American Association of Physics Teachers

AAPT Ontario Section NEWSLETTER

Vol III,No 3, May 1982
Editor: Gordon G. McKye

Ontario Section Annual Conference June 17—19, 1982

University of Western Ontario Campus, London, Ont

The 1982 Annual Conference of the AAPT Ontario Section is fast approaching. The conference this year will be from June 17-19 at the University of Western Ontario Campus in London, Ontario. Professor Dean Gaily of the Physics Department of U of W (also 1982-83 AAPT Ontario Vice-President) is handling the registration and arrangements on site. Current Vice-President (and 1982-83 AAPT Ontario President) George Kelly is the conference organizer. The conference will continue the very successful pattern of short consecutive papers with a mixture of invited guests and participants contributing. We are very pleased to have Professor Eric Rogers (of PSSC film fame - Coulomb's Law) with us to both bring the banquet address and present an additional paper. Professor Rogers is coming for the duration of the conference so you will have plenty of time to chat with him. In addition there will be other invited papers by Don Wood, John Vanderkooy and Brian Kaye. The complete program of the conference will be included in the regular mailing of this newsletter; however, if you do not get one, please write or phone George Kelly, Lester B. Pearson Collegiate Institute, 150 Tapscott Road, Aqincourt, Ontario, M1B 2L2, 416-292-0101.

You will find background information on the invited guest speakers contained in this newsletter. We are counting on you to continue to support this annual meeting and make it the success it has been in the past.

Make plans today. Register by June 4, 1982

US Test Question Pool

Recently the national AAPT did a feasibility study concerned with the establishment of a national test question pool. The decision that resulted was positive. The pilot phase of this pool is in the area of introductory calculus based physics. If deemed successful, the project will expand into other areas.

A coordinator was recently appointed for this part of the project and, together with an advisory board, will conduct this first phase over a two-year period.

AAPT-Ontario is pleased and proud that one of our members, Doug Fox, participated in the original study and has further been appointed to the three-member advisory board overseeing the project.

AAPT Ontario Executive 81—82

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, Lester B. Pearson Collegiate Institute, 150 Tapscott Road, Agincourt, Ontario, M1B 2L2, 416-292-0101.

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

Section Rep to National AAPT: Dean Gaily, Physics Department, University of Western Ontario, London, Ontario, N6A 3K7, 519-679-2568.

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

Background information on conference speakers

Prof. Eric M. Rogers

Eric M. Rogers is Professor of Physics at Princeton U iversity. He earned his degree in Physics and Mathematics at Cambridge U..iversity, where he worked under Lord Rutherford in the Cavendish Laboratory. Dr. Rogers has developed and taught Physics courses at Princeton for the last thirty plus years. For some years he was on the contributing staff of the Physical Science Study Committee, and more recently has been organizer for the Nuffield Foundation's O-Level Physics Teaching Project. In 1969 he was awarded the Oerstead Medal of the American Association of Physics Teachers, generally considered the highest award in the U~ited States for contributions to the teaching of Physics. His enthusiasm for Physics is well demonstrated by his splendid work in the Coulomb's law and other films used in the Grade 13 P.S.S.C. Course. We feel we are greeting an old and valued friend when we welcome Dr.Rogers to our Conference. Dr. Rogers will speak at the banquet-barbecue on the topic "Examinations -- An Influence for Good or Evil in Our Physics Courses??".

Prof. Don Woods

In 1974 McMaster engineering school undertook a major task that would reveal the keys to how to teach creativity in problem solving. In 1974 Don Woods of the Department of Chemical Engineering became a student again. He enrolled as a freshman engineering student and attended all required lectures along with his classmates. He heard what they heard; he got together for two hours each week with about a dozen of his classmates who volunteered to show how they tried to solve their assignments. Don moved with this same group through the next three years doing the same thing each year. Since he and the others graduated, Don has presented workshops on his discoveries in Europe and the U ited States and has written widely on the subject. He now publishes a problem solving newsletter which has attained a circulation of over 600. He is one of the world's leading experts on this topic. We look forward to the presentation of his pre-conference, all-day workshop on CREATIVITY on June 17th at University of Western Ontario. Don will also present a paper during the conference itself.

