	Almonte DHS, Almonte	James Blair
15	G.K. Morton	MacKenzie HS, Deep River	
15	I.J. Miller	MacKenzie HS, Deep River	
15	G.C. Celetti	Laura Secord SS, St. Catharines	El Umbrico
15	M. Luscher	Eastdale CVI, Oshawa	E.G. Milne
15	M. Allen	Kingston CVI, Kingston	D.J. Knapp

## Grade 11 Physics Contest

AAPT - Ontario's Grade Eleven Prize Physics Contest was held on Tuesday, May 12, 1981. Over 2800 papers were ordered for use in 184 schools. First and second place certificates were sent to schools to give to their winning students. Eleven provincial winners received TI-35 calculators and special gold certificates. Funds for the provincial winners were provided by various physics departments in Ontario Universities: the University of Guelph, the University of Waterloo, the University of Windsor, the University of Western Ontario, Trent University, Laurentian University, Carleton University, and the University of Toronto. (Please note that Carleton's name was mistakenly left out of this list published in a previous Newsletter. We regret this oversight on our part.) A list of the provincial winners and their schools is given below. Congratulations to all those who participated.

This year the Contest will be held on Tuesday, May 4, 1982. If your school has not received Contest information by April Fools' Day, contact Doug Fox, Belle River District H.S., Belle River, Ontario, NOR 1A0.

AAPT-Ontario Grade 11  
 Prize Contest Results  
 1981



# Reporting to you

ONTARIO SECTION - THIRD ANNUAL CONFERENCE - 1981  
by Dean Gaily

The third annual conference of the Ontario Section, hosted by the University of Toronto's Department of Physics, was held on June 11-13, 1981. Attended by over 100 members, the meeting began with the usual Thursday evening rap session and gettogether at New College and continued at an interesting and enthusiastic pace through Saturday afternoon.

David Harrison, U. of T. local host and Gordon McKye, Etobicoke Board of Ed. program chairman together provided a stimulating and enjoyable meeting. Program highlights from the contributed papers on Friday were:

"Spring Wars and Mystery Boxes", Bill Konrad, Tecumseh S.S., Chatham;  
"Induction Transducer for Recording Glider Velocity on an Air Track", P; Rochon and N; Gauthier, R.M.C., Kingston;  
"Errors Anyone", N; Pereira, Agincourt C.I., Scarborough.  
"Computer-aided Testing in Freshman Physics Laboratories", D.R. Hay, U.W.O., London;  
"The Importance of Newton's First and Third Laws", G.S. Rose, U.W.O., London;  
"Streaming and What to Teach in Grade 13 Physics", Bill Prior, Malvern C.I., Toronto;  
"The Use of an Analog Computer in Physics Demonstrations", G.R. Heyland, Northern College, Kirkland Lake;  
"The Great Physics Poster Contest", Doug Fox, Belle River D.H.S., Belle River;  
"A Personalized Student Instruction (P.S.I.) Approach to Grade 13", George Kelly, Pearson C.I., Scarborough;  
"A Simple Demonstration of Spherical Aberration", A.R. Lachaine and P. Rochon, R.M.C. Kingston;  
"'Eureka!' TV Ontario Physics Programs", Ernie McFarland, University of Guelph, Guelph;  
"Give a Lift to Your Science Program - Try Model Rocketry", Doug Cunningham, Bruce Peninsula D.H.S., Lions Head.

Two invited presentations on Friday, "Current Ministry (of Education) Activities" by Doug Bannister and "Micro-computers in the Physics Classroom" by Don Whitewood of Toronto were well received and led to the Banquet in the U. of T. faculty club and the talk on "Scientific Literacy" (sic) by Donald Ivey of Toronto. Tours of the physics and astronomy department facilities followed.

Saturday's program started with two invited papers, "Putting Science on the Air" by Jay Ingram and "Amateur Science for Physics Education" by Jearl Walker. This combined presentation, featuring Sauce Bearnaise and lemon meringue pie by Jearl, for radio audiences only, was undoubtedly the hit of the conference.

Contributed papers were:

"Physics of Home Heating and Energy Conservation - Theory and Practice", S; Ziauddin, Laurentian U;, Sudbury;  
"Studying Wave Motion on a Microcomputer", Malcolm Coutts, Riverdale C.I., Toronto;  
"Studies on Why Some Students 'Just Don't Get It'", David Harrison and A.W. Key, U. of Toronto;  
"Individualized Physics-Minicourse and Micro computers", Gordon McKye, Etobicoke Board, Etobicoke;  
"Teaching Archaeometry: An Interdisciplinary Link Between Physical Science and Anthropology", R.M. Farquhar, U. of Toronto.

