



American Association of Physics Teachers

AAPT Ontario Section

NEWSLETTER

Vol III No 2 Feb 1982

Editor: Gordon G. McKye

Gr 11 Physics Prize Test

This year's Contest will be written on Tuesday, May 4, 1982. Mailings addressed to the Physics Teacher will be sent out to the high schools in mid-February. The philosophy of the Contest remains the same: to give the best students a chance to measure themselves provincially and to generate some interest in physics in all students. Certificates are given to the top two students in each school. Each school provides a prize for its top student. Provincially, the top eleven (or so) are given special certificates and prizes. Costs for the Contest have increased substantially and we must charge one dollar per entry requested. The time period for the Contest has been set for one-and-a-half-hours.

If you have not received your mailing by April Fool's day, then call Doug Fox at 519-728-1212.

Eric Rogers to speak

We are pleased to announce that Professor Eric Rogers (Coulomb's law film) has agreed to attend and give an address at this year's AAPT (Ontario) meeting. Plan now to attend this fine conference. For many people, it is the highlight of the conference year.

AAPT ONTARIO '82 CONFERENCE JUNE 17, 18, 19, AT WESTERN UNIVERSITY IN LONDON

Call for Papers!!!

Now is the time to prepare your presentation for our annual June conference at Western University. Program plans are underway which include a 'super' workshop on the topic 'PROBLEM SOLVING' by Prof. Don Woods of McMaster University, a panel on PHYSICS OLYMPICS, special invited papers, contributed sessions, and of course the popular "MY FAVOURITE DEMONSTRATION"!!

Organize your abstract for that particular topic or idea you do so well and share it with your colleagues as a presentation in the contributed paper section. If you have not given a paper and are uncertain about it, there is an article elsewhere in this newsletter entitled "Why Publish". If you indicate you are interested when you send in your abstract, we will also send you a copy of an article from the Physics Teacher on "How to present a paper!!".

Send your abstract to: Dr. Neves Periera, 2621 Midland Ave., Agincourt, Ontario M1S 1R6

It is essential you respond soon as the program must be prepared for early distribution. Thus the DEADLINE IS APRIL 4th for submission of abstracts.

Convenor George Kelly

AAPT Ontario Executive

President: Gordon McKye, Etobicoke Board of Education, 1 Civic Centre Court, Etobicoke, Ontario, M9C 2B3, 416-626-4360.

Past-President: Doug Fox, Belle River High School, Belle River, Ontario, N0R 1A0, 519-728-1212.

Vice-President: George Kelly, Pearson Collegiate Institute, Scarborough Board of Education, Scarborough, Ontario.

Secretary-Treasurer: Doug Cunningham, Bruce Peninsula District High School, Lion's Head, Ontario, N0H 1W0, 519-793-3211.

Section Rep to National AAPT: Dean Galey, Physics Department, University of Western Ontario, London, Ontario, 519-679-2568.

Member-at-Large: Syed Ziauddin, Physics Department, Laurentian University, Sudbury, Ontario, P3E 2C6.

Ontario Nominations

Nominations are requested for the following positions on the AAPT (Ontario) executive: Vice-president, Secretary-treasurer, Section representative (to National AAPT), Member-at-large. Any member of AAPT (Ontario) can make a nomination. Please send all nominations, by February 28, to Gordon McKye, Etobicoke Board of Education, 1 Civic Centre Court, Etobicoke, Ontario, M9C 2B3.

Congratulations

Congratulations to Ernie McFarland (U of Guelph and past president of AAPT(Ontario)) for his appointment as Chairman of the AAPT (National) Physics Apparatus Committee. This is the first time that a Canadian has been chosen to chair a major committee in the National AAPT. Congratulations, Ernie.

Congratulations to two other AAPT members who have received honours. Jack Wright, who retired from Althouse College last year, and Gordon McKye, who is AAPT president this year, have received the STAO Award of Merit for Excellence in the Teaching of Science. Elgin Wolfe (FUET) was the first winner of the new award last year. We are pleased to have two physics teachers chosen to receive this award in 1981. It is evident that they represent many fine teachers of physics across the province. Congratulations, Jack and Gordon.

Scarborough Science Awards

SCARBOROUGH SCIENCE AWARDS COMPETITION.

This competition has been in operation for about 10 years and is still going strong. Every year in June, Science students from Scarborough Collegiates voluntarily compete for about \$1500 cash prizes in biology, chemistry and physics. A 1.5 hour examination in each subject (multiple choice) is given to grade 13 students, and computer marked with prizes awarded at the fall commencement exercises in each collegiate. The operation of this competition is shared by rotation among the 19 collegiates and more directly under the supervision of Mr. Don Garratt, the Science Co-ordinator for the Scarborough Board.

