

UNC Profs Track Volcano

By FRANK BALLARD
of The Daily Tar Heel Staff

Ashes from the Tioga volcano, which erupted about 370 million years ago, are scattered over a national area estimated at several hundred thousand square miles.

But after 10 years of tracking down the ashes, UNC Geology Professor Dr. John Dennison can study maps of the eastern United States and predict within a foot the rock where the ash layer appears.

The best estimate of Tioga's exact location is in western Virginia, near Williamsville or Charlottesville. It is known that the 10 cubic miles in volume of ash thrown out by the volcano blanket an area from Ontario to Tennessee.

Patches of ash have also been uncovered as far west as Illinois.

With the Development of the Continental Drift theory it's been suggested that traces of the volcanic ash could be found in Africa or Northern Europe.

To fill in the blanks about Tioga, Dr. Dennison and two other geologists here are engaged in what he termed "the most extensive study of a Paleozoic volcano in the world in terms of time, details and difference in approaches."

The other researchers are Dr. Daniel Textoris and Dr. Paul Fullagar, assistant professors of geology. Dr. Textoris has been working on the project since 1963 and Dr. Fullagar joined it two years ago.

The three scientists met several years ago at the University of Illinois. "Now we're just lucky to be at the same campus," remarked Dr. Fullagar.

Their research is divided into two basic areas. Dr. Dennison concentrates on the field studies of the ash deposit and his co-workers test the ash's content in laboratories.

Tioga has been an elusive quarry since its ashes were first discovered in 1948 at a

natural gas well drill site in Tioga County, Pa.

"The county it was named for is about 300 miles north of where we think the volcano was," interjected Dr. Dennison, "but rock layers are always named after the area in which they're first found."

"There was a controversy as to what the unknown ash-like material was — some scientists suggested it might be from a volcano," he continued.

"Then 10 years ago this summer I started a systematic search for the ash in exposed

rock outcroppings. I learned how to find it and since then have discovered it in over 100 localities from Tennessee to Pennsylvania."

The number of localities increases each month—there's hardly a geologic trip I go on when I don't see an ash deposit."

Dr. Dennison's field work includes determining the thickness of the ash as well as its location. By gauging the ash's thickness and its coarseness, the origin of the eruption can be pinned down. "It's thickest and coarsest

near the volcano," said Dr. Dennison.

For the past four years Dr. Dennison has discovered the ash deposits they are studied in detail by associates.

Dr. Textoris examines sections of the ash ground thin enough to see light through. Besides this microscopic study, he studies individual ash particles and does x-ray and geo-chemical investigations of Tioga's deposits.

"My work is also in the laboratory," Dr. Fullagar said. "Using special chemical analyses I get an age for the

