

November, 1978

Greetings to all our alumni! This, our second physics newsletter, has been delayed in preparation, but surely old news is better than no news.

Among items of newer news we are happy to report that a visitors panel came to evaluate the physics department last spring and that their views of what needs to be done to improve the department agree quite closely with those of Dr. Donald Jacobs, our new department chairman. The administration of the college has already responded by increasing the departmental budget substantially and the Educational Policy Committee is currently considering a proposal to increase the staff from two to three, the minimum strongly recommended by the panel. The panel consisted of two alumni who were physics majors at Wooster:

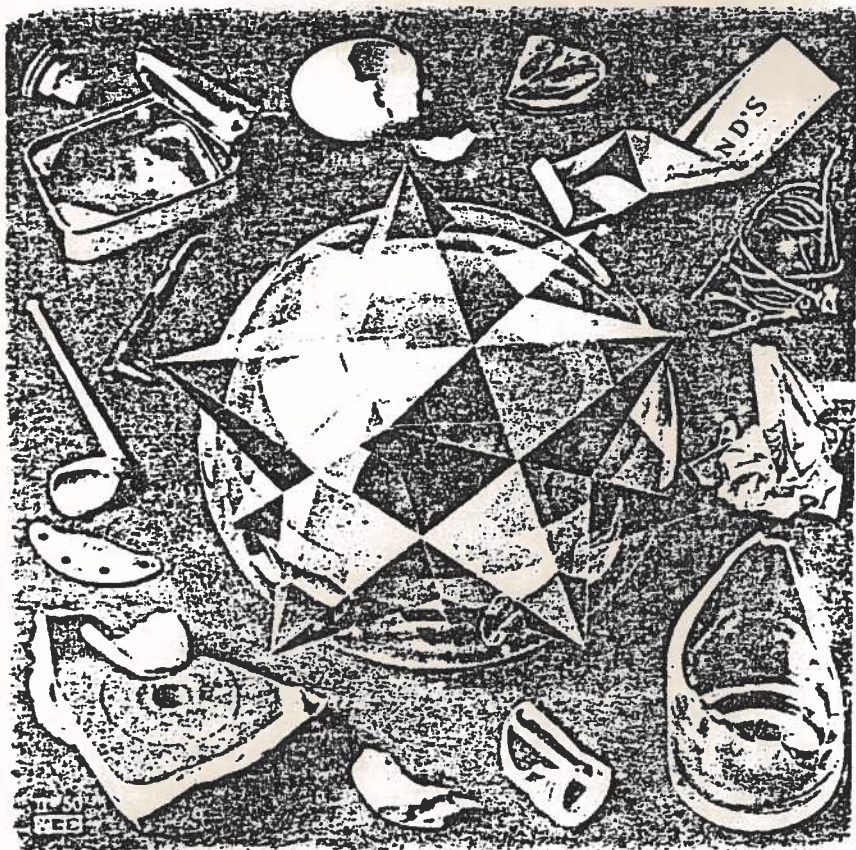
Ralph S. Wolfstein, M.D. ('49)
Los Angeles, CA, and

Dr. William C. Kerr ('62)
Wake Forest University
Winston-Salem, N.C, and

the third member and head of the panel was

Dr. Richard T. Mara
Gettysburg College
Gettysburg, Pa.

The report of the panel was received in midsummer; in his response Dr. Jacobs outlined a number of proposals for curriculum changes, equipment needs, and modifications of Taylor Hall. We would be pleased to have any suggestions



M. C. Escher, Order and Chaos. (Courtesy of Escher Foundation, Haags Gemeentemuseum, The Hague, and Vorpul Gallery, San Francisco.)

