Haverhill, Lowell, and Worcester, with the aid of sponsors from Lowell Tech and Westinghouse Electric Corporation television stations in Boston.

Dr. Jonathan Karas, visiting professor at Lowell Tech and science director of WBZ-TV, will conduct the televised competition which will be supervised by LTTE personnel. Questions used in the telecasts are provided and scored by Lowell Tech.

Finalists from 14 counties will be notified shortly, and four youngsters will engage in weekly contests to determine the two winners in each county. Winner will be the first county featured, and on successive Saturdays competition will present finalists from Suffolk, Plymouth, Norfolk, Middlesex, Essex, Hampden, Franklin, Bristol, Berkshire, and Hampshire counties. Judges and Nantucket county winners have been chosen on the basis of the preliminary written exam, and competition in the seminar contest on May 20 will precede a prior television competition.

This year’s preliminary phases have attracted 250,000 students, each of whom has been involved in grades 4 through 12, with 180,000 students participating. Top awards for the winner in Science County-Davis 1981 include a scholarship to Lowell Tech and a Westinghouse stereo home hi-fi console, and additional awards will go to each county winner. Next phase involves the final contest, May 20 or May 27 will be a portable TV table model AM-FM radio, and travel expense.
THE INQUIRING PHOTOGRAPHER

Question: Do you think LTI should be responsible for student safety?

DEAN'S PiCtURE.

The school should supply adequate housing for students. Since there exists an acute student housing shortage, students are often required to live in homes which are not suitable for studying purposes.

TREVIS DIAZ.

They said it could be done! They jeered when Galileo climbed the Leaning Tower of Pisa to drop two iron balls of unequal weight. They scoffed when Newton, that " ezzy mathematicain," and his apple dropped from a tree. They laughed when Henry M. Steinmetz announced his theory of Alternating Currents. They roared when Albert Einstein first discussed his relativity theory. But each of these scientists, who have cried "it can't be done" to each significant discovery down through the ages, lived to see his prophecy fulfilled.

Archimedes was one of the first scientists to do what Archimedes said he could do. The story is told that the people of Syracuse, King Hiero asked Archimedes to devise a device to turn the wheel. The story is told of how Archimedes wasU
ing his theory of levers and pulleys. Here he found it easy to see, all Syr
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ing hoists, attached to columns, descended the Eleon
glow and lifted the wheel.

Coper
cicus, who had the crazy notion that the earth was round and revolved around the sun, lived to see his theory come into con
tact with the field of the United States. It was a matter of fact that the earth is a sphere. Newton, who said that the earth could not have twenty followers in his lifetime. The estimate proved erroneous. Galileo had a theory that two different weights released simultaneously from an adequate height will reach the ground at the same time. The professors said this was ridiculous and decided to publicly have fun with it. The students had fun with it. It was the birth of modern mathematics.

Antoine-Laurent Lavoisier, the acknowledged Father of Modern Chemistry, died at the stake, because a few of his contemporaries scorned as "pre
discuss" and "absurd" his theory that all combustion was a
ed combustion. Another famed French scientist—Louis Pasteur—was chal
ged to risk his death for his idea. One day he was expanding his theory that bacteria come from the air. He had created a form of disease by inoculation with a mild form of that disease. When the inoculated mice died, Louis Pasteur discovered the material that killed the mice and invented the vaccine that could save lives.

Robert Fulton, the first American manufacturer, is often
ted for his boat and, according to the story, had been told, "My business is to heal, not to kill." He invented the steamboat that revolutionized the way the United States was brought together.

Charles Proteus Steinmetz was one of those few fortunate scientists who have been able to say: "We know you can do it, so go ahead and do it!" He arrived in this country broke and practically penniless. The first job he had was to learn how to thread a needle. But he couldn't do it, and he thought he was the worst th
er that ever lived. Three years later, his experiments in electric current had far surpassed the work of other men. His work had put the world on electric wheels. For example, in 1908 he discovered the way to put the electric current in a vacuum tube. This was the beginning of the electron tube, which is the basis of all modern electronic equipment.