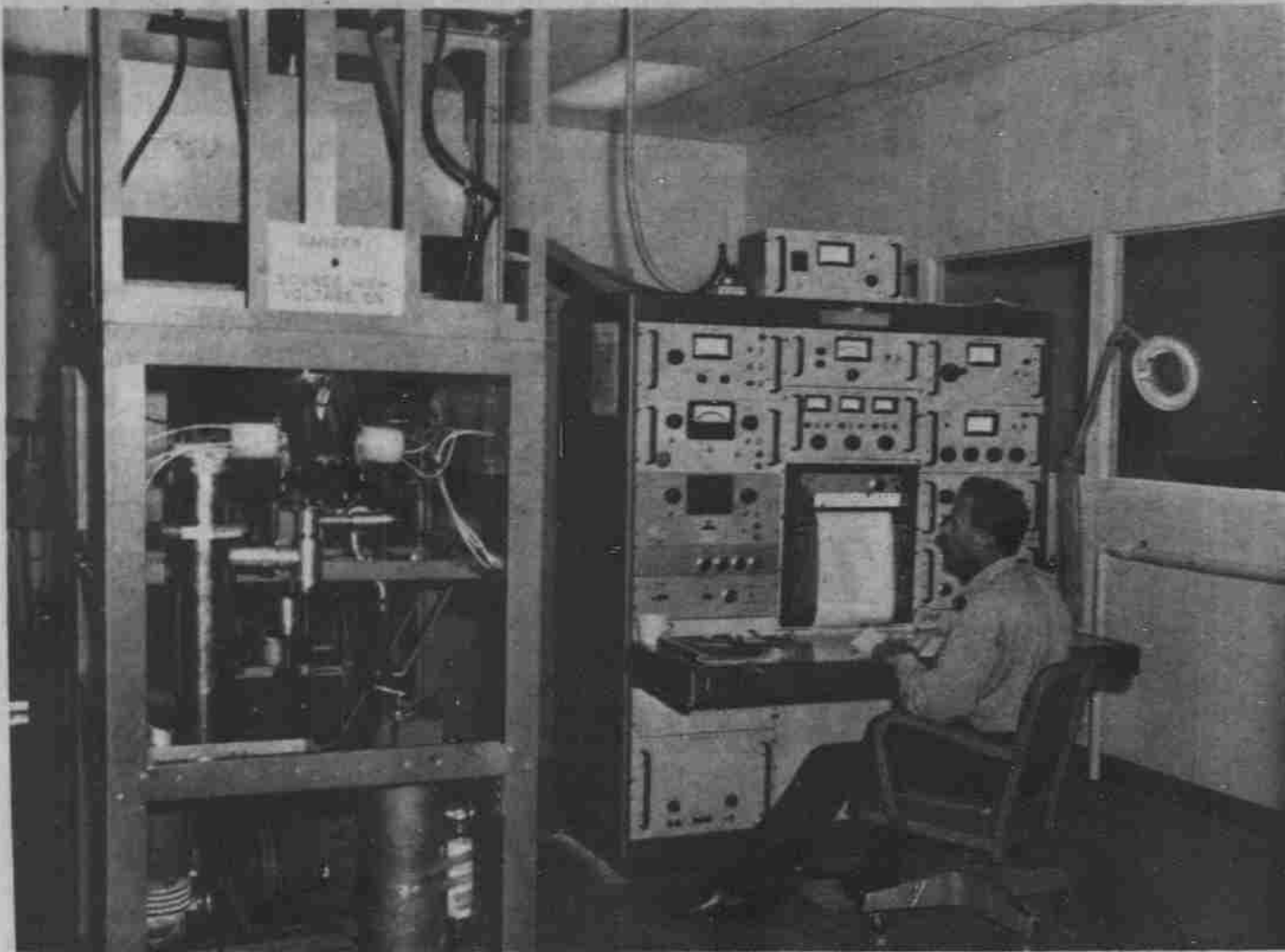
ash in terms of millions of years. It's safe to say that Tioga is about 370 million years old."

Dr. Fullagar's process is known as radio-metric dating, which is similar to the carbon 14 technique. With a mass spectrometer located at the Goddard Space Flight Center in Greenbelt, Md., he measures small quantities of the trace elements strontium and rubidium, which help determine the age of the ash.

"All Tioga's ash was dumped into the sea and we can use fossilized sea-shells to date it," Dr. Fullagar added. The dates obtained from radioactivity and fossil study help fix the time scale of organic evolution, an aid to all research in the field.

The Tioga study is an involved effort. "I suppose we're in correspondence with over 30 scientists throughout the country," estimated Dr. Fullagar.

"People have asked if the ash we study is the same volcanic material that is found near Chapel Hill. But the Chapel Hill volcanoes are about 100 million years older than Tioga."



Volcanic ash are determined at Goddard Center

... UNC Geology Dept. hopes to get a mass spectrometer like this.

Harkness Ballet Appears Thursday

The nationally celebrated Harkness Ballet of New York will be appearing at 8 p.m. Thursday in Memorial Hall.

