

Campus Police Roundup

■ At 7:50 a.m. Monday police escorted a person from Alderman Residence Hall to police headquarters, where the person was turned over to authorities from a mental institution at Camp Butner.

■ Police were called to Rosenau Hall Monday at 1:41 p.m., where a construction worker using a digging machine had severed a gas line. The gas company fixed the line without major problems.

■ An oven left on in a kitchen in Kenan Residence Hall activated the fire alarm Tuesday at 12:34 a.m.

■ The side windows were reported smashed out of two cars parked in the Crescent Lot Tuesday at 7:42 a.m.

■ Police found a cigarette machine in a resident's room in Cobb Residence Hall Tuesday at 10:07 a.m. where someone had moved it from the hallway and tried to pry it open.

■ During a class in 101 Greenlaw Tuesday at 1:57 p.m., someone slid a piece of paper covered with a malodorous substance under the door. The Health and Safety

Office identified the substance as sulfur, and the class was not interrupted.

■ Eleven lockers in the men's locker room at Fetzer Gym and one in Woollen Gym were broken into Tuesday around 3:14 p.m. Personal property with a total value of \$326 was stolen.

■ A parking deck patron did not get his ticket properly validated Tuesday at 7:27 p.m., then refused to pay the parking fee. Police assisted in making arrangements for the fee's payment.

■ Police were called to the Forest Theatre at 9:34 p.m. Tuesday to investigate suspicious persons, but found a fraternity initiation in progress.

■ Police were informed at 10:15 p.m. Tuesday that a student had not shown up for a meeting. The "missing" person notified police at 11:34 p.m. that all was well.

■ Someone sprayed several classrooms and a hallway in Davie Hall with a powder-type fire extinguisher early Wednesday morning.

—compiled by Jenny Cloninger

Theory helps give order to chaos

By ANDREW THOMPSON
Science Writer

What does a kettle coming to boil have in common with a heartbeat that becomes irregular and leads to a heart attack?

These, and many other phenomena, are examples of chaos — when an ordered system makes a qualitative leap into anarchy.

A new mathematical theory named chaos, technically referred to as non-linear dynamics, may unravel some of the underlying patterns of this anarchy.

Take the example of heating a kettle. To begin with, the movement of the liquid is regular. As the water at the bottom of the kettle heats up, it begins to rise to the top. That forces the water at the top to flow to the bottom, and the cycle repeats.

Known as convection currents, these movements can be easily modeled using conventional mathematical equations. The movement of the water can be predicted.

However, as the temperature increases to the boiling point, orderly convection currents abruptly break down. The water leaps around

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higgledy-piggledy. It's impossible to predict the position of each rising bubble.

The purpose of chaos theory is to find a regularity within the randomness, such as in turbulent water, to make a little order out of disorder.

A professor in the UNC mathematics department, Sheldon Newhouse, uses mathematical equations to model chaos.

When graphed, many of his non-linear equations display simple curves that soon degenerate into random disorder. The points on the graph where the disorder increases form the basis of another graph.

This graph displays beautiful patterns, known as "strange attractors." Consisting of loops and butterfly shapes, strange attractors are the pictorial representation of chaos. The patterns map out the points where chaos can operate.

Newhouse works with abstract equations, which initially have no direct relation to the real world. However, important parallels have been discovered between the results of imaginary mathematics and the results of experiments with fluid motions. The points at which the mathematical equations became chaotic coincided exactly with the points at which a fluid became

turbulent.

"This would indicate physical systems have the same kind of mechanisms behind the simple mathematical models," Newhouse said. Moreover, the chaos theory is necessary to understand the underlying mathematics of the fluid turbulence.

A full understanding of chaos is important for industries such as nuclear power. Pressure water reactors use a cooling system to keep the temperature of the cores down. However, the pipes in some of these cooling systems developed metal fatigue. Scientists now believe that the chaotic movement of the fluids in the pipes caused the problems.

Chaos theory has been applied to many other areas, including medicine, economics and meteorology.

The beat of a person's heart is a fundamental reassurance of life. However, in mathematical terms the heart is a fixed oscillator, and its regular periodicity can be disrupted by various forces, including body temperature and stress.

When the trace of a heart attack is analyzed it exhibits the characteristics of chaos. The regular rhythm suddenly breaks up into a more frequent and erratic pattern — fibrillation. By understanding the chaos of fibrillation, scientists may be able to predict more accurately an impending heart attack.

