

PHYSICS DEPARTMENT

NEWSLETTER 1981

THE COLLEGE OF WOOSTER

FACULTY

Don Jacobs, Chairman

I am continuing my research on critical phenomena in binary liquid mixtures. After a very refreshing quarter leave (Spring, '79) at the University of Maryland where we did the first complete measurement on the dielectric constant anomaly in a non-polar mixture, I am concentrating on coexistence curve and heat capacity measurements in binary mixtures. By means of a Research Corporation grant I have had students work with me the summers of '80 and '81 on a computer automated system to measure the heat capacity to less than 0.1%. The time invested in constructing and interfacing the equipment to the computer will be well spent as the experiment can be continued during the year fairly easily.

Starting in the Fall of '81, I'll have another grant from the Petroleum Research Fund to investigate electric field effects in critical mixtures. I enjoy working with the students in the summer and am sure they have a better appreciation for original research as a result of their participation.

B. R. Russell

I took my study leave last year at Ohio State University. I audited some courses, studied in the library, attended colloquia, and worked for a time on a research project with a group at the Van de Graaff laboratory. The faculty and staff at Ohio State were very friendly. It was a very pleasant and refreshing experience. An incidental benefit was the opportunity to visit several times with Brent Warner '75 who is working on his PhD thesis at Ohio State now.

The difficulties in interpreting quantum mechanics continue to be a central interest in my I.S. It seems we are no nearer a consensus on some basic questions than we were twenty-five years ago..

During the latter part of the winter quarter I am taking an unscheduled leave for a heart operation. I'm hoping to be back to at least part time work during the spring quarter.

Russell Kulas

In the fall of 1979 I joined the Physics Department as an Assistant Professor. I earned my B.A. in physics from the SUNY at Buffalo while my M.S. and Ph.D. in physics are from the University of Massachusetts in Amherst. I

DEPARTMENTAL NOTES

came to Wooster from Hamden, Connecticut, where I had been on the faculty of Quinnipiac College.

My graduate research was on the theory of dilute mixtures of ^3He in superfluid ^4He . While teaching at Quinnipiac I collaborated with Michael Thorpe at Yale in theoretical studies of electronic and vibrational excitations in amorphous solids. More recently I have become interested in piezoelectric behavior of bone and related properties. Since coming to Wooster I have been establishing experiments to measure the electric polarization, thermal expansion and piezoelectric response of bone with assistance from Freshman Scholars Jeff Parker and Polly Groth and from the Faculty Development Fund.

Since coming to Wooster I have served as advisor to the Society of Physics Students and the natural science representative of the GLCA Oak Ridge Science Semester. My summers of 1980 and 1981 were spent at the NASA Lewis Research Center as a Summer Faculty Fellow.

Last year, Freshman Scholar Jennefer Macke worked with me to refurbish some of the pieces of 19th century demonstration apparatus imported after the 1901 fire. Jennifer has also translated the French demonstration manuals for the apparatus.

When I am not doing physics my attention is usually centered around family. I am married to Linda Lingenfelter, a busy mother who is also a teacher, is interested in child development and is a musician. (We share an appointment as Danforth Associates.) The older children, Elisabeth and Jonathan, who are of junior high age, are also music students and are both fond of soccer. The Kulas's celebrated the American Bicentennial by having twin boys. The celebration continues. Matthew and Benjamin spend most of their time being firefighters, cowboys or astronauts.

The past couple of years have been exciting for the physics community and for our department. Thanks to the efforts of the evaluation team described in the last newsletter, the college has returned the department to three full-time faculty members, increased our budget to provide some much needed equipment, and started to formulate plans for renovating Taylor. The renovation is long overdue and should anyone wish to help in the fund raising that will be necessary, please contact Sally Patton in the Development office.

We have also been fortunate in the past couple of years to have some friends of the department earmark donations to the College for physics which has allowed us to purchase an electromagnet so we can now do NMR, ESR, Faraday effect, Zeeman effect, etc. The physics department was also chosen as one of three departments on campus to share a Shell Undergraduate Grant. Shell came to us and decided, after an interview, to award this grant to us because of the distinction our alumni have attained and the curriculum we provide. We feel this is a real tribute to our former students! We have used this money to purchase a digital storage oscilloscope, small microcomputers to teach their interface and design (a second electronics course), a charge amplifier and also bring an outside speaker on campus. Finally, I would like to acknowledge those individuals and companies who have donated "obsolete" equipment or provided significant price reductions on new equipment. Such price reductions have allowed us to purchase equipment otherwise unattainable.