Dr. Brian H. Kaye

Dr. Brian H. Kaye was educated in Great Britain at the University of London, obtaining his Ph.D. in Physics in 1962. He has worked on a wide range of industrial aspects of physics. In the period 1955-1959, he worked on the atomic bomb and travelled to Australia to take part in atomic bomb trials. From 1959 to 1962, he taught physics at Nottingham and District Technical College. During this period he worked closely with the drug industry to look at problems involving the physics of tablet making and the delivery of drugs to the body. He also worked on problems of coal mining and health physics. From 1963 to 1966, he worked at the IIT Research Institute at Chicago where his investigations in fineparticle science ranged, literally, from what makes dirt stick to a carpet to the problems of designing special paints for spacecraft.

He came to Laurentian in 1968 as a Professor of Physics and enjoys teaching optics, thermo dynamics and other branches of physics. He has been actively engaged in developing liberal science options for students with such courses as cybernetics communcations, industrial science and courses on his specialty - fineparticle science. He pioneered the use of television teaching and has published over one hundred research papers.

The topic of his conference presentation will be "Delightful Discoveries of Physics in Unexpected Places".

Prof. John Vanderkooy

John was brought up in Hamilton, Ontario, the family being involved in the market garden and greenhouse business. He graduated from McMaster University in 1962 with a BSc in Engineering Physics. He went on to complete both his MSc and his PhD at McMaster. John moved to Waterloo in 1970 joining the faculty of the University of Waterloo. His research was initially in basic solid state physics but has moved in recent years to electronics and audio systems. John has many publications in this field to his credit. Professor Vanderkooy currently is active in the use of modern computer assisted techniques to analyse and improve information and sound systems.

Reporting to you...

Winter meeting — 1982 San Francisco

Although dates are set far enough in advance to rule out the possibility that the coincidence was deliberate, AAPT and the American Physical Society certainly picked a wild time to have a meeting in San Francisco. Not only was the celebration of the Chinese New Year (the Year of the Dog) in full swing, but the San Francisco 49'ers won Super Bowl XVI on the Sunday preceding the meeting, setting off a crazy celebration that lasted most of the week! Although no event in the San Francisco Hilton produced hysteria approaching that which was present in the streets, participants agreed that the 1982 Winter Meeting program presented ample opportunities for professional growth and stimulation.

In looking back on the meeting to determine highlights, my first impression that remains vivid is the heightened cooperation of the AAPT and the APS. This judgment is confirmed by an examination of which sessions were most popular; almost without exception, they were jointly sponsored sessions. Three presentations by Nobel Laureates were particularly popular. Luis Alvarez' lecture on "Asteroids and Dinosaurs" and Arthur Schawlow's Address of the Retiring APS President were examples of great teaching as well as solid physics. Schawlow's "live" demonstrations of incoherent light and the Doppler shift were certainly memorable. I.I. Rabi's Response upon receiving the Oersted Medal provided a marvelous insight about events during the "golden age" of the development of modern physics, as well as a sobering assessment of the current state of scientific research.

Several AAPT sessions were well attended. These included:

an invited session on research in physics education;
a session on new developments in astronomy (jointly sponsored by the Astronomical Society of the Pacific);
a session on research in physics education;
a session on word processing for physics teachers.

As usual, a full spectrum of pre-meeting workshops were presented. Interest in the AAPT Microcomputer Workshop remained high, and several other workshops were equally well received. One other special event deserves mention: many registrants attended an evening open house at Frank Oppenheimer's extraordinary participatory science museum, The Exploratorium.