One of the more unpredictable man-made phenomena is the Dow

Jones average, a stock market indicator. For many years economists have attempted to predict where the Dow Jones average will stand in future months. Previously, only statistical methods have been applied. Now, some mathematicians claim that chaos theory can provide a much richer understanding.

Meteorology is another area where chaos theory may be helpful. The weather system is very complex, making it inherently difficult to predict. Peter Robinson, associate professor in the UNC geography department, argues that the theoretical limits of observing weather make it impossible to predict the climate accurately beyond about 10 days.

While chaos theory will probably not surpass this limit, Robinson said, "We may get better quality forecasts than we can ever possibly get at the moment." He added that the application of chaos theory is only speculation at the moment.

Although Newhouse hesitated to describe chaos theory as a scientific revolution, he referred to it as "a tremendous new development within the last few years."

"Scientists across a wide spectrum of disciplines now realize that certain kinds of chaotic structure are expected to occur in their fields," he said.

Scientists may be less likely to ignore results that are highly disordered, and chaos theory may even allow them to understand the patterns that underlie the chaos.

Put on your dancing shoes and head for Club Cabaret

By ELLEN THORNTON
Staff Writer

If you love to dance, but you're having trouble finding a place to do it, Club Cabaret has the answer.

Beginning this Saturday, the Cabaret in the basement of the Student Union will be a new place to dance, eat and party. The Club Cabaret, open at 9 p.m., will have a nightclub atmosphere, featuring a mix of danceable music from disc jockeys and bands playing covers. Also, refreshments will be served.

"It's an awesome idea," said junior Michele Koszarsky. "The only places to dance around here are Players and WFUN. At Players you have to be 21, and WFUN is too far away."

Four freshmen originated the idea for Club Cabaret. Dana Lumsden, Akinwale N'Gai Wright, Erik Sandstedt and Jason Kelly thought the campus needed a place where stu-

dents of all races and ages can party together.

The four students went to the Union Cabaret Committee for help. Since the Cabaret is still experimenting with various types of programs, the committee agreed to let the four have use of the club for six Friday nights after Christmas. This Saturday will be an experimental night.

"I think the Cabaret is underused," Sandstedt said. "It has the potential to be something better."

Barbara Gwynn, a lighting operator at the Cabaret, said she thought the nightclub would draw people to the Cabaret. "There has been a poor turnout for some of the things I've worked at the Cabaret," she said. "But I think this is a really good idea. Hopefully, a lot of people will try it out."

The main reason for Club Cabaret is to bring students of all races together, according to Lumsden. He said he wanted to see

a place where whites and blacks feel comfortable partying with each other.

One way to achieve a comfortable atmosphere is to offer a mix of music that appeals to everyone, Lumsden said. The club will play music ranging from soul to progressive rock, including oldies and pop singles, he said.

"The sad thing about the UNC campus is that things are all white or all black," Lumsden said. "I have friends of all different races and backgrounds, and there is nowhere for us to party together on weekends."

Sandstedt said he thought the club would help integrate the social aspects of campus life on weekends.

Another goal of Club Cabaret is to give students a place on campus to have a good time for free, Kelly said. "It's a good place to go after the parties are over," she said.

Collegium Musicum to give concert

From staff reports

The UNC Collegium Musicum will perform Nov. 18 at 8 p.m.

The Collegium Musicum is composed of 25 members, mostly students, and will be accompanied by Susan Klebanow, soprano, and David Claris, countertenor, on Friday night.

The performance, titled "A Concert of Sacred Music from Restora-

tion England," will be directed by Robert Shay, Brent Wissick and John Nadas. The musicum will include pieces by William Child, Matthew Locke, Pelham Humfrey, John Blow and Henry Purcell.

Solo performances will be given by Timothy Sparks, tenor; Ruthann McTyre, alto; Jonathan Miller, bass;

Douglas Kelly, baritone; Katherine Ogburn, soprano; and guests Claris and Klebanow.

The Collegium Musicum will be held at the Chapel of the Cross, 304 E. Franklin St., Friday at 8 p.m. Admission is free. For more information, call 962-1039.