The "obsolete" equipment is usually ten to fifteen years old and very useable for our students; to give such pieces to our department greatly enhances our students access to the instrumentation needed to do experimental research in our broad physics curriculum. I would like to encourage our alumni to "keep an eye out" for us.

As a result of this equipment and a need to better prepare our students for their Senior IS projects, we have made the old Jr. IS course an Applied Math course offered in the Math department (but taught by us). The new Jr. IS is a lab course incorporating experiments from Mechanics, Electricity and Magnetism, Thermal Physics, and Optics where many of the experiments utilize several of these areas. Thus, we have experiments which better illustrate the diversity needed to investigate current physical problems.

We are constantly looking at our program and the balance between theory and experiment and invite comments from our alumni and friends.

Physics club had its first organizational meeting at Dr. Kulas' home in September. At that time, we began planning the speakers for both fall and winter quarters. Dr. B.R. Russell spoke on "Does the neutrino have mass?" and Dr. Schuele from CWRU presented a lecture on "Magnetic Bubbles." This quarter, we have many functions planned. The first three films of the Richard Feynman Film Series will be shown, and the next four films in the series will be presented spring quarter. There are five scheduled speakers this quarter:

"Searching Scientific Journals by Computer - DIALOG,"
Dr. Jacobs

"Interactions Between Spacecraft and their Charged Particle Environments," Dr. Carolyn Purvis, NASA
Lewis Research Center

"Solar Energy: Blessing or Threat?" Dr. P.L. Taylor,
Dept. of Physics, CWRU

"Cosmology," Dr. Peter Pesch, Dept. of Astronomy, CWRU

"Physics of Combustion" Douglas Dickens, Visiting
Industrial Scientist, B.F. Goodrich Co.

We are planning to have one or two speakers spring quarter. Also, the Ohio Academy of Science will be having its convention on the campus from April 24 - 26. There will be papers presented by members of the physics faculty and students.

Ann Mowery
President, Physics Club

ALUMNI

Richard and Barbara Bagge
136 Bartholomew Rd.
Berwyn, PA 19312

No big changes in my life to report. I am still employed as chief engineer of WYSP (FM) Radio, Philadelphia. Barbara, my wife (Barbara Willman, 1973) is still at T.V. Guide magazine - she is an "Editorial Researcher" whose job it is to make sure the "facts" reported in the articles appearing in the magazine are really facts, thus preventing lawsuits, etc.

Class of '73

Mark K. Barr
Engelhart Hall Apt. 115-1
1915 Maple Ave.
Evanston, IL 60201

I am a graduate student in physical chemistry at Northwestern University. I have constructed an ultra-high vacuum chamber for the study of surface enhanced Raman spectroscopy of molecules adsorbed onto metal surfaces. My research gives me the opportunity to use the traditional surface techniques such as LEED, XPS, UPS, Auger, and SIMS as well as pulsed and continuous wave lasers. I find the research challenging and exciting.

Class of '78

Jim A. Bishop
2265 Palm Tree Dr.
Punta Gorda, FL 33950

I am a 74 year old retiree. I have never used my knowledge of Physics to any fruitful degree. I spent my working years in sales and management and am now living in moderate comfort here in Florida along with a large number of other Wooster graduates.

Class of '30

Bob Borland II
RR 1 Box 243
West Sunbury, PA 16061

I have been teaching high school physics since 1968. I am currently working at Richland High School in a suburb north of Pittsburgh. My wife Martha, also a 1968 Wooster graduate, and I have two children, Robby age 5, and Emily, age 3. We are residing on a five acre farmette near Butler PA, shared by several cows and pigs. My hobbies include automobile repairing (I have recently acquired a 1973 Alfa Romeo sports sedan) and choral music.

Class of '68

Bruce Bartlett
42150 US 41 Frontage Rd.
Zion, IL 60099

Work: Shure Brothers, Inc.
222 Hartrey Ave.
Evanston, IL 60204

Hi! For many years I was a studio recording engineer. I loved the work but it was hard to support a family with it. Since 1976 I've worked as a microphone development engineer, for Astatic Corp. (1976-1979) and now with Shure Brothers Inc. The job involves acoustics, electronics, mechanical design, development, and mostly research and testing. My I.S. in acoustics has been a big help, as well as a basic understanding of the physics of sound. Most interesting has been doing psychoacoustic research and writing technical articles on microphones, miking techniques, stereo imaging, and other audio-related articles for eight different publications. I've completed 3/4 of a B.S.E.E.