The financing comes from continuing solicitations by science heads from the many manufacturing firms in the area, the Scarborough Board itself, and two or three major contributors. Recognition is given to these firms who send their representatives to make the presentations at commencement exercises.

The exams, compiled by various high school vice-principals and professors from Scarborough College, are based on the Grade 13 programs and take about an hour and a half to complete. Students may take one or more of these multiple choice tests.

The object of the awards is to reward excellence of Scarborough science students and to offer challenge to high-calibre students who are often exempted from final examinations. The exams last year were written in the borough's municipal building, but in the past they have been held in the individual schools and the exams sent on to have the results tabulated.

Competition is keen among about 250 students who participate to win one of the five awards in each subject yearly. A first place award of \$150 will help when that student faces the cost of university in the fall. Although only one award can be won by a particular student, there are many who place high in all three subjects. Scarborough Award Certificates are presented to the top 20 in each subject.

For further information, contact Don Garratt at the Scarborough Board of Education, 140 Borough Drive, Scarborough, Ontario, M1P 4N6.

George Kelly

AAPT Apparatus Competition

APPARATUS COMPETITION - 1982

The thirteenth biennial Apparatus Competition is scheduled for the AAPT 1982 Summer Meeting in Ashland, Oregon. The informal atmosphere of the summer meeting will allow entrants to utilize some of the support facilities of the host institution and will encourage substantial communication (and hands-on experience) in regard to the apparatus entered.

Apparatus entered in the competition should be

1. Either new in design or a modification of existing apparatus;
2. Not commercially available;
3. Not described in a previous written publication.

The apparatus may be set up by the participant (or an attending colleague) or may be shipped to Ashland and assembled by members of the Apparatus Committee.

Judges chosen for the competition will make awards in both entry divisions: (1) Pre-college (open to pre-college teachers only), and (2) College (pre-college teachers excluded). Award winners who are able to be present will be recognized at the evening demonstration program of the summer meeting. The following prizes will accompany awards given by the judges in each of the two divisions:

First prize - \$300.00
Second prize - \$200.00
Third prize - \$100.00

At the discretion of the judges, all three awards are not necessarily given in each Division.

A short manuscript must be submitted when entering. The manuscript should include a brief account of the use of the apparatus and a description of the apparatus complete enough to enable others to duplicate the apparatus. It should be written with publication in mind and be preceded by a 100-200 word abstract. All manuscripts describing apparatus accepted for the competition will be published in an AAPT occasional publication and abstracts of the winning apparatus will be published in the AJP.

The deadline for entering the competition is April 1, 1982. Send application, complete with manuscript to the Competition Director: R.W. Peterson, Department of Physics, Bethel College, 3900 Bethel Drive, St. Paul, MN 55112. For further information, contact Ernie McFarland, Chairman, AAPT Apparatus Committee, Dept of Physics, University of Guelph, Guelph, N1G 2W1 (519-824-4120-ext 2261)

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Star Gazing

STAR GAZING IN WINTER by Doug Cunningham

By mid-February at 9:00 PM one of the most striking and splendid constellations approaches the meridian. Orion, known variously as the Hunter, Giant, and Warrior, lies partly within the Milky Way and extends on both sides of the celestial equator thus affording visibility to all continents. It is not surprising then that many cultures have contributed to the mythology of Orion. Most renditions of this mythological figure's astirism picture him bravely facing the charge of Taurus the Bull, with a lion skin shield held high on one arm and a threatening, raised club in the other hand. Attached to his narrow waist belt is the nebulous gleam of his sword, while behind him, dutifully following, are his two dogs - represented by the additional Constellations of Canis Major and Canis Minor. The sword blade centres around the multiple star system, Theta Orionis, which, if you have access to a telescope of any aperture, will treat you to a celestial vista of such splendor that words sometimes fail to express the grandeur. The region around Theta Orionis is home to the Great Orion Nebula. This grand stellar nursery is some 1900 light years away, extends 30 light years in diameter and contains enough "star stuff" to produce 10,000 stars like our sun. This nebula of interstellar gas and dust shines by the green light of OIII fluorescence initiated by the UV radiation emanating from Theta and has delighted and inspired many astronomers. Consider the description of G.P. Serviss:

"...stars apparently completed, shining like gems just dropped from the hand of the polisher, and around them are masses, and eddies, and currents, and swirls of nebulous matter yet to be condensed, compacted, and constructed into suns."