WOOSTER'S ORIGIN
DEVELOPMENT OF PHYSICS
THE COLLEGE OF WOOSTER

you would like to make. Another way you can help out is to let us know about potential donors of new (or used) equipment. The machine shop, and the laboratories for electronics and modern physics are most in need of improvement now. Items high on our list of priorities right now are: Electromagnet, optical table, 1/2-5W laser (argon, krypton, He-Ne, etc.), computer, mass spectrometer, machine tools (band saw, end mill, lathe, shears, punch, etc.), glove box, automatic balance, recorders (strip chart, x-y, etc.), power supplies (0-400 volt dc, line voltage regulators), radioactive tracer equipment (geiger counters, scalars, proportional counters, etc.), electronic test equipment (oscilloscopes, signal generators, voltmeters, ammeters, potentiometers, oscillators, lock-in-amplifiers, etc.) optical test equipment (spectrometers, refractometers, Fabry-Perot interferometers, photomultiplier tubes, photon counters, autocorrelation spectrometer, polarimeter, optical filters, etc.).

Dr. William Kieffer of the chemistry department is teaching the non-calculus introductory physics this year. Next year he will be back teaching chemistry full-time and Dr. Russell will be on leave, so Dr. Jacobs will be the only continuing staff person next fall. There is a possibility that an experienced teacher might be invited as a leave replacement. If you know of well qualified persons recently retired or just wanting a change for one year, please tell us about them. Also keep in mind that we are going to be in the academic marketplace soon

looking for a third full-time person to teach, do experimental research, and direct experimental I.S. projects; your help in recruiting people having an appropriate background and outlook would be very much appreciated.

Curriculum changes in the offing include shifting the calculus-based introductory physics to start in the winter term instead of fall to make it possible to start the physics major sequence in the freshman year, moving the applied mathematics course (the current junior I.S. course) to the mathematics department, and collecting the laboratory work for the major sequence into a single laboratory course for the new junior I.S. The new course will come in the spring term giving the students a better opportunity to integrate the material from several courses (including mechanics), do more extensive experiments, write more complete reports, and learn to use the scientific literature as a research tool. One of the major objectives of the course is to provide a better preparation for the senior I.S. project. When the third person is added to the staff it is expected that new senior courses such as nuclear physics, particle physics, and solid state physics may be made available as student interest develops.

As always, we enjoy visiting with you and hope you will stop in to see us when you are travelling in the Wooster area.

FACULTY

Donald T. Jacobs, Chairman.

Although I did my Master's in elementary particle physics at the University of South Florida in Tampa, I decided to do my Ph.D. work on a more classical problem. While at the University of Colorado in Boulder, I worked on critical phenomena in binary fluid mixtures (two fluids which are partially miscible below a certain temperature, but above that temperature are homogeneous) and observed the first size effects in such critical systems. Here at Wooster I plan to systematically measure the effect of impurities on critical phenomena--a measurement, surprisingly enough, that has yet to be done in the 100 year history of critical phenomena. I am currently measuring the coexistence curve of a non-polar binary fluid mixture which will be of immense help in my one-quarter leave this spring when I will be measuring the dielectric constant anomaly with some colleagues at the University of Maryland.

B. R. Russell

My interests lately have been centered on quantum mechanics, particularly on attempts to clarify the interpretation of the formalism of the theory. I am looking forward to a study leave next year, probably at the University of Arizona, to catch up a bit on particle physics and electronics, and to learn more about astronomy.

STUDENTS

Edwin Davila '76

Ed's I.S. was "A Feasibility Study of a System to Cool Precision Coils". Ed completed the requirements for a teaching certificate, and at our last contact reported that he was teaching in a junior high school in Cleveland.

David K. Brown '77

David decided to take advantage of the 3-2 plan for engineering and went to Case-Western to finish his degree.

John S. Redfield '77

John's I.S. was "A Continued Feasibility Study of a Thermosiphon to Cool Precision Coils". According to our records he accepted a job with Firestone in Akron, Ohio.