I have a delightful 2 year old daughter. She and my wife Joleen live in a country home just south of the Wisconsin/Illinois border. I'd enjoy hearing from other physics majors to see if they found it necessary to go into engineering, as a practical extension of physics.

Class of '70

Walter D. Carlson
1218 Hampton Dr.
Jackson, MI 49203

Not too much to report - I have lived in the Jackson, Mich., area since 1954 and since 1959 have been self-employed as a lumber salesman for the T.W. Hager

Lumber Co. of Grand Rapids. Although a physics major, I really have not used that portion of my education in my job field. My sales have been in truckload and carload shipments from all parts of the country including a great deal from both Eastern and Western Canada.

My wife Joyce and I have 3 children - Linda, a sophomore at the University of Michigan in Ann Arbor - David a junior, Mark a sophomore.

Class of '49

Jeffrey S. Close
P.O. Box 1791
Boulder, CO 80306

In June of 1979 I started working part-time for the National Telecommunications and Information Administration. NTIA advises the President on telecommunications issues.

In June of 1980 I received an M.S. degree from The University of Colorado in telecommunications. Also at that time my work status with the government changed to full-time. Much of what I do for the government is to show that it is technically possible to have more Radio and T.V. stations so that broadcast regulation can be diminished. My master's theses was on these same subjects and will be published in the coming spring by Artec House. It will be part of a text book on telecommunications.

Class of '78

Donald F. Collins
Warren Wilson College
Swannanoa, NC 28778

I'm teaching physics at Warren Wilson College, where I have been since completing my PhD back in 1970. I'm currently involved in micro-computers. We are using KIM's for data logging, and we just obtained an Apple which is being used for all areas of physics instruction. Hopefully we'll have the Apple and KIM talking to each other soon.

Class of '65

Edwin Davila
2006 Forestdale Ave.
Cleveland, OH 44109

Presently working on a Master's Degree in Education; a Juris Doctor at Cleveland State University and working full time as a Bilingual Mathematics teacher for the Cleveland public school system.

Class of '76

Chris Deibel
3704 Edmund Blvd.
Minneapolis, MN 55406

I've now been in Medical Physics for one and a half years. I am an instructor in the Department of Therapeutic Radiology, University of Minnesota Hospitals. My responsibilities are basically computer and research. I have designed the department's computer system, expanding its PDP 11/34 computer to offer many more functions and changing to the multi-user operating system RPYIIM. I have helped write a grant proposal and research paper, and have presented a work in progress report at a national meeting (RSNA, Radiological Society of North America, in Dallas, Nov. 1980). Our work involves modeling electron beam interactions with the goal of producing a treatment planning program for electron beam therapy. I also teach radiological physics to residents and technicians, calibrate equipment (weekly), and have done some patient treatment calculations. This involves a tremendous change over the last one and a half years!

Class of '64

Larry Dunlap
7011 E. Edgemont St.
Tucson, AZ 85710

Last year over 32,000 students from public and private schools attended programs and participated in activities with our Astronomy and Space Science exhibits at the Flan-drau Planetarium on the University of Arizona campus. We requested and received a \$29,000 grant from the Institute of Museum Services (Federal Dept. of Education) to help defray operating expenses of these activities for the current year.

With the cooperation of a local cable T.V. company, we brought the Voyager Saturn encounter to nearly 2,000 visitors Nov. 11-13. Our exhibits staff is working with NASA to develop a secure visitor-proof display box for our lunar sample disk which will enable visitors to examine the six lunar samples under a 10X microscope without the necessity of a guard standing over their shoulders. We have also acquired an Apple II computer which we plan to develop into an interactive exhibit in which visitors can learn "what stars are up tonight," where to find the planets, and hopefully some simulations under different gravitational field conditions.

Class of '61

Martha England
1305 Cedar Ave.
Richland, WA 99352

I finished a Master of Education in Mathematics degree this past summer.

This is the second year I've been teaching trigonometry/analytic geometry at the high school, and I greatly enjoy it, probably because there is so much applied math - or math I know the need for in the sciences. I've been teaching geometry for five years, but I don't enjoy it quite as much. I also teach one class of "consumer chemistry," which is fun.

