In This Issue

ABOUT OUR PRESIDENT
SPECTACULAR SPIRAL
SOLID PROPELLANTS
The shape of flight

The shapes of things that fly have always been determined by the materials they are made of. Feathers form wings that are basically alike for all birds—and membrane forms an entirely different wing for insects. It takes thousands of years, but nature improves its materials and shapes, just as technology improves the materials and shapes of aircraft. But here, the improvements in materials are so rapid that designs become obsolete almost as soon as they are functional.

Today, our aeronautical designers and missile experts work with types of materials that didn't exist just a few short years ago. Steels are probably the most important examples: United States Steel has just developed five new types of steel for the missile program. They are called “exotic” steels because they have the almost unbelievable qualities necessary for unearthly flights.

The shape and the success of our space birds depend on steel. If you would like to get facts about the wide range of career possibilities in the steel industry, write to United States Steel, Personnel Division, Room 2316, 525 William Penn Place, Pittsburgh 30, Pennsylvania.

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United States Steel
Shooting for the moon ... and beyond

General Motors positions are now available in these fields for men holding Bachelor's, Master's and Doctor's degrees: Mechanical Engineering, Electrical Engineering, Industrial Engineering, Metallurgical Engineering, Chemical Engineering, Aeronautical Engineering, Ceramic Engineering, Mathematics, Industrial Design, Physics, Chemistry, Engineering Mechanics.

The High Capacity Static Inverter, latest electronic achievement from General Motors, provides exceptionally stable and precise frequency control for power and guidance requirements of missiles and rockets.

The minds of inquiring scientists and engineers are the spark that brings the wonders of tomorrow to the threshold of today. At General Motors the sky is the limit for men who work in these and other highly specialized fields.

If you're looking for a place to develop your talent . . . and let your imagination soar, consider the opportunities in science and engineering at General Motors, working on products such as electronic components, automobiles, astronautics, diesels, inertial guidance systems, aircraft engines and equipment.

You can grow vertically and laterally in your career at GM . . . vertically through the Division where you work, and laterally through the other Divisions of the Corporation. In addition, GM offers financial assistance to employees who wish to enter or progress in postgraduate studies.

Step into a job with a real future. See your Placement Officer or write to General Motors, Salaried Personnel Placement, Personnel Staff, Detroit 2, Michigan.

GENERAL MOTORS
The Solid State Lab helps you when your idea needs a new semiconductor

The Solid State Physics Laboratory helps Westinghouse engineers exploit the rich phenomena of the solid state. Problems are solved in low temperature and semiconductor physics, and magnetic and ferroelectric materials. If an engineer’s idea requires a new kind of semiconductor, this group may be able to develop it for him. This laboratory is staffed by 27 Ph.D.’s, 4 M.S.’s, and 7 B.S. junior engineers. Here’s one way it ties in with work at operating divisions:

The Air Arm Division is now developing superminiaturized electronic systems
Our Youngwood plant is designing the new devices needed for these systems
The Solid State Physics Lab is perfecting a method for growing the dendritic material needed to make these devices

The young engineer at Westinghouse isn’t expected to know all of the answers. Our work is often too advanced for that. Each man’s work is backed up by specialists—like the men in this Solid State Physics Lab. Even tough problems are easier to solve with this kind of help.

If you’ve ambition and real ability, you can have a rewarding career with Westinghouse. Our broad product line, decentralized operations, and diversified technical assistance provide hundreds of challenging opportunities for talented engineers.

Want more information? Write to Mr. L. H. Noggle, Westinghouse Educational Dept., Ardmore & Brinton Roads, Pittsburgh 21, Pa.

YOU CAN BE SURE...IF IT’S Westinghouse
WATCH WESTINGHOUSE LUCILLE BALL-DESI ARNAZ SHOWS CBS-TV FRIDAYS

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The Rose Technic
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CREDITS

The new characters accompanying our regular features represent the artistic efforts of Miss Jackye Murphy, I. U. Medical Center, Indianapolis.

Cover Note

"Steel is basic, and the steel industry is constantly increasing its capacity to supply America's dynamic economy. In dramatic fashion, the art of Stanley Meltzoff symbolizes the engineering experience and production skills which keep the nation well ahead in the output of this vital metal. Reproduced through the courtesy of United Engineers & Constructors, Inc., of Philadelphia, Chicago and New York."