Founded in 1964, the Ballet, under the direction of Brian MacDonald, first performed in the White House before President and Mrs. Johnson and their distinguished guests, assembled to honor Philippine President and Mrs. Dioskado Mackapagal.

Their official debut was made in 1965 in Cannes and Paris where they won widespread acclaim. The company has since appeared in 13 foreign countries on the con-

tinents of Europe, Asia, Africa and South America, before such noted celebrities as Prince Rainier and Princess Grace.

In the United States their itinerary ranges from New York to Honolulu and includes cities in 21 states and the District of Columbia.

According to Mrs. Rebekah Harkness, prime mover behind the Ballet, it is "an American company which cherishes the great traditions of classical forward into new frontiers of the dance, sponsoring and at the same time presses fresh approaches to dance techniques, choreography, musical composition and design."

Reserved seat tickets are \$3.50, \$3 and \$2 and can be obtained at Graham Memorial Student Union Information Desk.

Phi Mu Gives Magnolia

In celebration of the 116th anniversary of Phi Mu Fraternity on March 4, Gamma Lambda chapter at Chapel Hill will present a star magnolia tree to the 10-acre Elizabethan Garden on Roanoke Island.

The gift not only memorializes the three women who founded Phi Mu — Mary Dupone Lines, Mary Myrick Daniel and Martha Hardaway

Redding — but will also be a growing memorial to the 20 women who came on the fourth and final voyage of Sir Walter Raleigh to Roanoke Island.

A check for the tree has been presented to Mrs. Roy Homewood of Chapel Hill, who was president of the State Garden Club when the island's Elizabethan Garden was established in 1951.

Campus Calendar

Items for the Campus Calendar should be in the DTH office by 4 p.m. TWO days before they are to run. Items for Monday's calendar (to be run Sunday) should be in by Friday; items for Tuesday should be in by Saturday. Lost and Found will run on Saturday and Tuesday, so items should be in early.

COSMOPOLITAN Club will meet at 5:30 p.m. and hold elections at 6:30 in Lenoir Hall. Anyone interested in joining the club or becoming an officer is invited.

"RELATION OF Mathematics to Physics," second in a series of Feynman Lectures, will be delivered at 8:00 p.m. in 215 Phillips tonight.

UNC Faculty Club luncheon will have as its speaker J. Melville Broughton, candidate for governor. The Club will hold its annual business meeting and election of officers. The meeting is at noon and will be banquet style, for \$1.50.

"RELIGION in Utopia" will be discussed by Thomas Molnar, professor of French literature at Brooklyn College, at the Intercollegiate Studies Institute meeting at 7:30 p.m. in Gerrard Hall.

Lost And Found

LOST: BLACK sunglasses in black alligator case in Gardner Hall. Initials RLY on right temple piece. Reward. Call 929-3776 after 6.

PRINCIPLES of Criminology book for Soc. 190 in vicinity of Gardner 008. Reward. Call Carl Adkins at 933-3512 after 8 p.m.

WILLS and Administration book and notebook containing Carmichael Aditorium during State game. Please return to Law School or call M. Ridenhour at 942-2928.

PRESCRIPTION sunglasses in GM poolroom Thursday. Contact Bill Sawyer, 208 Grimes 968-0104. Reward.

BROWN leather pocketbook in Bingham Hall or Pine Room Wednesday. Identification in checkbook. Call Pat Patterson at 968-9171.

YELLOW soccer ball behind Morrison Tuesday night. Call Tom Stair at 968-9124.

GOLD watch on a chain and

cat's eye ring in Memorial Hall. Reward. Call Kathryn Howell at 968-9134 or Jean Blair at 968-9173.

BULOVA man's wristwatch in 103 Bingham Wednesday. Call Dan Wicks at 933-4138. Reward.

GREEN review ruled notebook. Sentimental and academic value only. Small reward. "Davidson" written on front. Call John A. Davison, Jr., at 968-5780 or bring to Wesley Foundation.