Mark K. Barr '78

Mark was a chemical physics major. His I.S. project was entitled "Coexistence Curve of a Binary Fluid Mixture". Mark measured the index of refraction of a mixture of two partially miscible liquids as a function of temperature; from the index one can make accurate determinations of the concentration of each component in each of the two phases and thus obtain the coexistence curve. Theoretically the curve is fitted by a power series but previous studies showed that only the first term was needed to give a good fit

to the data. Mark was able to get very precise data and found the critical exponent β (the power of the leading term in the series) to be .326 which agreed with the current theoretical value and with other experimental values taken recently. Higher order terms did not improve the fit (to the accuracy measured).

Robert W. Courtney '78

Bob's I.S. project was to design and build a multichannel analyzer which would interface with our Altair 8800 computer. The basic functions of the circuits are to follow the pulses received from a detector such as a photomultiplier tube, hold the peak voltage of the peak first received after a cue signal, convert the value to digital form, and store the information in a computer memory location; computer programs subtract off background and output the data to a scope or to an x-y plotter. Bob was able to get most of the component systems to operate but found some difficult bugs when he put it all together. Frustrating--but educational, we hope!

Bob and Julie Buda '78 were married in September; Bob has taken a job with Hercules, Inc. in Ridgely, W. Virginia.

David L. Perout '78

David's project was on computer analysis of musical tones. A series of computer programs transfer the analog tone (wave form) into numbers with which the computer can work. This is done in a few microseconds. Once the wave numbers are in memory, the computer searches for the peaks of the wave, then performs a har-

monic analysis (Fourier analysis) to find the amplitude, phase, and percentage amplitude of the fundamental frequency for each harmonic. David studied the tones of a number of different musical instruments. He was planning to accept a teaching appointment in a high school in the Cleveland area according to our most recent information.

Jeffrey S. Close '79

Jeff took an applied physics program for his major. He finished his work this summer but his name will not appear on the official commencement list until next spring. Jeff's project was designing and building an audio console for our campus radio station WCWS-FM from scratch. The console has ten inputs, is designed for conversion to stereo in the future, and is supposed to operate as effectively as commercial equipment costing ten times as much. Jeff started this fall in the graduate program in telecommunications at the University of Colorado at Boulder.

John C. Fitch

John hopes to finish all his graduation requirements at the end of winter term. He is working now on his I.S. project; he hasn't settled on a title yet but suggests that it will probably be something like "Sound Waves in Layered Media".

FORMER FACULTY

The most recent information we have on former faculty members of the physics department is listed below.

Christopher Bounds 8 Hanover Place
Canterbury, Kent, U.K.

John Brandenberger Department of Physics
Lawrence University
Appleton, WI. 54911

Victor Chiu Department of Math
and Physics
Indiana Central U.
Indianapolis, Id.
46227

David Elwell Department of Agri-
cultural Engineering
OARDC
Wooster, Ohio 44691

P.G. Koontz 1424 46th
Los Alamos, N.M.
87544

Ian MacFarlane Science Department
Cottey College
Nevada, Mo. 64772

Jack Munsee

Department of Physics
and Astronomy
California State Univ.,
Long Beach
Long Beach, Cal. 90840

Stanley Shepherd

Physics Department
Pennsylvania State Univ.
University Park, Pa.
16802

R.G. Stephenson

Dr. Stephenson retired
in the spring of 1972
and moved to St. Johns,
Newfoundland where he
died early in 1973 of
a rare disease known
as amyotrophic lateral
sclerosis. An obituary
notice appeared in
Physics Today, 26, #10,
73 (1973).