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Page 3
Dear Editors:

In the past there has been much talk about including a “Pin-Up” column in the Technic each month. I would appreciate it if you would print the following article as a feeler for student opinion on the subject.

Bob Michael

Editor’s Note: The succeeding paragraphs are Bob Michael’s opinions on this subject. What are yours?

To the Students at Rose:

In the past few years and again this year, it has been discussed by various students that the Technic should include a picture of the “Campus Queen of the Month” and information on such things as where she goes to school or where she works, her hobbies, her ambitions in life, and other similar information.

The selection of this “Campus Queen” could be made each month by the staff of the Technic from pictures and information submitted by you, the students. In this way, it would be your column.

Any student who is dating a girl would be eligible to enter her as a candidate for “Campus Queen of the Month.” He would simply bring a picture of the girl to the Technic office along with some information of the type mentioned previously.

In the final school year addition of the Technic, the “Campus Queen of the Year” could be selected by the students.

The purpose of this article is to see whether or not the students would support this idea.
New products lead to better jobs at Du Pont

These bizarre-looking underpinnings have taken a lot of the risk out of ticklish over-water helicopter operations. Tough and lightweight, they can be inflated in a few seconds. They're made of neoprene-coated nylon fabric.

This year nylon, product of Du Pont research, is 20 years old. Since its discovery, hundreds of new jobs have been created. To improve it in the laboratory. To make it in the plant. To find new uses. To advertise it across the nation. To sell it in world markets. These new jobs range from trainee to administrator.

At Du Pont, our business is to discover the undiscovered. We don’t find a nylon every year, but we come out with new products often exciting in their degree of improvement over the old. New plastics like “Teflon”* fluorocarbon resins, new finishes like “Lucite”* acrylic automotive finishes, new families of products like the polyesters — “Dacron”* polyester fiber, “Mylar”* polyester film, “Cronar”* polyester film base.

How does all this affect you?

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At the bottom rung of the technical graduate’s ladder, you are given an actual project assignment almost at once and begin to learn your job by doing it. All training is personalized—tailored to your background and interests. It permits periodic evaluation of your performance. Our promotion policies are based on the conviction that you should work at the top of your ability. It stands to reason, then, that the better your training, the more rapid your rise is likely to be... and the brighter your future.

If you would like to know more about career opportunities where growth through research has been the history and continues as the objective, see your placement officer for literature, or write E. I. du Pont de Nemours & Co (Inc.), 2420 Nemours Building, Wilmington 98, Delaware.

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Better Things for Better Living . . . through Chemistry
1959—100th Anniversary of the Oil Industry...70th Anniversary of Standard Oil Company

whale oil lamps
to space rockets

How the oil industry helped the United States to become the world's most productive nation!

1859 Colonel Drake discovers oil—and the decline of the great whaling industry is in sight as thousands of lamp users turn from whale oil to kerosene.

1889 The automobile is in its infancy—weak and unpromising. Standard Oil Company is born on June 18, 1889. The following year the company's first research laboratory is opened at Whiting, Indiana.

1903 Two bicycle mechanics named Wright fly an odd-looking machine at Kitty Hawk. Almost 33,000 autos are on the road, but the horse is still supreme. Standard Oil is building a new refinery at Sugar Creek, Missouri.

1911 Almost 640,000 motor vehicles are on the road. Dr. William M. Burton and Dr. Robert E. Humphreys, famous Standard Oil scientists, discover the secret of mass producing gasoline economically. The company becomes independent of all other Standard Oil companies.

1923 The automobile is here to stay. More than 15 million motor vehicles are on the highways. Standard is the first major oil company to sell gasoline containing tetraethyl lead, anti-knock agent.

1940 The greatest demand in history for aviation fuel is near. Standard Oil puts into operation the world's first catalytic reformer, which produces higher octane gasoline than was possible before.

1959 The Space Age is dawning. New fuels and lubricants for rockets and jets come from Standard Oil laboratories to help make space exploration possible and to strengthen America's defenses. Standard Oil marks its 70th anniversary.

Here are some important developments by Standard Oil, a leader and a pioneer in petroleum research:

- How to mass produce gasoline economically. This opened the way to modern automotive transportation.
- How to recover more oil from almost-dry wells. This added billions of barrels to America's oil reserves.
- How to eliminate gasoline gumming. This meant lower repair bills for car owners.
- How to dewax motor oils efficiently. This meant better car performance and fewer trips to the repairman.
- How to make clean burning solid fuels for rockets. This was a big step forward in America's missile program.