FOUND: 1966 Greensboro Page High School ring. Initials JLH. Found between here and Greensboro. Call 933-4026.

RING in ladies washroom of Caldwell basement. Call Dr. Lucia Morgan at 933-1127 or 929-6304 and identify.

YOUNG black cat in James lobby. If it's yours, call Raymond Seipp at 933-4698.



'Ah, Wilderness' Opens Wednesday at Playmakers Theatre ... tickets for Wednesday, Thursday, Monday, Tuesday still available

Help!

The Features editor of The Daily Tar Heel is in desperate need of help. Feature stories and reviews are badly needed. Please bring all contributions to The Daily Tar Heel office immediately. All copy should be triple-spaced on a 57-space line with a carbon copy. Willing reporters also needed for work on features desk.

FIRECREEK

TECHNICAL PROGRAM FROM 1965-1967 BY W

Varsity

THE NEW SCHOOL COLLEGE

is a senior college. It offers the third and fourth years of the undergraduate curriculum, leading to the B.A. degree. We accept liberal arts students who have completed the equivalent of the freshman and sophomore years elsewhere. We offer two programs—Humanities and Social Science. Half the work in each program is done in DIVISIONAL COURSES which span the traditional departmental boundaries in order to study the basic concepts, methods and principles of the larger discipline. In addition to the Divisional Sequence of courses each student works in a specialized area and engages in a tutorial leading to independent study. The program culminates in an Inter-Divisional-Senior Seminar, which examines the relationships between the disciplines of Social Science, the Humanities and the Natural Sciences.

The juniors in the Social Sciences take three Divisional (year long) courses. In the first course the emphasis is on a systematic analysis of a large (macro) social order—in this case the American culture. Readings include: Paul Goodman, *Drawing the Line*; Luckman and Berger, *Social Mobility and Personal Identity*; C. Wright Mills, selections; Parsons, *The Link Between Character and Society*; Carmichael, *What We Want*; de Tocqueville, *Democracy in America*; Santayana, *Character and Opinion in the United States*; selections from Freud and Skinner; economic analysis by Knight, Samuelson and Marx; and political analysis in the terms of Hume, Aristotle and Dewey. The second course is in micro-analysis, i.e., an examination of subcultures seen in relation to the larger community. We read Glazer and Moynihan, *Beyond the Melting Pot*; Malinowski, Kroeber, T. S. Eliot (*Notes Toward the Definition of Culture*), Weber (*The Protestant Ethic*), Erik Erikson, Malcolm X, and more readings and field work on such subcultures as the hippies, the poor and the black nationalists. The third course is concerned with comparative analysis—specifically a comparison of US-USSR, largely in terms of the social, political and economic dimensions in the process of industrialization which have taken place, east and west. The readings include case study material as well as complex conceptual analyses: Henderson, Ashton, Bendix, Nef, Moore, Schumpeter, and more. All Divisional Classes for all students are small. The major concern of the classroom is to analyze the readings. Teaching is by discussion—a systematic approach to each text.

The juniors in the Humanities also take three year long courses. Working with materials from all of the arts and philosophy these courses engage the student in various modes of critical and interpretive analysis in order to maximize the possibilities for significant discoveries in confronting the vast range of works created by man's intellect and imagination.