Richard and I spend summer weekends on our sailboat (though the Columbia River is not the greatest for sailing) and our winter weekends cross-country skiing. We also both play in the local bagpipe band (a talent acquired at Wooster) and I still play cello in the Mid-Columbia Symphony. So you see, we are staying out of trouble.

Class of '72

Roger France
9405 Cherwek Dr.
Lorton, VA 22079

All aspects of life in the D.C. area continue to be both exciting and enjoyable. I was recently promoted to a computer specialist position with the Defense Logistics Agency Administrative Support Center, where I am system manager of all telecommunications software. Our two future Woosterians(?) keep our hands full - Robin is 3¹/₂, Ryan is 1¹/₂.

Mary Beth and I were recently in Wooster for the Alumni Admissions Representatives Workshop, and were very impressed with both that program and with the apparent quality of the students we encountered. Our excitement with Wooster's various offerings has been revitalized; I was particularly interested in learning more details of the 3-2 engineering program. Now I have something to tell prospective students who ask about engineering!

Class of '73

Clifford Hall
916 S. Ashland Ave.
La Grange, IL 60525

Retired from a career in meteorology and widowed. I have done a lot of traveling mainly to see scattered family members. Between the trips - volunteer work with scouts and a retirement home.

Class of '37

Bill Matt
Box 61
Henniker, NH 03242

After 12 years at New England College I finally achieved tenure in the physics department.

Last summer I attended a course in contemporary optics at the University of Rochester.

This January I look forward to teaching an intensive January term course in holography.

Otherwise our 2-person physics department continues to move along. We anticipate many more students in physics next year now that New England College's civil engineering program is professionally accredited (NEC has been accredited as a college since 1968).

Class of '63

Donald Hauelsen
Dept. of Physics and Engineering
Pacific Lutheran University
Tacoma, WA 98447

I am currently teaching at Pacific Lutheran University in Tacoma, Washington, where I have been for three and a

half years. In spite of the name, PLU is not unlike Wooster, where we emphasize undergraduate teaching and graduate students don't exist, at least in the sciences. In January I will begin an eight month leave to go to Albuquerque to work with the Air Force at Kirtland AFB in an experimental project on optical phase conjugation. This will be a continuation of work I began there over a period of two summers and an experience my whole family is looking forward to.

Class of '67

John S. Hayward
6272 Boughton Hill Rd.
Victor, NY 14564

The Physics Department at Wooster must have changed considerably since I graduated in 1953! However, I still have fond memories of the place and people who gave me my start in the exciting field of physics. I have been with Eastman Kodak since graduation, and with the Kodak Research Laboratories since 1959. It has been an outstanding company to work for!

It has been my good fortune to work on a number of exciting programs including being part of the group which developed the first CW Dye Laser in the world!

For the last five years I have been working on solid state imagers, and in general on MOS custom integrated circuit technology. I am a member of the Solid State Laboratory, and head of a group responsible for Device Testing and Analysis. It has been very satisfying to be part of the effort to develop this new technology for Eastman Kodak. One has the satisfaction of knowing that one is doing something that is making a difference.

My life has been very rich in blessings including four daughters, ages 21-26, and a 12 year old son, and of course my wife Jo who used to work in the Registrar's Office in Galpin Hall.

In closing, I would like to add that I believe the Liberal Arts education provided at Wooster was excellent preparation for dealing with life. (I used to wonder why a physicist had to study classical humanities). But I have learned that to be effective, even as a physicist, one needs a perspective which the education at Wooster helps to provide. What I mean by "perspective," is the understanding which is needed to work effectively with one's colleagues to get a job done, and then to sell the results - the new ideas, so that they can be utilized.

Class of '53

James C. Hough
25 Burnese Ave.
Mansfield, OH 44903

Forty-three years have passed since I graduated from the College of Wooster and left behind the Physics Department in which I studied and worked for four years. I have always been appreciative of the great lessons I learned there relative to the laws and forces which govern the physics of our universe in a vast multitude of ways - which can only be seen as creations of a Purposeful and Infinite Mind, even God himself. Now, after thirty-eight years of Gospel ministry (twelve years as a missionary to Brazil; twenty-six years as a pastor in the States) I retired two years ago and am residing at 25 Burnese Ave., Mansfield, OH. I cherish highly the fraternity key awarded me when I became a member of the Sigma Pi Sigma Fraternity, at the College of Wooster.