These, and many other Standard Oil developments, have played an important part in man's progress from the horse-and-buggy age to the Space Age.

STANDARD OIL COMPANY

THE SIGN OF PROGRESS...
THROUGH RESEARCH

The Rose Technic
• A missile’s main engine runs only for a few seconds. To supply electric and hydraulic power for control during the entire flight a second power plant is necessary. The AiResearch APU (accessory power unit) which answers this problem is a compact, non-air-breathing, high speed turbine engine. The unit pictured above develops 50 horsepower and weighs 30 pounds. The acknowledged leader in the field, AiResearch has designed, developed and delivered more accessory power units than any other source.

EXCITING FIELDS OF INTEREST
FOR GRADUATE ENGINEERS

Diversity and strength in a company offer the engineer a key opportunity, for with broad knowledge and background your chances for responsibility and advancement are greater.

The Garrett Corporation, with its AiResearch Divisions, is rich in experience and reputation. Its diversification, which you will experience through an orientation program lasting over a period of months, allows you the best chance of finding your most profitable area of interest.

Other major fields of interest include:
• Aircraft Flight and Electronic Systems—pioneer and major supplier of centralized flight data systems and also other electronic controls and instruments.
• Gas Turbine Engines—world’s largest producer of small gas turbine engines, with more than 8,500 delivered ranging from 30 to 850 horsepower.
• Environmental Control Systems—pioneer, leading developer and supplier of aircraft and spacecraft air conditioning and pressurization systems.

Should you be interested in a career with The Garrett Corporation, see the magazine “The Garrett Corporation and Career Opportunities” at your College placement office. For further information write to Mr. Gerald D. Bradley...
ROSE POLYTECHNIC INSTITUTE
TERRE HAUTE, INDIANA

HIGH SCHOOL GRADUATES OF 1959

You are cordially invited to visit Rose Polytechnic Institute where you can earn a degree in:

CHEMICAL ENGINEERING
ELECTRICAL ENGINEERING
MECHANICAL ENGINEERING
CIVIL ENGINEERING
MATHEMATICS
PHYSICS
CHEMISTRY
The October issue begins the sixty-ninth consecutive year of publication of the ROSE TECHNIC. With the appearance this fall of a new bi-weekly publication, the Rose Tech EXPLORER, we should review the relation of the TECHNIC to Rose students, faculty, and alumni.

"In character and in scope its (the TECHNIC’S) predominating idea shall be the promotion of all interests of the Rose Polytechnic Institute, and that this may most effectively be done, the editorial board solicits the warmest cooperation of every person connected with the institute," wrote the deceased W. A. Layman, editor of the first TECHNIC. The "predominating idea" of the TECHNIC still remains. In conjunction with standards set by the Engineering College Magazines Associated, technical articles of interest to students, faculty, and alumni are presented along with several news features concerning the Rose campus.

The TECHNIC will continue to present these types of articles in order to keep Rose students informed of the latest developments in industry and engineering. Although some of the campus feature articles may contain news reported by the EXPLORER, the TECHNIC will still report them, possibly from a slightly different angle. Then, too, this serves as a source of information for the alumni and high school students interested in Rose.

Since the conception of the TECHNIC in 1891, the size of the magazine has been altered somewhat and its circulation has grown. To promote the interests of Rose, the magazine is now received by some 350 high schools and over 800 alumni besides its campus circulation. The ROSE TECHNIC is now recognized as the oldest engineering college magazine of continuous publication. In order to continue this record, “the editorial board solicits the warmest cooperation of every person connected with the institute.”

R. L. S.
Metal quiz...you might have to take one like it again when you design equipment. Try your hand at it now. But remember to take advantage of the help INCO can give you when really tough metal quizzes come your way in your future engineering jobs.

See if you can tell which of these nickel-containing alloys proved to be the answer to these problems. Put the right number in the right box.

1. Ductile Ni-Resist
2. Nimonic “75” nickel-chromium alloy
3. Nickel-aluminum bronze
4. Ductile iron
5. Monel nickel-copper alloy
6. Inconel nickel-chromium alloy
7. Type 316 chromium-nickel stainless steel

Diesel manifold — Needed: resistance to attack from petroleum products, thermal and hydraulic shock. Which alloy...?