The meeting ended with two features on demonstration, first our usual "My Favourite Demonstration" with several stimulating examples followed by "Science for the Gifted (Process or Content)" by George Vanderkuur of the Ontario Science Centre.

AAPT 1981 SUMMER MEETING - STEVENS POINT, WISCONSIN  
by Ernie McFarland

The popularity of the AAPT Summer Meeting continues to grow. The 1981 meeting at Stevens Point, Wisconsin, set a new attendance record (506), breaking the mark set only a year earlier. Workshops were not only filled, but extra sessions of many were added to the schedule on the spot.

Highlights included:

- the Millikan Award to Al Bartlett and his Millikan lecture (to be published in the December, 1981, issue of the "American Journal of Physics" — look for it; it is expected to be one of the most popular articles ever to appear in AJP);
- a fascinating banquet talk by Robert Greenler about light in the sky and colour in the clouds, including a demonstration of the "green flash";
- a two-part evening demonstration show, followed by an outdoor courtyard reception (free beer, cheese, popcorn);
- three sessions on light, vision, and colour.

AAPT-Ontario was well represented: Don Bosomworth (Orangeville DSS), John Huschilt (U. of Windsor), Eustace Mendis (Ontario Science Centre), Dave Whiting (Merlan Scientific), Doug Fox (Belle River DHS), and Ernie McFarland (U. of Guelph). Four new members were added to AAPT-Ontario at the meeting: from Rhode Island, Texas, Newfoundland, and Alberta. In view of AAPT-Ontario's rapid growth, John Layman (President-Elect of the AAPT) confided a mock fear that the AAPT would eventually become only a subsidiary of AAPT-Ontario.

With the costs of the big-city Winter Meeting becoming even larger, it is expected that the Summer Meeting will increase even more in popularity. Future locations are Ashland, Oregon (June, 1982) and Memphis, Tennessee (June, 1983).

## Physics Olympics

ATTENTION, PHYSICS OLYMPIANS!

Have you set a date and a place for a Physics Olympics in your region in the coming school year? Please send us the information as soon as possible along with the name, address, and telephone number of the right person to get in touch with should anyone have further questions. We will publish a list of all the scheduled Olympics we know about in the next national AAPT Announcer, in a winter Physics Teacher, or both.

We have received an interesting request for records that have been set in previous competitions. For instance, what is the highest ratio achieved in your region for weight supported to mass of bridge? The highest successful paper tower (in metres per sheet)? The slowest average forward speed for a slow bicycle race (metres/minute)? The fastest average speed for a vehicle powered by candle, mousetrap, or rubber band? Records for distance and duration of paper airplane flights? Other competitive events for which record keeping is appropriate?

If you haven't been keeping records, consider doing so this year, and send them to the committee for publication. And don't forget to include your rules for any newly-invented or revised event, if it proves successful. Incidentally, has anyone had any luck with the laser shoot? If so, provide details!

Send your information (or your questions or requests for material) to the Physics Olympics Subcommittee, c/o Jean Brattin, 3146 Warrington Rd., Shaker Heights, OH 44120.

# SERP Report

## SECONDARY EDUCATION REVIEW PROJECT

Your executive felt that it was important that some voice of physics teachers of the province of Ontario be heard by the Secondary Education Review Project. For that reason, at our spring meeting a response was finalized and subsequently sent to SERP. That response is reprinted here for your information.

The American Association of Physics Teachers has a strong and independent Ontario Section. We are grateful for the opportunity to have input into the redesigning of the secondary school.

1. AAPT - Ontario supports more compulsory hours of science education.

With the ever increasing presence of science in the students' lives and the forecast of even more in the future more science emphasis in education is warranted. We must prepare students for a technological society by improving their scientific literacy and developing their skills in critical thinking.

2. AAPT - Ontario supports a maximum science class size to promote safe conduct of laboratory work.

Research shows that laboratory accidents increase with more students in the class. We recommend a maximum of 24 students in advanced and general level science classes and 16 in basic and modified science classes.

3. AAPT - Ontario supports the equality of board resources with respect to science consultants, coordinators and non-teaching lab assistants.

Science teachers must cope with rapidly changing information and heavy loads of extra duties related to their science subject. Every science teacher should have available support from a local consultant or coordinator. As well boards should hire full, part time or itinerant lab assistants for equipment maintenance, control, ordering and preparation freeing the teacher to better perform the educative functions.

4. AAPT - Ontario wishes to have input into the formulation, implementation and evaluation of physics curricula.

We speak for more than 500 physics educators in Ontario high schools, colleges and universities and can provide valuable input into physics education.