Campus Calendar

The DTH Campus Calendar is a daily listing of University-related activities sponsored by academic departments, student services and student organizations officially recognized by the Division of Student Affairs. To appear in Campus Calendar, announcements must be submitted on the Campus Calendar form by NOON one business day before the announcement is to run. Saturday and Sunday events are printed in Friday's calendar and must be submitted on the Wednesday before the announcement is to run. Forms and a drop box are located outside the DTH office, 104 Union. Items of interest lists ongoing events from the same campus organizations and follows the same deadline schedule as Campus Calendar. Please use the same form.

Thursday

10 a.m. **Alpha Phi Omega** will sponsor a Bloodmobile until 3:30 p.m. in 211-212 Union.

12:30 p.m. **University Career Planning and Placement Services** will have a resume writing workshop in 210 Hanes.

3:15 p.m. **DELTA Squad** will meet in 209 Union. All members, counselors,

and interested students are invited to attend.

3:30 p.m. **Association of English Majors** will hold a presentation, "Career Opportunities for English Majors", in 302 Greenlaw.

UCPPS will hold a basic informational meeting for seniors and graduate students on how to use the UCPPS office in 210 Hanes. **UCPPS** will have "Researching Careers," on learning how to explore careers for freshmen and juniors, in 209 Hanes.

4:30 p.m. **UCPPS** will have an introductory session on internship basics in 306 Hanes.

5 p.m. **Association of International Students** will meet in 208-209 Union. Tonight's program will be presented by American Indians; everyone is welcome.

5:45 p.m. **Baptist Student**

Union will hold a worship service and program at the Battle House.

6 p.m. **Presbyterian Campus Ministry** will have its undergraduate dinner at the Student Center, 110 Pittsboro Street.

6:45 p.m. **IVCF North Chapter** will sponsor Thursday Night Live in 226 Union. Eddie Sartain of NCSU will speak on "Holiness." All are invited.

7 p.m. **Campus Crusade for Christ** will sponsor Thursday Night Live in 205-206 Union.

UNC College Republicans, in conjunction with Human Rights Week, will show the movie "Silent Screams" in the Union TV lounge. Afterwards, Dr. John Thorpe will speak on the rights of the unborn.

UNC Outing Club will meet in the Union.

8 p.m. **Black Cultural Center** will present the Ebony Readers in "A Walk Down 125th Street." This night of poetry, directed by Dr. Beverly Robinson, artist in residence and folklorist from UCLA, will be in the Union Cabaret.

11 p.m. **WXYC FM 89.3** will play the new album by Big Dipper, Craps in its entirety with no interruptions.

Items of Interest

Institute of Latin American Studies has canceled the Cuban documentary films and presentation by Maritza Sanchez, scheduled for 4 p.m. in 102 Abernathy.

Alliance of Black Graduate and Professional Students, the Black Cultural Center, and St. Paul's Church are conducting a food drive for Thanksgiving. Please drop off any non-perishable food items in the box at the BCC, Union, before Friday.

Duke University Talent Identification Program

Work with exceptionally bright youngsters for two three-week sessions on the Duke Campus. The Talent Identification Program has two positions open for its 1989 Summer Residential Program.

Residential Coordinator

Duties will begin in early June and end in the middle of August. Major job responsibilities include assisting in selection and training of approximately 30 RAs, directly supervising the RAs during the program, coordinating activities, and monitoring food and housing services for the 400 students on campus. Qualifications: significant counseling or teaching experience, proven administrative ability, and lots of energy and enthusiasm. BA required, further education desirable.

For more information contact Leslie Thomas, Educational Programs Coordinator Talent Identification Program, 684-3847

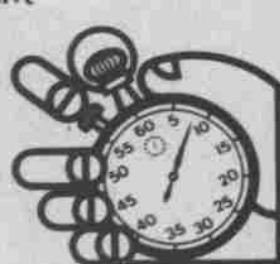
Psychological Counselor

Help extremely bright students adjust to the demanding academic and social environment of TIP. Duties will begin in mid June and end in mid August. Major responsibilities include RA training, short-term counseling, and support services for both students and staff.

Qualifications: Masters degree or graduate-level standing in counseling or a related field. Significant counseling, crisis intervention, and counseling-skills training is required. Experience with gifted adolescents desirable. High energy level and excellent interpersonal skills are a necessity.

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Pre-professional Program

The Washington International Studies Center offers summer internships with Congress, with the White House, with the media and with think tanks. Government and Journalism courses are taught by senior-level government officials, who are also scholars, and by experienced journalists. All college students with a 3.0 GPA or above are eligible.

For further information, please write or call:

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