Here, as an example, are excerpts from last year's comprehensive examination. "The following texts all concern themselves to a greater or lesser extent with the question of human history, and the correlative question, the possibilities for progress. Choose three of the following texts and compare and contrast their treatment of these questions. *Communist Manifesto*; *Reason and Experience* (Dewey); *Structure of Scientific Revolutions* (Kuhn); *Genesis*; *Antigone*; *Caesar and Cleopatra*; *The Sound and the Fury*." "2. One factor which would seem to distinguish indisputably the modern temperament from the past is the drastically shifting conception of the heroic—not only in terms of what the heroic ideal is, but also in terms of what possibilities for heroism still exist. Discuss this quotation drawing evidence from *Job*; *Phadre*; *The Stranger*; *Hippolytus*; *Marat/Sade*; *The Balcony*; *Billiards at Half Past Nine*." "3. Using one of the following films, *8 1/2*, *Wild Strawberries*, *Last Year at Marienbad*, *The Knack*, *Ulysses*, discuss in what sense the material (i.e., cinematic technique) affects the value judgments you make of character, incident, and theme." "4. How do particular words or images control aesthetic responses in the following poems: *Leda and the Swan*, *The Lovesong of J. Alfred Prufrock*, *A Coney Island of the Mind*." "5. Compare the role of coincidence in *King Lear* and *Tom Jones*, indicating to what extent the nature of that role is determined by the tragic structure of the one and the comic structure of the other." "6. In reading both philosophy and arguments, language has been one of the most recurrent topics: Aristotle on diction in the *Poetics*, Plato on the living word, Augustine on the Word that was in the beginning, Unamuno on the birth of language in relation to the tragic sense, Wordsworth and Coleridge on the relation of language to the minds of men, Freud on verbal slips, and Heidegger, Carnap, Wittgenstein and Chomsky on philosophic issues bound up with language. Using at least four of the above, write a brief essay on language by indicating some key insight of each of the four and discussing the scope of the problem (or values) language presents us with."

We're located in Greenwich Village—coffee houses, but no football. We don't even have a gym, but only a city full of concerts and culture. And we don't operate dormitories. We don't count credits or grade points. You earn the degree when you pass all of the comprehensive examinations and have made a successful oral defense of your independent research. Our faculty is committed to teaching, our students are committed to learning. It costs \$1700 per year. If you're interested write or phone the Director of Admissions, Mr. Ralph Herrod at ORegon 5-2700, 66 West 12th Street, New York City. Fall 1968 applications are still being accepted.

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Please send me the Bulletin and application for the New School College.

I am now attending (College or University)
Name _____
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DAILY CROSSWORD

ACROSS

- To tattle
- Equipment
- Drench
- Evan
- Thick soup
- Sultan's decree
- Metallic rock
- Ship's planking
- Type measure
- Glacial ridge
- Faction
- Marry
- Tentacle
- Butts
- City in India
- Precious stone
- Days
- Office-holders
- For fear that
- Zinc: sym.
- Sloth
- Pro
- Israelites defeat site
- Shark
- Puppy
- Near: poet.
- Rabbits
- Nimble
- Mountain of Thessaly
- DOWN
- Paris stock exchange

2-20

20. Lave

21. Sub-

22. Sub-

23. Pause

24. Fascist leader

25. Lariat

26. Confederations

27. Flowering shrub

28. English wagon

29. Dread

30. Possessive pronoun

31. Vitality

32. Interrogative

33. Owns

Yesterday's Answer

PEANUTS

2-20

I WANT T' PUT TEN BOB ON A SURE THING, FLO—COULD YER OBLIGE?

Y SURE Y CAN'T LOSE?

I'M POSITIVE

ALL RIGHT, IF YER SURE

HE'S FINALLY FIGURED OUT A WAY TO BEAT THE HORSES—'E BETS TEN BOB AN' BORROWS A QUID!

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THUMB À LA MODE!

According to this publisher, many people do not realize how much they could influence others simply by remembering accurately everything they see, hear, or read. Whether in business, at social functions or even in casual conversations with new acquaintances, there are ways in which you can dominate each situation by your ability to remember.

To acquaint the readers of this paper with the easy-to-follow rules for developing skill in remembering anything you choose to remember, the publishers have printed full details of their self-training method in a new booklet, "Adventures in Memory," which will be mailed free to anyone who requests it. No obligation. Send your name, address, and zip code to: Memory Studies, 825 Diversy Pkwy., Dept. 173-612, Chicago, Ill. 60614. A postcard will do.