Refinery valve — Needed: resistance to attack from petroleum products, thermal and hydraulic shock. Which alloy...?

Turbojet afterburner shell — Needed: strength plus corrosion resistance at high temperatures. Which alloy...?

Recovery tower — Needed: resistance to hot coke oven gases and aromatic chemicals, long service life. Which alloy...?

Heat treating retort — Needed: light weight, ability to endure destructive heating-cooling cycles. Which alloy...?

Ship’s propeller — Needed: lighter weight and resistance to erosion and salt water corrosion. Which alloy...?

Regenerator pre-heater — Needed: trouble-free service handling hot caustics, fabricating ease. Which alloy...?

When you start to design equipment, you’ll have to select the proper material to meet given service conditions...a material that might have to resist corrosion, or wear, or high temperatures, or a combination of these conditions.

Over the years, Inco Development and Research has gathered information on the performance of materials in many such problems. Inco’s List “A” and List “B” contain descriptions of 377 Inco publications which are available to you, covering applications and properties of Nickel and its alloys. For Lists “A” and “B”, write Education Services.

The International Nickel Company, Inc., New York 5, N.Y.

Inco Nickel makes metals perform better, longer

ANSWERS:
- Diesel manifold — Ductile Ni-Resist
- Heat treating retort — Inconel alloy
- Recovery tower — Type 316 stainless
- Ship’s propeller — Nickel-aluminum bronze
- Regenerator pre-heater — Monel alloy
- Diesel manifold — Ductile iron
- Turbojet afterburner shell — Nimonic “75”
- Recovery tower — Type 316 stainless

Inco Nickel makes metals perform better, longer

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THE ROSE TECHNIC
ABOUT OUR PRESIDENT

By Ron Staggs, jr., e.e.

Among the new faces at Rose this fall we found a man short by modern physical standards but "tall" in achievements and personality. He arrived at Rose in September after vacating his position as Assistant to the President for research at Purdue University, a position he held since 1956. In addition to his duties as Assistant to the President, he also has been the Director of Research for the Purdue Research Foundation. This man is the new President of Rose, Dr. Ralph Alexander Morgen.

Dr. Morgen is a graduate in chemical engineering from the University of California where he received his B.S. degree in 1923 and his Ph.D. in 1925. Since completing his graduate study, Dr. Morgen has held several management positions in industry. Included in these positions were Development Engineer, Western Electric-Chicago Division, 1926-1928; Manager, Cleaners Equipment Division of Black, Swalls, and Bryson Manufacturing Company - Kansas City, 1928-1932; Consulting Engineer, Kansas City, 1932-1934, and San Francisco, 1934-1938; Professor of Chemical Engineering, University of Florida, 1938-1952; Assistant Director of Engineering, and Industrial Experiment Station, 1943-1957 . . . Director, 1947-1952; Program Director for Engineering, National Science Foundation - Washington, 1952-1954; and Professor of Chemical Engineering, Purdue University, 1954. All will certainly agree that our new president is well qualified in engineering administration.

During World War II, Dr. Morgen served as liaison officer in Jacksonville, Florida. For his work in research and Development, he was awarded a Joint Army-Navy citation.

On the social side, Dr. Morgen admits to playing a "fairly good game of bridge" and readily concedes that Mrs. Morgen is a "very good bridge player." When time and weather permit, Dr. and Mrs. Morgen might be found enjoying a good game of golf. Dr. Morgen also finds time for the A.I.Ch.E., A. C. S., American Society for Engineering Education, National Society of Professional Engineers, and the Indiana Engineering Society. Mrs. Morgen has also been active in such groups as the League of Women Voters and the American Red Cross.

President Morgen's primary desire is to further strengthen the reputation of Rose as the finest small engineering college in the country. He foresees a curriculum leaning in the direction of the engineering sciences and less prominent in the "so-called" applied courses. "The trend is to teach mainly the fundamentals in the university." He predicts that more and more students will be going into graduate work. He would like to set up a graduate study program at Rose for students desiring to work for a Masters Degree.

While President Morgen has many different ideas, he still plans to preserve and exploit the many advantages of a small school. In his own words, the primary advantage of small schools is "increased flexibility."