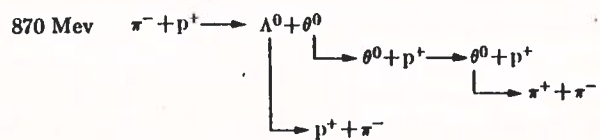
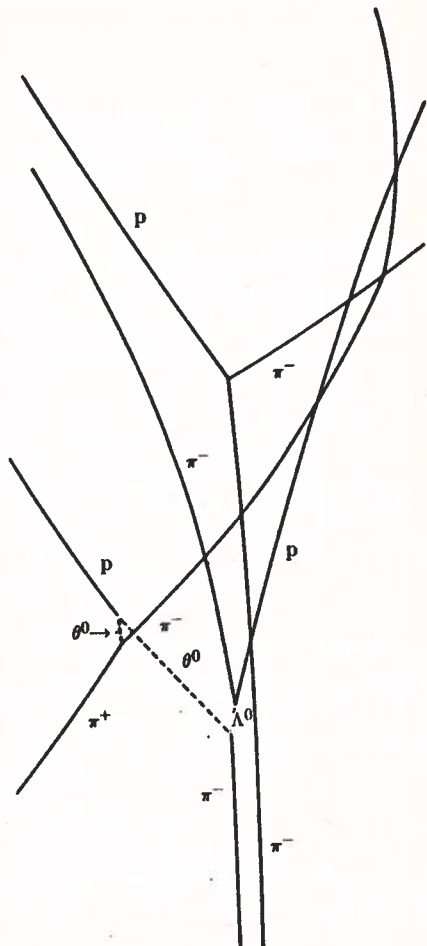
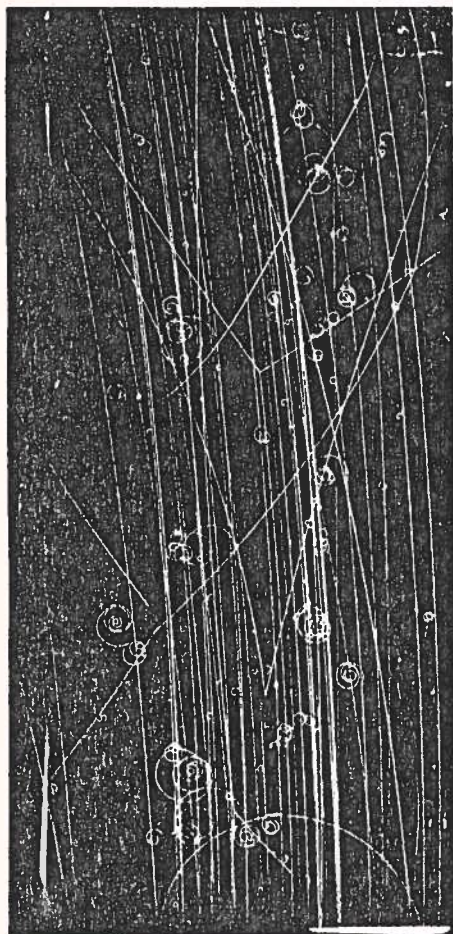
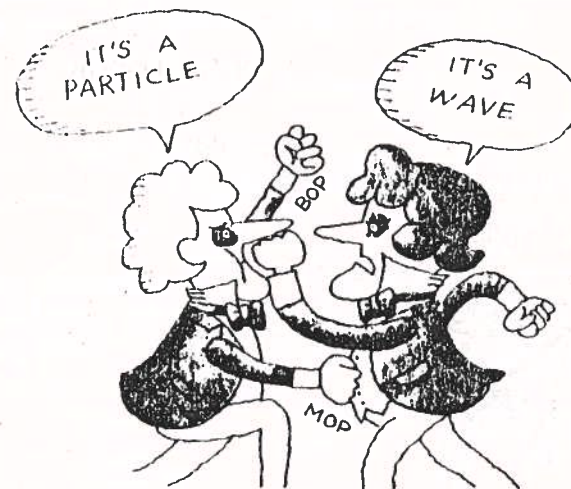
William Trimmer

Singer Corporate Re-
search and Development
Laboratory
286 Eldridge Road
Fairfield, N.J. 07006

C. Bruce Wenger

Dept. of Epidemiology
and Public Health
Yale University School
of Medicine
New Haven, Ct. 06520

Raymond Wise

 Department of Physics
 Heidelberg College
 Tiffin, Ohio 44883

 PLATE XIV. Notice in this unusual picture the elastic collision of the θ^0 with a proton in the hydrogen bubble chamber.