5. AAPT - Ontario supports the need for increased amounts of professional development for science teachers within their discipline.

It is important for science teachers to keep up with new developments in science and pedagogy. The increasing average age of secondary school teachers and subject discipline switches due to declining enrollment necessitate professional development on a scale far larger than the present. A reasonable percentage of instruction costs should be spent on the professional development of teachers across the province.

6. AAPT - Ontario is concerned about the standards of education under the proposed compression of the secondary education system.

Great care must be taken to ensure that standards do not decline as a result of the proposed compression. The insurance should be in place and operating before the compression is begun.

7. AAPT - Ontario is concerned about the possible effects on the student caused by the compression of the secondary education system.

The general level student might find the pace of the compressed secondary school more than he is able to cope with.

Difficulties might be incurred by students who have not attained the proper piagetian levels necessary for certain subjects.

Timetabling flexibility now in the system will be reduced.

# Coming events

## National Winter Meeting

JANUARY 25-28, 1982, San Francisco  
Abstract deadline: October 20, 1981

## Ontario Section Meeting

JUNE 17-19, 1982, U of W, London, Ontario  
Abstract deadline: April 15, 1982

## National Summer Meeting

JUNE 23-25, 1982, Ashland, Oregon  
(Joint Meeting with Pacific Northwest Association of College Physics)  
Abstract deadline: March 30, 1982

## National Winter Meeting

JANUARY 24-27, 1983, New York City  
Abstract deadline: October 20, 1982

## National Summer Meeting

JUNE, 1983, Memphis, Tennessee  
Abstract deadline: March 30, 1983

# Financial Statement

AAPT - Ontario Section is in a solid financial position. We have \$10.56 in our Current Account and a total of \$965.00 in a Daily Interest Savings Account - plus accrued daily interest; There are no major outstanding bills. Our successful June Conference incurred a number of expenses - all of which have been met from the registration proceeds. These expenses were:

Program Printing,	
Mailing Costs and	
Support Materials	\$168.85
Thursday Night Social	22.26
Guest Speaker Expenses	295.29
U of Toronto - Banquet	
Expense	775.99
Accommodation	768.50
Conference Meals	<u>772.95</u>
Total Conference Exp.	\$2803.84

Regarding our association membership - we have now passed the 500 mark! - Unfortunately not all members have paid up their membership dues for the current 81-82 period - in particular 205 members still have to remit their \$1.00 membership fee. This renewal may be sent to Doug Cunningham, c/o Bruce Peninsula District School, Lion's Head, Ontario NOWLW0.

# Suppliers take note

This newsletter goes to perhaps the best 500 physics teachers in Ontario. For a cost of only \$10.00 we will include a small calling card size advertisement in our newsletter. We appreciate your interest in physics teaching and want to maintain a good working relationship with you.

# Star Gazing

STAR GAZING IN AUTUMN by D. Cunningham

In all fields of human endeavour achievement arises as the result of a conscious journey of the human spirit. For amateur astronomers this adventure of the spirit can crystallize in many ways --from the methodical sweeps of the dedicated comet hunter, through the journeys of the peripatetic astronomers as they chase grazes, eclipses, and asteroid occultations, to the systematic observing of variable stars and the careful observation and description of splendid deep sky objects. For one of our own AAPT-ONT members, Steve Dodson, this journey of the spirit involved the design and construction of one of the largest amateur reflecting telescopes in Canada. Phoenix II, as it is called, uses a 22 inch f/7.4 primary mirror purchased from Gerard Pardeilhan of the San Francisco Sidewalk Astronomers. Steve's achievement results from his ingenious combination of a scaled up Poncet Platform with a large Dobsonian reflector and a trailer to produce a large mobile telescope with equatorial tracking capability. First sight of this 1500 lb. orange and blue cyclops leaves most amateur astronomers with their mouths agape and an incredible expression on their faces. When the telescope is directed toward the zenith and observers climb up the special giraffe chair to the eyepiece they are 16 feet above the ground. And what of the views provided by this huge light bucket which collects 6000 times more light than the dark adapted human eye?...well, Vega, the brightest star in the constellation Lyra, appears as brilliant as a welder's torch, spiral structure is observed in the famous Whirlpool Galaxy (M51), the huge globular cluster in Hercules (M13) is resolved to the core, and the Trifid Nebula (M20) in the constellation Sagittarius, revealed, besides a bulbous nebulous patch trisected with dark rifts of obscuring matter, colour contrasts and dark lanes in the reddish section. Steve's plans for the future involve refining and motorizing the tracking to develop full photographic capability. If you find yourself in North Bay, I'm sure Steve would enjoy showing you the result of his own spiritual journey...Phoenix II.