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THE HISTORY OF PAPER

Ts'ai Lun was his name, and studying was his game. When the young Chinese scholar, in 105 A.D., became disenchanted with the writing materials then in use, he made a discovery that charged the world with "paper." Russian writer, a French wasp and an American chemist have all helped to unravel the secrets of paper-making.

If you are average, you know as 479 A.D. passed a paper in 1635, according to the U.S. Department of Commerce. Bureau of the Census. U.S. paper production last year topped 263 million tons.

While its phenomenal growth of paper products in the 20th century is apparent all around, few people know the "rags to rich" story of paper's rise to fame. How it came to be invented, a long-forgotten tale which spans thousands of years and four continents.

FROM THE MILLENIUM TRASH

Before a young Chinese scholar came on the scene in 105 A.D., primitive man had satisfied his urge for self-expression by drawing pictures on the walls of their caves, ancient Babylonians had written messages on heavy clay tablets, the Egyptians had written on thin strips of the stem of a native plant called papyrus (from which the modern word "paper" gets its root), and Persians had made parchment by splitting the skins of goats, sheep, and calves, soaking them smooth, and drying them.

The scholar Ts'ai Lun, dissatisfied with ink and bamboo writing materials then used in China, decided to go "round the mulberry bank." He pounded the bark of the mulberry plant into pulp, added water, and dried the mixture into flat sheets on which messages could be written. It was the first real paper.

The Chinese kept their paper-making formula a secret for over 600 years, but it leaked out in the year 751 when Muslim warriors learned the secret from their Chinese war prisoners.

RACE

"Ts'ai Lun's formula reached Europe around the 15th century, but by this time rags were being used for pulp instead of mulberry bark.

During the American Revolution, officers of Washington's continental army wrote on paper fragments that looked more like grooves than handwriting making communications. Where Washington was president, the shortage became so serious that Congress appealed to homeowners to save rags for paper manufacture.

Wood Pellet

Today's thriving paper industry owes a debt of gratitude to the wasp! The 18th century French chemist de Lacaze noted that the insect would rub tiny wood fibers from the tips of its legs and mix them with a secretions from its body. By drying the material formed into a thin, paper-like material from which the wasp built its nest.

"If a wasp can make paper from wood", he reasoned, "why can man?" In 1814 a German named J. J. Nobel patented the first practical method of imitating the wasp's work—a wood grinding machine in which sticks of wood were forced against a grindstone and water added.

In 1843 two Englishmen, Hugh Bennett and Charles West, developed a process for breaking down wood into fibers by chemical action. Wood was cut into chips and cooked in a caustic soda (sodium hydroxide) solution until the fibers separated. The resulting wood pulp was then made into paper.

In 1867 an American chemist, Benjamin Moses, obtained a patent on another chemical method for making wood pulp called the sulfite process. In 1869 a German named Dahl developed a chemical process in use today, the sulfate method. Wood was both chipped and autoclaved—the old problem of rod into an essential raw material had been solved.

The first major improvement over Ts'ai Lun's centuries-old method came in 1799, when a Frenchman, Nicolas Louis Robert, patented the first machine for making paper in a continuous sheet. It was a hand-made machine based on four milling principles.

Later in England a firm of London stationers, the FourCrane brothers, added improvements to Robert's invention, and to this day the paper-making section of a paper-making machine bears their name.

NEW PAPER PRODUCTS

"Talking paper" to protect against paper! Paper eggs that look and feel like china! "Paper" pails, "paper" plant pots, "paper" buckets! Paper today is contributing to the public health and welfare in ways undreamed of by the early potters in the field. They thought of paper primarily as an aid to communication—but 5% of all paper and paperboard production is now used in the production of such products! In the 19th century the U.S. Bureau of the Census estimated 80% of all paper produced was used for books, newspapers, and magazines. Today that figure is below 20%.

HE'S MAPPING NEW WAYS TO BEAT TRAFFIC JAMS IN LOGICAL SYSTEMS

Paul Farbanish analyzes the widely varied loads placed on computer systems by different applications. One of his assignments is to design new and alternate ways for data to move from unit to unit with the greatest speed and reliability.

To do his job he has become familiar with many chat long-branching areas of electronics. Within the 1401 system alone he deals with circuits, data flow control, output, storage, etc.