ALUMNI

Larry I. Amstutz
24 W. Rosemont Ave.
Alexandria, Va. 22301

I am employed by the U.S. Army
Mobility Equipment Research and Develop-
ment Command at Fort Belvoir Virginia
working on electric power supplies.

Class of '63

H. Leroy Barger
Oak Hill Rd. RR7
Wooster, Oh. 44691

Class of '55

Gerald R. Calkin
Stateland Rt. 10
Richmond, Ky. 40475

(Jerry's wife writes): Jerry is
still coaching the men's gymnastics team
and teaching Kinesiology, Mechanical
Analysis of Motion and gymnastics as an
associate professor in the department of
Physical Education at Eastern Kentucky
University.



An echo in the mountains of Germany.

Jerry continues to be active in the National Gymnastics Biomechanics Task Force. This November he will present a paper on Twisting Mechanics at the United States Gymnastics Federation Coaches Congress in Dallas.

Class of '61

Donald F. Collins
Physics Department
Warren Wilson College
Swannanoa, N.C. 28778

Publication: "Observation of Rayleigh Scattering and Airglow". American Journal of Physics, V. 44, p. 244-247 (March, 1976). Ph.D., Carnegie-Mellon University, 1970.

Class of '65

Donald B. Comin, M.D.
2601 Skyline Blvd.
LaCrosse, Wi. 56401

Practicing Internal Medicine in Multispecialty clinic in LaCrosse, Wisconsin.

Houseboating up and down the Mississippi River on time off.

Class of '59

John Eby
22 Chattanooga Rd.
Ipswich, Ma. 01938

Class of '54

Jack Fanselow
2460 Tanoble Drive
Altadena, Ca. 91001

Physicist, Cal Tech Propulsion Lab
Pasadena, California.

Class of '60

Donald J. Fluke
2703 Sevier St.
Durham, N.C. 27705

Class of '47

Roger W. France
9405 Cherwek Dr.
Lorton, Va. 22079

Now living at 9405 Cherwek Dr., Lorton, Va. with my wife MaryBeth and dog Rufus. I'm working at Cameron Station in Alexandria on designing the new DFAMS project for the Defense Fuels Supply Center and enjoying this place very much.

George A. Fryburg
34613 Center Ridge Road
North Ridgeville, Oh. 44039

Finishing up at Case Western Reserve on my Masters program. Trying to write a thesis in time to get finished for January graduation ('77). On the side (in my spare time???) I'm working part time as the Varsity soccer coach at Old Trail High School in Bath, Ohio.

Class of '74

Robert H. Gould
1 Berkshire Dr.
Dryden, N.Y. 13053

Class of '40

Clifford D. Hall
916 S. Ashland Ave.
LaGrange, Il. 60525

Address is correct - but little else to comment on! Perhaps a physics "activity" would be just taking pride in our high school senior's electronic projects. I kept a benign eye on things but rarely helped. Also served on a couple of church and Boy Scout committees - not physics related.

Class of '37

William A Hatt
Box 81
Henniker, N.H. 03242

I continue to teach Physics and Astronomy at New England College. Last year I taught a particularly successful January term on Holography. I have just negotiated a contract with ERDA (Energy Research and Development Administration) to give "Citizen's Workshops" throughout New Hampshire and Vermont. These workshops are lectures on energy and the environment utilizing an analogue computer with which the audiences can interact.

Class of '63

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

I am entering the third year of pastoring the Park United Methodist Church (1976), a congregation of some 566 members. This is my 37th year of combined pastoral and missionary service- 26 years as pastor and 11 years (1950-1960) missionary to Brazil , South America.

Class of '37

Curtis A. Jones
199 S. 16th St.
San Jose, Ca. 95112

Measuring dynamics of magnetic bubbles

for IBM.