In large amateur telescopes, the central regions of the nebula reveal a wealth of detail - Theta Orionis is resolved into 4 sparkling components (called the Trapezium) and the surrounding regions contain delicate streams, slender filaments, dynamic swirls and dark globules. In some instances, a slight hint of pink colour in addition to green is sensed. No wonder that Mary Proctor in her book "Evenings with the Stars" describes this nebula as

"Isles of light and silvery streams, and gloomy gulfs of mystic shade."

During these winter months, observers of the superior planets, Mars, Jupiter and Saturn will have to wait until late evening or early morning for their views of these planets. Mars will be found in the Constellation Virgo near 1 magnitude Spica; Jupiter will be found in the Constellation Libra, and Saturn will be found in Virgo, near Mars and Spica. The waning gibbous moon in its easterly journey about the earth will make close approaches to these planets resulting in a number of fine apparitions for those budding astrophotographers. There will be two major meteor showers of note - the best of these is the Quadrantid shower with 40 meteors per hour and they are best observed during the early morning hours of Sunday, January 3. The Lyrid shower lacks the strength of the Quadrantid, but the 15 meteors per hour are best observed after midnight on Thursday, April 22. Clear Skies and Good Observing!

JANUARY

- Sun. Jan. 3 : First quarter moon
Quadrantid meteors (40 per hour, best observed during the early morning hours of Sunday)
- Sat. Jan. 9 : Mercury 5° S of Venus
Full Moon (The Old Man)
- Fri. Jan. 15 : Mars 3° S of the moon
- Sat. Jan. 16 : Mercury at greatest eastern elongation
Saturn 3° S of the moon
Last quarter moon

- Sun. Jan. 17 : Jupiter 4° S of the moon
- Mon. Jan. 25 : New moon
Partial eclipse of the sun visible from New Zealand

FEBRUARY

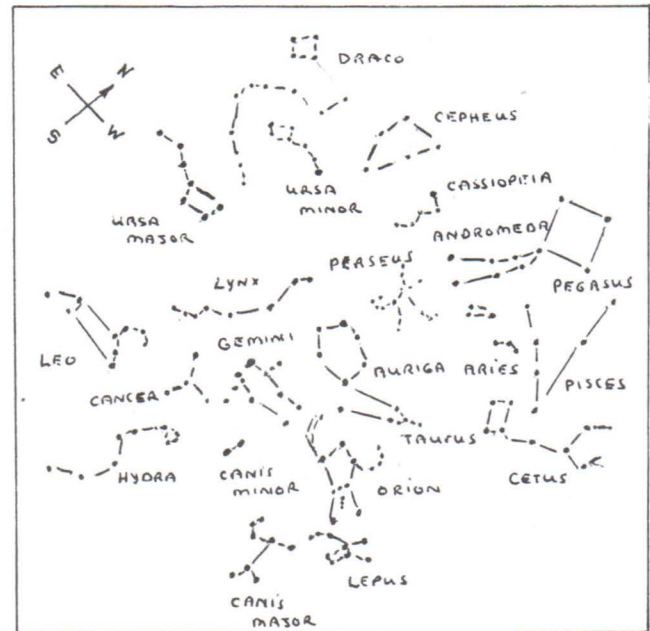
- Mon. Feb. 1 : First quarter moon
- Mon. Feb. 8 : Full moon (The Wolf Moon)
- Fri. Feb. 12 : Mars 2° S of the moon
Saturn 3° S of the moon
- Sun. Feb. 13 : Jupiter 4° S of the moon
- Mon. Feb. 15 : Last quarter moon
- Sat. Feb. 20 : Venus 7° N of the moon
- Sun. Feb. 21 : Mercury 2° N of the moon
- Tues. Feb. 23 : New moon
- Thur. Feb. 25 : Venus at greatest brilliancy (-4.3°)
- Fri. Feb. 26 : Mercury at greatest western elongation

MARCH

- Tues. Mar. 2 : First quarter moon
- Tues. Mar. 9 : Full moon (The Sap Moon)
- Thur. Mar. 11 : Mars 2° S of the moon
- Fri. Mar. 12 : Saturn 3° S of the moon
- Sat. Mar. 13 : Jupiter 4° S of the moon
- Wed. Mar. 17 : Last quarter moon
- Sat. Mar. 20 : At 22^h 56^m U.T. spring begins - Vernal Equinox
- Sun. Mar. 21 : Venus 5° N of the moon
- Wed. Mar. 24 : Mercury 2° N of the moon
- Thur. Mar. 25 : New moon

APRIL

- Thur. Apr. 1 : First quarter moon
Venus at greatest western elongation
- Mon. Apr. 5 : Mars at -1.0° makes its closest approach
- Wed. Apr. 7 : Mars 2° S of the moon
- Thur. Apr. 8 : Full moon (The Egg Moon)
Saturn 2° S of the moon
- Fri. Apr. 9 : Jupiter 3° S of the moon
- Fri. Apr. 16 : Last quarter moon
- Tues. Apr. 20 : Venus 4° N of the moon
- Thur. Apr. 22 : Lyrid meteors (15 meteors per hour - best observed in the early morning hours of Thursday)
- Fri. Apr. 23 : New moon
- Fri. Apr. 30 : First quarter



The Constellations - Early February 9PM

Coming events

Eastern Ontario Science Council and STAO sponsor a seminar on MICROCOMPUTERS IN SCIENCE EDUCATION April 2 & 3, 1982. Cost is \$25.00 including lunch and banquet.