No description of a meeting in San Francisco would be complete without some mention of the cultural and culinary experiences provided. Every evening, groups of physicists could be seen organizing dining and theatre outings. Every subsequent morning groups could be found singing the praises of this Chinese restaurant or that French restaurant. The New York delegation even managed to find a nearby delicatessen every bit as good as those in the Big Apple!

Tim Ingoldsby

AAPT Ontario Executive 82—83

In response to the call for nominations issued in the last newsletter, only one person has been nominated for each position. As a result, the positions are filled by acclamation and the executive for 1982-83 will be as follows:

President: George Kelly, Lester B. Pearson Collegiate Institute, 150 Tapscott Road, Agincourt, Ontario, M1B 2L2, 416-292-0101.

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

Vice-President: Dean Gaily, Physics Department, University of Western Ontario, London, Ontario, N6A 3K7, 519-679-2568.

Secretary-Treasurer: John Hlynialuk, Wiarton District High School, Box 580, Wiarton, Ontario, N0H 2T0, 519-534-1900.

Section Rep to National AAPT: Neves Periera, Agincourt Collegiate Institute, 2621 Midland Avenue, Agincourt, Ontario, M1S 1R6, 416-293-4137

Member-at-Large: to be announced.

Change in section fees

As most of you know very well, the AAPT (Ontario) fee structure for the past three years has been nominal. The $1.00 fee has been token and the newsletter has been supported mainly by a small profit from the annual conference. With the dramatic increase in mailing costs, that nominal fee is unsatisfactory. There are other arguments for raising the fees as well. The matter has been considered by the executive. The proposal is to raise the fees to $3.00 for 1982-83 and to $5.00 for 1983-84. According to our constitution, this decision needs the support of the membership and I will therefore ask you to respond by mail to this recommendation. One word of explanation. You will notice on the enclosed conference registration, that the fee is already set at $3.00. We have also announced the $3.00 fee in the Grade 11 test information. This has been necessary because of timing and in order to remain solvent for 1982. If, for some reason, the fee increase is turned down, it will be the task of the general meeting (at the conference) to decide how to handle the situation. One way to look at the $3.00 charge is to consider it a $1.00 membership with a $2.00 levy for mailing costs. (Blame the government!!)

Will you please return this ballot (or a copy if you want to keep Doug's facinating Star Gazing column on the back of this page). Ballots should be mailed to arrive by June 1. Mail to Gordon McKye, Etobicoke Board of Education, 1 Civic Centre Court, Etobicoke, Ontario, M9C 2B3.

The AAPT (Ontario Section) fees should be raised to $3.00 for 1982-83 and to $5.00 for 1983-84.

◯ Agree ◯ Disagree

Star Gazing

STAR GAZING by Doug Cunningham

The time was 5:30 on a cold March 14th Sunday morning as I climbed over the fence separating our backyard from our neighbour's pasture. The whole world seemed asleep -- no car lights to define the distant county roads, even our neighbour's fox hounds were silent -- only a slight breeze coupled to the crunch of the ice crystals underfoot penetrated the still morning. From the middle of the pasture, I carefully scanned the eastern sky now bathed in the first light of dawn -- yes! -- there it was! -- tiny Mercury, almost lost in the morning twilight. As my gaze swept westward, the grand planetary alignment of 1982 unfolded -- brilliant Venus just west of Mercury, then the waning gibbous moon, Jupiter, Saturn and ruddy Mars formed a fine apparition in the southwest. With all the advance publicity generated by this planetary alignment, I wondered how many people would leave the warm comfort of their beds to make their own observations -- not many I expect.

The media interest in this alignment of the planets can be traced to a 1974 book, "The Jupiter Effect", written by John Gribben and Dr. Stephen Plagemann. On March 10th, 1982, all 9 planets plus 4 bright asteroids were contained within a heliocentric sector of 95° in extent. The authors suggested that the increased tidal distortion produced by this lining up of the planets in the same sector would raise solar tides and increase solar activity. The increased solar wind resulting from the increased solar activity would interact with the earth's magnetic field and affect the rate of the earth's rotation, triggering earthquakes and upsetting traditional weather patterns. However, in a worst case scenerio, L.C. Thompson in a September, 1981, article in Sky and Telescope magazine, calculated that the tidal forces resulting from the planetary alignment are insignificant and thus effectively debunked the Jupiter Effect Hypothesis.