Class of '64

Tom Kirkman
2301 S. Park, Apt. 5
Madison, Wi. 53713

I am beginning my third year as a NSF Fellow while pursuing a wide range of interests in theoretical physics and chemistry. I am currently working on gauge invariance in variational calculations on molecular systems. I hope to publish a note on variable gauge atomic orbitals in J. Chem. Physics soon. I plan on taking the Preliminary Exam in the Spring so I have a lot of studying in front of me.

Class of '74

Klaus E. Kroner
69 Amherst Rd.
Leverett, Ma. 01054

Continue to teach industrial engineering at U. Of Massachusetts.

Founded a business - Energy Alternatives, Inc. two years ago, retailing wind energy, solar, and wood-burning equipment.

Class of '49

Edward N. MacAllister
1706 S. Kirkwood
Houston, Tx. 77077

No change - Account Executive - Wholesale Specialties - National Accounts area - Industrial & Consumer Business, Exxon Co., U.S.A. in Houston, Texas.

I handle Wholesale Wax sales, Affiliate sales, Specialty Products, and major oil company sales with selected accounts such as Ashland Oil, Sohio, Quaker State, Pennzoil Co., and Mobil Oil Corp.

Class of '49

Timothy J. McLinden
315 N. Walnut St.
Yellow Springs, Oh. 45387

Still teaching and coaching at Yellow Springs High School. I'm also the Athletic Director.

Class of '73

Jon Marshall
16856 Lanier Ave.
Strongsville, Oh. 44136

I am continuing to teach PSSC Physics, beginning astronomy, and two mini-courses (9 wks. each, one is a basic non-mathematical physics course, and the

other an intro/survey called Introduction to Stargazing). I'm also continuing involvement in planetarium groups, collecting more ideas and techniques but the one technique which still eludes is how to get it all done - anybody there have a similar problem?!

Daughter Jennifer has begun Kindergarten (hardly seems possible), son Jeffrey has a couple years to wait.

Class of '59

William E. Mott
13200 Foxden Dr.
Potomac, Md. 20854

Acting Director - Division of
Environmental Control Technology -
Energy Research and Development Administration, Washington, D.C. 20545.

Class of-'49

Dale L. Peebles
5528 Greene St.
Philadelphia, Pa. 19144

I am working with Dr. Alan J. Heegen here at the University of Pennsylvania. He and others have been studying electrons in systems, where the electrons can move easily only in one direction. This can lead to unusual many-body effects.

I've been with them one year and I

hope to get my Ph.D. in another two years. My wife, Linda, and I have enjoyed reading, music, talking and watching sports; all that has helped my physics too.

Class of '70

Darrell M. Scattergood
4519 137th, S.E.
Bellevue, Wa. 98006

I am still the Assistant to the Chairman of the Physics Department at the University of Washington. I am responsible for all non-academic personnel, purchasing, accounting, contract control, technical services, facilities for a \$4 M/yr. organization. I never finished Grad School in Physics - spent about 8 years in industrial research at Cornell Aero Lab & Boeing before joining U. of W. and am active in Society of Research Administrators

Class of '57

Jay G. Schreckendgust
523 County Rd. #9
Victor, N.Y. 14564

Allan Wasson
713 Stoney Co
Lney, Md

Thomas D. Strickler
114 Van Winkle Grove
Berea, Ky. 40403

Charles F. Kettering Professor of Science, and Chairman, Department of Physics at Berea College. Came to Berea after Ph.D. at Yale University in 1953 and have been here ever since except 1960-61 when I was visiting NSF Faculty Fellow at University of Wisconsin; 1965-66 when I was doing research in Health Physics at Oak Ridge National Lab ; and 1973-74 when I was a Fulbright Lecturer at The University of Sri Lanka (Ceylon).

Main interests; Electronics, holography, astronomy, radiation physics, bicycling!