Class of '37

Curtis A. Jones
H24/141, IBM Corp.
5600 Cottle Road
San Jose, CA 95193

Glad you're working on another Physics News Letter. It's always fun to find out what's happening on campus and where classmates have gone. As for me, I'm still at IBM in San Jose. I've changed labs and offices twice within the past 15 months, but my work has remained moderately constant. It includes coil design, magnetic field measurements and maintaining a data base using APL. These are all part of exploring magnetic-bubble memories. I also find myself working on various "extracurricular projects for the library of APL workspaces. This year I'm secretary/treasurer of the Santa Clara Valley Chapter of the IEEE Magnetics Society.

Class of '64

David R. Kaiser
7 Debby Lane
Rochester, NY 14606

Left New York in August on a bicycle tour which will eventually take me around the United States (24 states

and Ontario). I am currently spending the winter months in New Orleans working for Westinghouse Elevator and planning to continue on my tour in the spring.

Class of '80

William E. Kehret
935 Begonia Ct.
Carlsbad, CA 92002

ALCYON Corp., of which I am founder and co-owner is in its 3rd year. We design and manufacture computer mass memory - Winchester disk drives and controllers and are developing a line of distributed processing systems.

High density recording techniques press on our understanding of the relevant magnetics technologies - well I remember my introduction to the vector potential as an undergraduate of Wooster!

Class of '66

William C. Kerr
1938 Faculty Dr.
Winston-Salem, NC 27106

Things have not changed much since the last newsletter. I'm still at Wake Forest University, and associate professor, teaching and doing some research. This year I've got the courses on general physics with calculus, intermediate mechanics and E. & M., and quantum mechanics. The number and quality of our students have been rising in recent years, for which we're grateful. The research work is very interesting, doing computer simulations to see if the nonlinear waves known as solitons have any relevance for the behavior of quasi-one-dimensional materials. Sandria is teaching mathematics at Winston-Salem State University and sometimes helps me write computer programs. The children continue to grow, and in a couple of years one of them will be a college student; it doesn't seem like that long since we were students!

Class of '62

Klaus Kroner
30 Putney St. PO Box 854
Leverett, MA 01054

Still teaching at the School of Engineering, University

of Massachusetts/Amherst. Spent a recent sabbatical at the University of Iceland, which was like coming home after a long absence as I had spent my teens in that country.

Class of '49

Thomas M. Magruder
298 Lenwood Dr.
Sparks, NV 89431

I'm writing because it may be interesting to see how many physics graduates have left the field.

After graduating, I went on to theological seminary and was ordained in the Episcopal Church. Later I went back for graduate work in counseling and am now doing full-time marriage and family counseling as the director of a private, non-profit agency in Reno.

I have no idea if I responded to the inquiry for news last year or not. If I did, this is probably all old news.

I've been married 22 years, have 3 teenage children.

Class of '52

John Musselman
Box 315
Red Lake, Ont. POV2M0 FJ001

I and Twila are living at Red Lake Ontario, working with a non-profit church operated mission.

Last spring a forest fire passed several miles away. Consequently we camped on an island for several days. It was an impressive sight.

This fall we were blessed with half a moose. I and a friend acquired this the second day of hunting season.

Usually I am working to improve some kind of radio or telephone communication system while my wife is selling Indian made handiercraft.

Class of '58

Robert J. Nordstrom
6941 Kilt Ct.
Worthington, OH 43085

Things have really been happening to us since we last reported to the Physics News Letter. My wife (Elaine '65)

and I are still in the Columbus area. We have moved into a larger house because our family keeps growing...3 boys now, and growing like weeds! I have left Ohio State University to begin work at Battelle Columbus Laboratory. I am doing research in high-resolution laser spectroscopy, laser induced fluorescence, and photoacoustic spectroscopy. (And to think it all started for me in the Optics Lab in the basement of Taylor Hall!)

It was a difficult decision to leave the university where I have worked since receiving my doctorate in 1974, but the research programs and future opportunities at Battelle were too persuasive. A major concern for our 8 year old son was getting OSU football tickets next year, though.

Of course we at Battelle are wondering what changes in research funding will occur with the new government administration in Washington. We will just have to wait and see what happens.

Class of '69

Charlotte M. Palmgren
167 N. McKnight Rd. No. 212
Saint Paul, MN 55119

I am currently living in St. Paul, Minnesota and doing R & D work in the Electronic Products Division at 3M Co. My current projects include developing high compatibility studies and microwave circuit design.