In spite of the unstable weather conditions usually associated with the months of November and December, the Fall period presents the amateur astronomer and casual star gazer with the reasonably good observing conditions associated with long, cool, crisp nights. Against the background of the Fall constellations (see attached map) the planets will make close approaches to one another and to the waning crescent moon. As most of the planetary action will occur in the morning sky, only those hardy souls willing to leave the warmth and comfort of their bed will enjoy these celestial sights. As if to provide an added incentive for early morning activity, there will be 5 meteor showers. The best displays are usually provided by the Orionid Shower on October 21 and the Geminid Shower on December 13...in both cases, however, the moon will interfere by making it difficult to see the fainter meteors. In any event, if the skies are clear where you live, all the showers are worth an attempt. Clear skies and good observing!

## September

Tues., Sept. 1	: Jupiter 4°S of Moon
	: Venus 5°S of Moon
Sun., Sept. 6	: First Quarter Moon
	: Venus 2°N of Spica
Thur., Sept. 10	: Mercury 4°S of Saturn
Sun., Sept. 13	: Full Moon (called the Harvest Moon)
	: Mercury 3°S of Jupiter
Sun., Sept. 20	: Last Quarter Moon
Tues., Sept. 22	: Autumnal Equinox...Fall Begins
Wed., Sept. 23	: Mercury at greatest Eastern Elongation
Sun., Sept. 27	: New Moon
Tues., Sept. 29	: Mercury 9°S of Moon

## October

Thur., Oct. 1	: Venus 7°S of Moon
Tues., Oct. 6	: First Quarter Moon
Tues., Oct. 13	: Full Moon (called the Hunters Moon)
Sat., Oct 17	: Venus 1.9°N of Antares
Mon., Oct. 19	: Mars 1°N of Regulus
	: Last Quarter Moon
Wed., Oct. 21	: Orionid Meteors...25 meteors per hour
	- best observed after mid night and before the last quarter moon rises. Observe on the night of Oct: 20-21.
Thur., Oct. 21	: Mars 1.4°S of the Moon
Sun., Oct. 25	: Saturn 3°S of the Moon
Tues., Oct. 27	: New Moon
Sat., Oct. 31	: Venus 6°S of the Moon

## November

Mon., Nov. 2	: Taurid Meteors...15 meteors per hour
	- best observed in the morning of Nov. 2 between 3:00 AM and 6:00 AM
	: Mercury at Greatest Western Elongation.
Wed., Nov. 4	: First Quarter Moon
Thur., Nov. 5	: Mercury 1.2°N of Jupiter
Tues., Nov. 10	: Venus at Greatest Eastern Elongation
Wed., Nov. 11	: Full Moon (called the Frosty Moon)
Tues., Nov. 17	: Leonid Meteors...15 meteors per hour
	- best observed around 1:00 AM on the night of Nov. 16-17.
Wed., Nov. 18	: Last Quarter Moon
Thur., Nov. 19	: Mars 2°S of the Moon
Mon., Nov. 23	: Jupiter 4°S of the Moon
Thur., Nov. 26	: New Moon
Mon., Nov. 30	: Venus 3°S of the Moon

## December

Fri., Dec. 4	: First Quarter Moon
Fri., Dec. 11	: Full Moon (called the Long Night Moon)
Sun., Dec. 13	: Geminid Meteors...50 meteors per hour
	- best observed before moon rise on the night of Dec. 12-13.
Wed., Dec. 16	: Venus at Greatest Brilliancy
Fri., Dec. 18	: Last Quarter Moon
	: Mars 3°S of the Moon
Sat., Dec. 19	: Saturn 3°S of the Moon
Mon., Dec. 21	: Jupiter 4°S of the Moon
	: Winter Solstice...Winter Begins
Tues., Dec. 22	: Ursid Meteors...15 meteors per hour
	- best observed in the early morning hours of Dec. 22
Sat., Dec. 26	: New Moon
Tues., Dec. 29	: Venus 2°N of the moon

# AAPT Apparatus

## AAPT APPARATUS COMPETITION

The Apparatus Committee of the AAPT sponsors a biennial Apparatus Competition. In 1982 it will be held at the AAPT summer meeting in Ashland, Oregon during the month of June.

If you have designed a novel piece of apparatus, or have made unique modifications to existing apparatus, who not enter. The prizes are substantial — \$300.00 first prize, \$200.00 second and \$100.00 third in each of the two categories, Pre-College and College. You do not have to travel to Oregon; just send your apparatus and an explanatory exhibit.

Further details will appear in later newsletters.