Class of '47

William A. Voter
632 LaSalle St.
Durham, N.C. 27705

I am a senior research technician in the Anatomy Department at Duke Univ. I do various things including electron microscopy, (EM), EM image processing, computer programming, protein ultra-structure studies, and probably early next year small angle X-ray scattering of proteins in solution.

Class of '70

Brent Warner
Dept. of Physics
Ohio State University
174 W. 18th Ave.
Columbus, Oh. 43210

I have just finished my first year of graduate school at OSU. This summer I worked as "gopher" in a plasma research project of my advisor, Dr. Carl Nielsen. The plasma, in a chamber about 1 m. long, is created by pulsing 4000 amps through Helium at 4 torr. Spectroscopy is used to determine flow patterns of impurities added to the plasma.

In my spare time, I've been teaching an HP desk calculator with plotter how to draw astrolabes.

Class of '75

Timothy L Warner
628G Fidelity St. F
Carrboro, N.C. 27510

Currently chief engineer of WUNC (FM) at University of North Carolina at Chapel Hill.

Class of '72

O. Allan Wasson
3713 Stoney Castle St.
Olney, Md. 20832

No changes since the last Newsletter.

Class of '57

Christian Bruce Wenger
191 Thornton St.
Hamden, Ct. 06517

I got a faculty appointment this summer in the Yale University School of Medicine in the Environmental Physiology division of the Department of Epidemiology and Public Health. This is a part-time appointment; I am employed full-time by a privately endowed research foundation, spending most of my time investigating the role of the peripheral circulation in the regulation of body temperature. This fall, I will be teaching part of a course in basic physiology, biochemistry, anatomy, pathology, and medicine for public health students.

Class of '64

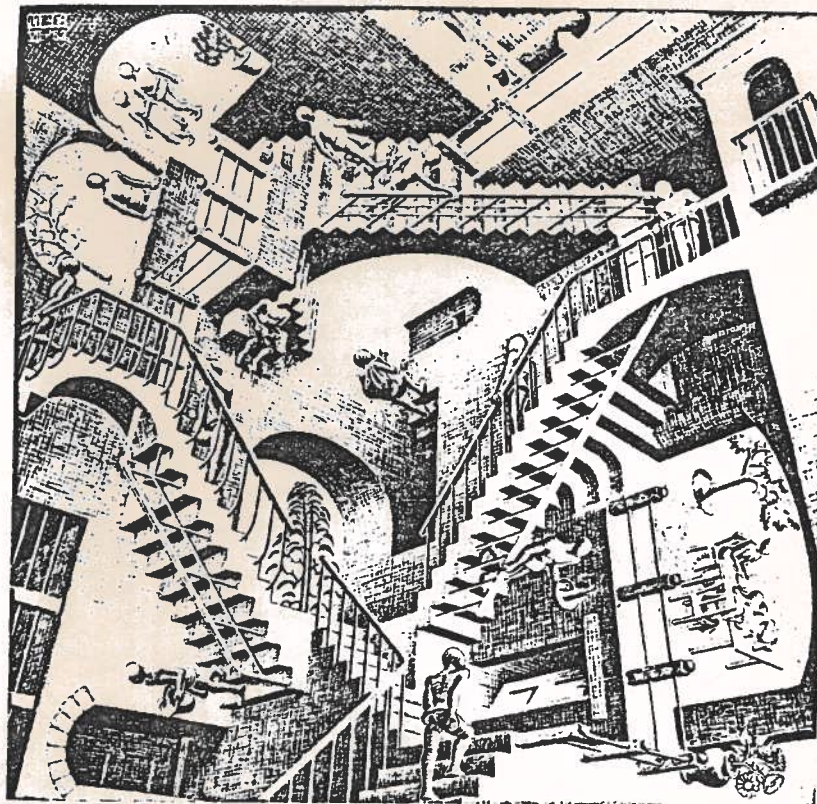


Figure 8-12
M. C. Escher, *Relativity*. (Courtesy of Escher Foundation, Haags Gemeentemuseum, the Hague, and Vorpai Gallery, San Francisco.)