If a young engineer wants to move quickly to the most advanced areas of electronics, he would do well to consider IBM. In the fast expanding world of data systems and its many peripheral fields, a man is given all the responsibility he is able to handle. New ideas and new ways of doing things are not only welcome but actively encouraged.

The IBM representative will be interviewing on your campus this year. He will be glad to discuss with you the many challenging jobs that are open at IBM—whether in development, research, manufacturing or programming. Your placement office will make an appointment for you. Or you may write, outlining your background and interest to Manager of Technical Employment, IBM Corporation, Dept. 301, 590 Madison Ave., New York 22, N.Y.

As an Electric Engineer, a MacArthur Scholar, a Texas A&M graduate, a man who represents IBM, he's mapping new ways to beat traffic jams in logical systems.
"GIVE A MAN A TOUGH JOB AND A CHANCE TO GO SOMEWHERE...AND HE'LL BREAK HIS NECK TO DO IT!"

CHARLIE'S
Barber Shop
146 TEXTILE AVE.

In 1958 when Bill Ebben was only a few months away from his engineering degree at the University of Detroit, he was in touch with 15 prospective employers.

He chose the Michigan Bell Telephone Company because it was the company that offered the kind of engineering-management opportunity I wanted—and they weren't kidding.

One of Bill's first assignments was a survey of Michigan Bell's big Central offices to find out if the building space could accommodate the switching equipment required by rapid telephone growth. "I wasn't given any instructions," Bill says, "I was just told to do the job." So Bill did. His report became the guide for planning and budgeting future construction.

On his next move, Bill proved he could handle supervisory responsibility. He was sent to head up a group of seven engineers to design a new long-distance switching center for Saginaw, Michigan—a $4,000,000 engineering project.

Today, Bill is on the staff of Michigan Bell's Program Engineering. He's working on a system for mechanized control of telephone construction costs.

And Bill's his own best witness to how the "giveth and taketh" attitude of Bell pays off in happy work life.

"If you're a man like Bill Ebben, a man who can sit up a job, figure out what needs to be done, and then do it—then you should sit in touch with one of the Bell Companies. Visit your Placement Office for literature and additional information.

GIVING THE "HERE AND NOW" BONDBOOKS AND CHECKBOOKS FOR BLIND PERSONS ARE ONLY A FEW OF THE PAPER INNOVATIONS NOW ATTRACTION PAPER MANUFACTURING FROM THE AMERICAN CHECK-WRITING PUBLIC.

We now have paper mat and dresses, as the chemicals particularly pure? Perhaps. Meanwhile, we can all go on en-

Top Job Holders

Seven Presidents of the United States—Lincoln, Jefferson, Jackson, Fillmore, Buchanan, Garfield and Arthur—were born in log cabins.

Eight Presidents didn't go to college; 22 were lawyers.

Tyler was the first chief executive to be photographed. Toft the first one to play golf, and McKinley the first to have an aide.

THE HISTORY OF PAPER

Continued from Page 3

"Certainly, I don't care about the clever design. But I am impressed by the capacity of the thing."

The packaging industry has even helped launch whole new food concepts. Paul choise, staple of the diet, was a by-product selling for only a few cents a pound bill Lipton, named the dairy industry that skillful packaging could make a big seller. But the pack-

ing industry isn't keeping the story of producing new paper products. Instead, homes have now come up with a "Talking paper" for stenches which at the first touch of his stenographer, opens the word "audit" hundreds of times. A similar safeguard is built into American Express Traveller's Cheques, which recall a tell-tale canceling of the paper when tamp-

erred.

Pre-packaged travellers' cheques, letter-sized checkbooks for blind persons are only a few of the paper innovations now attracting paper manu-

facturing from the American check-writing public.

You'll find at least one paper mat and dress, as the chemicals particularly pure? Perhaps. Meanwhile, we can all go on en-

Available at your

book store

Complete Line of Dolls

GREETING CARDS
and OTHER ITEMS

HALLMARK CARDS

Also Jackets, Sweaters,
Socks, Polo Shirts,
Nightgowns and other
School Spirit Items

FREE—Nothing to buy!
MARTIN CLOTHES
Treasury Chest of M5s.
$100.00 plus $6.00 added,
daily.
Register World 102 Central St.