Although March 10 has come and gone, and the predicted dire consequences have failed to materialize, the current planetary alignment is still a splendid celestial event and well worth more than a casual glance. Tiny Mercury was the first planet to break the alignment as its swift orbital motion about the sun has carried it past the sun and into prominence in the western sky at sunset. However, during these spring months, Mars, Saturn and Jupiter will be prominent objects high in the southern sky at midnight and throughout the early morning hours. In addition, the moon, in its easterly journey about the earth, will make close approaches to these planets resulting in a number of fine apparitions. Those readers who have access to a telescope will enjoy splendid views of these planets -- from the ice caps of Mars, through the moons and surface features of Jupiter to the impressive rings of Saturn. Clear skies and good observing!

MAY

Tues., May 4 : Mars 3° S of the moon
Eta-Aquarid meteors (20 per hour, but moonlight will interfere)
Wed., May 5 : Saturn 3° S of the moon
Thur., May 6 : Jupiter 4° S of the moon
Sat., May 9 : Mercury greatest eastern elongation
Tues., May 11 : Neptune 0.3° S of the moon
Sun., May 16 : Last quarter moon
Thur., May 20 : Venus 3° N of the moon
Sun., May 23 : New moon
Sat., May 29 : First quarter moon
Mon., May 31 : Mars 5° S of the moon

JUNE

Tues., Jne 1 : Saturn 3° S of the moon
Wed., Jne 2 : Jupiter 4° S of the moon
Sun., Jne 6 : Full moon
Mon., Jne 14 : Last quarter moon
Fri., Jne 18 : Venus 2° N of the moon
Sun., Jne 20 : Mercury 1° S of the moon (occultation visible from north of North America)
Mon., Jne 21 : New moon
Summer Solstice (summer begins at 17h 23m)
Sat., Jne 26 : Mercury at greatest western elongation
Mon., Jne 28 : First quarter moon
Mars 6° S of the moon
Saturn 3° S of the moon
Wed., Jne 30 : Jupiter 4° S of the moon

JULY

Tues., Jly 6 : Full moon (The Hay Moon)
Lunar Eclipse - Visible in North America
NOTE: Moon enters penumbra 4h 22m UT
Moon enters umbra 5h 33m UT
Total eclipse begins 6h 38m UT
Middle of eclipse 7h 31m UT
Total eclipse ends 8h 24m UT
Moon leaves umbra 9h 29m UT
Moon leaves penumbra 10h 39m UT
Sat., Jly 10 : Mars 3° S of Saturn
Wed., Jly 14 : Last quarter moon
Sun., Jly 18 : Venus 0.6° N of the moon
Tues., Jly 20 : New moon
Mon., Jly 26 : Saturn 3° S of the moon
Mars 6° S of the moon
Tues., Jly 27 : Jupiter 4° S of the moon
First quarter moon
Wed., Jly 28 : S. Aquarid meteors (20 per hour)

AUGUST

Wed., Aug 4 : Full moon (Green Corn Moon)
Tues., Aug 10 : Mars 2° S of Jupiter
Thurs., Aug 12 : Last quarter moon
Perseid Meteors (best observed before moonrise at midnight -- 50 per hour)
Tues., Aug 17 : Venus 1.4° S of the moon
Thurs., Aug 19 : New moon
Fri., Aug 20 : Mercury 5° S of the moon
Sun., Aug 22 : Saturn 3° S of the moon
Tues., Aug 24 : Jupiter 4° S of the moon
Mars 6° S of the moon
Thurs., Aug 26 : First quarter moon

THE CONSTELLATIONS IN EARLY JULY