Contact Peter Aci, Smith Falls District C.I., 2 Gould Street, Smith Falls, Ontario, L7A 2S5. Phone 613-283-0288.

University of Waterloo - Saturday Seminar
April 17, 10 AM to 4 PM at U of W.

TEACHING GENERAL LEVEL STUDENTS IN GRADES 11 & 12
A "how I do it" sharing session for biology, chemistry and physics. If you are willing to contribute, contact Reg Friesen at U of W, 416-885-1212, ext 2505. Registration inquiries should also be directed to Reg. Cost will be less than \$10.00 including lunch.

Sir Issac Newton (SIN) Test
Thursday, May 6, 1982

Contact P.C. Eastman, Dept of Physics, University of Waterloo, Waterloo, Ontario, N2Z 3G1 or phone 519-885-1212, Ext 2237.

Ontario Section Meeting
JUNE 17-19, 1982, U of WO, 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

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Do not underestimate the educational value of decorating a classroom with posters. High school teachers, and especially university teachers, think that this is for elementary schools only and that students will not learn unless the teacher teaches him. This is not so. Idle moments before, during and at the end of class can be of more value if the teacher has provided something of educational value to look at.

J. Weston Walsh has published many fine series of posters for physics teachers. The latest, GREAT PHYSICISTS, is the best of them all. The twelve posters illustrate physicists from Aristotle to Oppenheimer in caricature. Two colours are used on heavy, glossy white paper 28 cm x 35.6 cm. Five clues on each poster try to lead the student to the identity of the physicist. A large introduction suggests four different ways to use the poster series. There is an annotated list of references and an extensive answer key. Five supplementary questions are provided for use with each poster. All of these together make the poster set a complete and invaluable learning aid.

And now Professor X, you have exactly what you need to dress up that hallway display case.

Why Publish?

Educational journals are the life blood of the true professional. Here he finds the new directions that education is moving. Ideas are presented which he might adopt or they can generate a critical self-examination of his own teaching practice. The information shared in journals can reduce the duplication of effort that plagues our profession.

The educators who write for these journals are often classroom teachers just like you. They feel comfortable about sharing what they do in their classrooms with the rest of their profession. Their work reflects well on their board, their school, their profession and themselves. There is no doubt that publishing contributes much to a personal resume too.

For the physics teacher there are several journals in which to publish: The Crucible, The Physics Teacher, and Phys 13 News. Obtain a copy of the journal and then write for their "information for contributors". Tell them what your idea is and they will tell you if their journal is appropriate. What they send you will tell you how to prepare your submission in the correct format. It is usually quite an easy thing to do. Be sure to have your paper read by a colleague or two before you send it away.

If you have ever given a paper at an AAPT Conference or a STAO Conference, this might be the subject for your first publication. When you have done it once, it becomes quite easy. You could start by doing a review of a new text or other learning aid (which you often get to keep). Other ideas include equipment notes, favourite demonstrations, evaluation techniques, locally designed units, field trips, worksheets, puzzles, instructional designs, student projects and worksheets, motivators, interest grabbers, science club activities and so on.

Your product does not have to be perfect. Gauss did not publish many of his discoveries because he always wanted to polish them just a little more before showing them to his colleagues. He was only credited with a few discoveries as his own.

Your product does not need to be extensive. Short notes and descriptions are valuable.

Your product does not need a research background. It is not necessary to do deep researches of the literature for all possible past references. It only has to be something that works.

So stay an extra hour after school some day to write down something you do that might be of value to others. Share your professionalism with your colleagues.

OSC Science School

Ontario Science Centre Science School

This new school will offer enrichment science programs for grade 13 students. Enrollment will be limited to 25 students. In one semester, students will study chemistry, physics, biology and algebra. The Science Centre will be the classroom. All resources will be available. For information and application, contact Charles Cohen, OSC; phone 416-429-4100, ext 161.

Physics News in 82

This is a 120 page booklet edited by Phillip Schewe and distributed by AIP, 335 East 45th Street, NY, NY 10014. US \$2.00 prepaid. This publication contains 63 articles on 11 major topics in physics.