File—Nothing to buy!

BELL TELEPHONE COMPANIES

THE TEXT

Page Four

So You've Got Troubles?

Did you ever study material for a test and after many hours of intensive study pride yourself on knowing the material cold, only to ride into an unavoidable question, "What the professor was trying to ask in his question?"

Or did you ever get a misprint or typo in a textbook, only to be ridiculed in the class after you had passed the position in terms of the syllabus' data that was stated originally or even worse, as you were grading on the admittance of a different problem solution to any point in on the course.

Or did you ever spend about 30 or 30 minutes on answering correctly exact (3) of a two-part problem and overlook part (b) which would have been a snap requiring about 30 seconds, and find later you lost a full half credit on the problem and a two-part problem?

And to this, did you ever find yourself in the professor with tears in your eyes realizing that you had just dropped a whole better grade, some in realizing that you had just dropped as far as possible in the numerical data? Or on those MANY MORE issues, were you ever in the middle of solving problem when the problem decided whether you had an additional score, with a keen sense of hearing? And were you totally unacquainted with the phrase until the following day when you found your expected grade depressed by a mysterious 25?

Or did you ever get a real hard exam and with steadily unattainable problem, weekends into a school week, then solving half one of these problems, easily realized if you had a different test, and allow yourself your framing attempt at the end of the hour and find that the questions on last year's test and the subject of much discussion in such cruelly facetiously known the nights before, did you ever solve an exam-type question almost immediately with that of a buddy and yet only three points credit on it while your buddy got full credit, simply because the professor suspects it was you who made chalk into his blackboard craver the week before?

Or did you ever answer a problem correctly and have the professor give you only four points for it, then, when showing him later that your answer was entirely correct, did he readily agree with you and raise the score to eight out of 10 points? And to such injustice did you have to force a friendly smile and accept the grade, because an essay-type exam was coming up the next day and your faith in the professor's objectivity wasn't exactly the greatest.

Or did you ever stand in a grievance line after a poorly marked test or examine each complaint bringing the professor's patience and liberation closer to an end, and be the last one in line?

And did you ever get out of a situation with the feeling that it was the professor who des-erved the "DTP" Well, if your poor soul, with such thoughts, for you're marking a mountain out of a matchstick...what's that you say? That now your chances are for acceptance at such and such graduate school, or such and such company for employment? Don't be ridiculous—simply explain on your application that your professor was at fault.
What's it take to make the right connection?  

Plenty! Consider the problem. Western Electric manufactures the switching systems which connect 60 million Bell telephones throughout the United States. Over 200,000 electro-mechanical relay operations. All together, this interconnection process makes up the heart of what is, in effect, the world's largest machine.

That's where Western Electric and you come in. The switching equipment for this "machine" involves numerous manufacturing job carried out by one plant throughout the country. Because of the size and service requirements involved, we require quality standards for exceeding those of ordinary manufacturing. The size of this job presents an unusual challenge to the engineer who may save the Bell System many thousands of dollars by even a small cost-reduction step.

Today's switching relay for a priority connection tomorrow will be even more exciting. For even now the revolutionary Electronic Central Office is under field trial and promises to render the world of telephony. Future Western Electric engineers, working closely with their counterparts at Bell Telephone Laboratories, will concentrate heavily on developing manufacturing methods for this ECO system.

Yes, Western Electric assignments may cover many of our other responsibilities as the world's leading communications manufacturer. Perhaps you'll work on advances in microwave transmission, or even on satellite communications. Joining Western Electric may well be your right connection.
A WELL ROUNDED MAN IS A FRATERNITY MAN RUSHING FOR THE SEMESTER IS NOW UNDERWAY

Delta Kappa Phi
O Pi
Psi
Pi Lambda Phi

- Fraternity men work together for the good of their fraternity, their college, and charitable organizations
- The fraternities at L. T. I. participate in 4 organized competitive sports
- Most campus leaders are fraternity men
- Fraternity instills spirit and provides an active social life

FRATERNITY ROW
PI LAMBDA PHI

As everyone knows the 15th and 23rd of February will be the annual All-Tech Weekend. Since the fraternity houses on campus will be open to the student body Friday evening, Pi Lambda has made special plans to entertain those students who visit us to make up for the closed house on Saturday evening.