When not at work I've been taking advantage of the outdoors with skiing and camping.

Class of '75

H. M. Pastra-Landis
Wheaton College
Norton, MA 02766

Associate Professor, Chairman of Physics and Astronomy Department.

Class of '48

Craig L. Peebles
290 Playa Del Sur Apt-7
La Jolla, CA 92037

Just sent out a batch of letters to apply for a

faculty job. Mostly applying to Biochemistry or Molecular Biology departments. Graduated from Chicago in 1978 with PhD in Biophysics; now postdoc in John Abelson's lab at UCSD (chemistry) studying RNA splicing. I heard that Tom Steven's is out there somewhere, but I haven't been able to look him up yet. Mostly keep up on Physics from a distance via Science, Nature, Sci. Am., etc. I appreciate your efforts on this newsletter.

Class of '72

Dale L. Peebles
2218 Dartmouth Drive
Alexandria, VA 22307

I finished writing my thesis only a few weeks ago. I passed my PhD final examination (oral thesis defense) on Tuesday, February 17th and registered as a "NRC/NRL Resident Research Associate" here at the Naval Research Laboratory in Washington, D.C. on Wednesday. I will continue my work with trans-(CH)_x , a semiconducting organic polymer similar to inorganic semiconductors like Si and Ge, but with many unusual properties of its own. This is a two year "post-doctoral" appointment, so after I "catch my breath" I will begin thinking about what to do next; teaching at a place like Wooster is one possibility I have in mind.

Class of '70

John S. Redfield
246 Cluster Ave.
Akron, OH 44305

I've been working for the last three years or so as an engineer for Firestone. I currently work on the radial truck tire design and construction. In my spare time, I've been attending night classes at the University of Akron and hope to receive a master's degree this spring. (In physics, of course.)

Class of '77

Dale W. Rinehart
1420 Union Ave.
Natrona Heights, PA 15065

After 30 years with PPG industries in glass research, I retired in early 1978. Occasionally I go back for a

little consulting.

Photography is my principal hobby and we do some traveling.

Class of '37

Greg G. Seaman
40 Arthur Rd.
North Branford, CT 06471

Present position - Project Manager at Canberra Industries, Meriden, CT. Now working on a project at a specialist hospital in Saudi Arabia.

Responsible for installation and training on SIM computer system for monitoring radiations from cyclotron that produces radionuclides for cancer therapy and research.

Our company also sells to mainland China. Visited Peking, Shanghai and Canton, in November '79 on sales trip.

Class of '59

Tom C. Strickler
114 Van Winkle Grove
Berea, KY 40403

I am still continuing at Berea College as Chairman of the Physics Department. The department has shrunk, the majors have been few and far between, but things seem to be picking up again. Probably because the job situation seems to be better. Prospective majors in the freshman and sophomore class seem to be very promising. Hope you are finding the same things.

I have spent the past few summers at the Naval Surface Weapons Center in White Oak, Maryland (the old Naval Ordnance Lab). It has been a good experience as I have gotten back into the field of Health Physics again. I am looking forward to a sabbatical leave for this coming year.

Our kids (four) have all graduated from college, two are married and we now have three granddaughters. One son, and one son-in-law are mathematicians at the Oak Ridge National Lab, so we see them quite often (all the grandchildren are there). One son is a doctor, doing a residency in family practice in Anniston, Alabama. Our youngest daughter is planning graduate school in creative writing.

Class of '47

Paul R. Stauffer
2630 N. Winstel
Tucson, AZ 85716

Debby and I had an extra special Christmas present this year - a large, healthy, handsome baby boy, named Ryan Paul. This occasion topped off a very good year for us. Our free time was spent together on several memorable excursions such as a one week ski vacation in Salt Lake City, an (highly recommended) American Express tour of some very interesting locations in Mexico (we met my parents in Mexico City and continued on to Merida and Cozumel), a one week sailing adventure in the Virgin Islands and brother-in-law (he was skipper), and a quick romp through the southwest (including participation in a Long Beach wedding and water skiing with friends in beautiful Lake Powell) following my conference in Ft. Collins, CO last summer.

To satisfy my inclinations for small projects, I rebuilt part of my '67 Mustang's ailing engine and with the help of a friend, built a nice third bedroom addition onto my house and a workshed in the backyard.