Saturday evening will be the last chance for Paul Discal. The combo will entertain the fraternity and student body until the wee hours of the morning.

O Pi

It's good to see many friendly faces for another semester's work. However, there will be several weekends and parties which all the brothers can look forward to with anticipation. There seems to be no reason why the next two months can't be very enjoyable and successful.

At the last home meeting our successful Mr. Navy turned in his resignation as Assistant Steward. Congratulations and high hopes for continued good service go to Dick Dicksoy, who has elected to replace Paul.

Also new at the house is the addition of several welcome and needed items. In the past two weeks a new floor and tiles were installed in the kitchen, and a new table and chairs, and food were acquired.

Don't forget the All-Tech Weekend coming up on Feb. 24 and 25. We welcome all freshmen on Friday night and are looking forward to a great time.

DELTA KAPPA PHI

The center of attention at DK at present is the upcoming All-Tech Weekend. With a great number of brothers planning to attend preparations are being made to make the weekend one of the real highlights of the year. As per tradition, the DK house will be putting on both the festivities at Connect Co. The brothers of Delta Kappa Phi extend a special invitation to all those attending the weekend to make the scene at 233 Fletcher St. after the final exam. It should be a real swine party.

After the All-Tech weekend, DK will be holding its rushing parties for those interested in pledging the fraternity. We hope all those interested in joining fraternities will make an effort to attend the DK parties.

News from Pi Delta

Congratulations to Mr. and Mrs. R. G. Colquhoun, the proud parents of the new addition. Where do D. J. get the TR 2??? The rumor has it that the Dean gave it to him, or maybe Circle K? Congrats to brothers Dick Muson and Tom Malie, the new house managers. Let's help keep "shipshape". Anyone desiring skilled licenses may consult Conall Paul Scolbawa, he's cheap. . . .

The rumor has it that brothers Jack Howes, Dick Lucerete, and Dick Muson are planning to tie the knot, that's what you get for getting planted . . . There cheers for the volleyball team, keep up the good work, men!

TEXTILE LUNCH
114 Textile Ave.
Full Course Dinners
including soup or sauce
Leo, Jerry Pete

TEN TEXTILE SHOE REPAIRING
114 Textile Ave.
Textile Ave.

Answers to previous quiz

2. Lawrence Owen (of Boston). - killed in a Sabena plane crash February 24, 1952.

3. St. Louis

4. Arnold Palmer

5. Mike Arocho

6. Leon Erdvins

RELATIVITY

"There was a young fellow named Pink
Who traveled very briskly,
So fast his shoes wore his socks,
The first Gentlemen construe,
He had nitro-rubbing, a rush."

"There was a young girl named Miss Bright,
Who could travel much faster than light,
She departed one day,
In an Einstein train,
And came back on the previous night.

THE MISSING LINK??

Zinjanthropus, the "smilodon" man, who lived in and near the Olduvai gorge in Tanganyika more than half a million years ago, may have disappeared from the earth many years ago or may have moved on from the site where L.S.B. Leakey of the Olduvai Museum in Kenya unearthed his remains in 1948. Leakey has now uncovered two more deposits dating to the time of this early hominid. One has yielded many broken animal bones and stone tools and flakes. In the other, Leakey has discovered fossils from a second Zinjanthropus individual, plus a curiously shaped bone tool, pointed at one end and squashed off at the other. This would appear, Leakey notes in Nature, "to be some sort of a lekking for working tools..." a more involved and specific use of the fossil culture than most of us would have expected.

"ZINJANTHROPIUS"

The space between the surface of the earth and the intergroove is a gigantic reheating chamber for the vacuum. This was demonstrated recently by investigators at M.I.T., who tuned the microwave output of a high-frequency oscillations of the normal cavity resonance.

"REVIEW OF THE DAY"

"IRISH"

"MISCELLANY"

"REPAIRING"