While I briefly considered obtaining a PhD, my Masters in Electrical Engineering, with additional specialization in Clinical Engineering, led me into my present position (in which I'm quite happy) as Research Associate in the Radiation Oncology division of the University Hospital. Here, I provide engineering support for the hyperthermia group, mostly improving or designing and building new systems for the patient clinic. Three of my treatment systems have been implemented successfully; more are on the way. My research interests remain in the area of developing more sophisticated hyperthermia related equipment for the treatment of advanced human cancers.

As for views; I think the economy, as well as this country's foreign policy are in real sad shape. I also think the trend of the past elections - trying to choose the man who will do the country the least harm - must change. So much for fantasy.

Actually, things are going quite well for us; hope I hear the same from you all. I miss Wooster and all my old buddies, but I sure love the southwest.

Class of '75

G. Bernard Wareham
3100 Bryan Point Rd.
Accokeek, MD 20607

Retired for the second time on July 1, 1979. Living at: 361 Arlington Ave., Tice, Florida 33905 for the

winter. Will return to Accokeek, MD in May of 1981.

Class of '33

Brent Warner
Ohio State Univ. Dept. of Physics
174 W. 13th Ave.
Columbus, OH 43210

I am currently working towards a PhD in solid state physics at OSU under Dr. J.C. Garland. I am currently looking at random composites of metal and insulator. As can be easily seen, a mixture of metal and insulator that is mostly metal will act as a dielectric. As the metal content of a mixture is increased from zero, the dielectric constant increases. At a metal concentration known as the percolation fraction, the material switches over to being a conductor. Near percolation, the resistivity of the mixture is high, dropping as the concentration of metal increases. If metal concentration is plotted against dielectric constant (below percolation) and against resistivity (above percolation) the resulting graph will be similar to a plot of temperature against heat capacity in a substance undergoing a second order phase transition. According to theory, the exact form should depend only on whether the system is two dimensional, three dimensional, or whatever. I am now studying this phenomenon for conducting materials by making mixtures of KCl and silver powder. I hope to do further studies on random composites at varying temperatures and pressures, using normal metals, superconductors, and insulators.

Class of '75

Al Wasson
3713 Stoney Castle St.
Olney, MD 20832

I continue doing research in experimental neutron physics at the National Bureau of Standards in Washington, D.C. where I have been employed the past 7 years.

Class of '57

C. Bruce Wenger
191 Thornton St,
Hamden, CT 06517

I am still doing generally research in the area of thermal physiology, with particular emphasis on the effects of heat stress on the human circulation. Human beings are interesting from this point of view, because unlike panting animals, we lose almost all our heat through the skin. Therefore in heat stress, we must send large amounts of blood through the skin to be cooled. The consequent displacement of blood away from the heart makes it more difficult to refill the heart between beats, and thus limits the heart's ability to pump blood in the heat. Of course, the body has compensatory mechanisms to help it meet the challenge, and they, too, are part of my research interest. In addition, I am teaching one course at Yale Medical School, "Human Biology and Disease Processes", which is taken mostly by Epidemiology and Public Health Students. Although at first it looks as if I am not using my physics background, this is not quite true. As far as actual content goes, I do not use anything much more advanced than elementary electrical circuit theory. But the more general intellectual discipline in problem solving, and abstract and mechanistic thinking has been enormously useful. I think that this makes a good case for the value of physics in a general liberal education. The same could be said of medical school, but that definitely is a tough way to get a liberal education.

In my free time, I try to keep my house in repair, and I sing with the choir at Bethesda Lutheran Church and with the Apollo Singing Society, a Swedish male chorus.

Class of '64

Ralph Wolfstein
4447 Cromwell Ave.
Los Angeles, CA 90027

I am now, for the past two months in private practice, having joined an older doctor who has long been overworked; alone in office practice of Radiation Therapy, Nuclear Medicine and Ultrasound, and including endotherapy for patients in hospital using radium and Iridium 192 seeds. It is unusual both to combine these areas of expertise and to find this type of practice outside a hospital setting. My background in physics is, of course, helpful; but we do hire a professional physicist as a consultant.

Class of '49

William A, Voter
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Last summer I was promoted to Research Associate in the Anatomy Dept. (Duke Medical Center). My research activities include ultrastructural analysis of proteins and protein structures, mainly by electron microscopy and image analysis by optical and computer (Fourier Transform) methods.

A lot of my spare time is spent working on my house - laying new flooring and rugs, and quite a bit of painting and papering.

Class of '70