"We have the facilities to experiment and grow. I would like to see Rose become a strong experimental (Continued on page 26)
Editors Note: This article was written by the Tau Beta Pi spring pledge class, 1959.

Through the usual official and malicious channels there has come to the attention of the Tau Beta Pi pledge group, hereafter referred to as “the motley crew”, a particularly pressing problem having to do with the periodic inundation of the football field, hereafter referred to as “the swamp”. It appears that our glorious and honored comrades of the “pigskin party” oftimes find it rather difficult to play a decent game of football encumbered as they are with their aqualungs and flippers (though they do admit the spear-guns are handy). Therefore, the “motley crew” wishes to offer its recommendation for the immediate alleviation of the aforementioned situation—i.e. we have “pooled” our brains and “liquidated” the water problem.

The standard engineering techniques such as building a levee or damming the stream, which is the source of the problem, having been eliminated as too archaic for this modern era, the “motley crew” felt that it behooved them to at least make use of the time-tested engineering technique of seeking the simplest and quickest way off the hook. As a result the recommendations which follow are in the truest engineering tradition of simplicity.

It is recommended that the present playing field be abandoned as such and that in its place a saucer shaped structure be erected with an overall radius of one hundred thirty-five feet. Play will progress in a circular fashion around the saucer, rather than from end to end. In this way, the entire grass-covered playing surface is contained in an area of minimum size resulting in minimum expenditure for the material and labor required to raise the playing field above flood stage. The structure, which is designed to fit neatly within the bounds of the present encircling track without alteration, will be joined to the fieldhouse by an elevated area extending over the existing track and containing a grandstand seating area as well as a corridor between the playing field and the field house. A small additional structure joined to the saucer will house the bench area. Thus the entire unit will be completely isolated from the surrounding swamp, the only access being through the field house itself since a removable chartreuse-tinted transparent plastic dome is proposed as a cover for the saucer. There will be similar roofs above the adjacent units so that the entire structure properly sealed can be used as a vacuum chamber when desired. Further uses for the system will be discussed later.

CONSTRUCTION OF THE MODIFIED FOOTBALL FIELD

As outlined previously, the new field will be in the shape of a saucer with an outside radius of 135 feet and a six foot depression in the center. In the center of the field will be a circular section thirty feet in diameter which will contain pumping apparatus. This circular section shall be surrounded by an eight foot electrified fence. From the fence to the outer edge of the playing field the finish grade will have a constant five per cent slope.

The saucer shall be constructed by first pouring steel reinforced concrete walls around the perimeter of the field. These walls will extend eight feet above, and four feet below the existing grade. The wall will be one foot in thickness at the top and two feet in thickness at the base. The pours shall be made in vertical slabs ten feet wide with watertight expansion joints between slabs. Two vertical sections on the west side of the bowl will be omitted to promote accessibility for earthmoving equipment carrying fill to the interior of the bowl. These sections will be added upon completion of hauling. An estimated 270 cubic yards of concrete will go into the wall.

The fill shall be obtained from the area immediately west of the existing track. The grade will be built up in six lifts and bladed and rolled until the final compaction exceeds ninety per cent. Approximately 7,000 cubic yards of fill will be needed.

Drainage tile will be laid at a depth of six inches and will run to the center of the field. A paved ditch two feet deep and one foot wide running the circumference of the inner circle will feed the runoff water to a pump of a capacity of...
3,000 gallons per minute which will pump the water into the RPI sewage system.

An underground sprinkling system will also be installed at a depth of six inches and will be fed by an auxiliary pump at the center of the field.

After final grading the field shall be sodded with Bermuda grass.

At the east and west ends of the field, adjoining the circular wall, will be block-walled rectangular structures sixty feet long along the wall and thirty feet deep. These eight inch walls will be the same height as the circular wall and will rest on concrete footings twelve inches wide by thirty inches deep. A four inch concrete slab floor will be poured at the existing grade on which will rest the heating and air conditioning plant for the stadium. The flat roof of these end structures will be built up in the conventional manner and a six inch layer of dirt will be placed on top to accommodate the players benches.

Exhaust and intake fans will be placed in the dome directly over each of the end sections.

The bleachers will be elevated eight feet from their present position and connected to the field house by means of a prestressed concrete arched deck spanning the track. Access to the field will be by a dual set of stairs in the field house leading to a entrance-way cut in the roof of the fieldhouse at the point where the concrete deck meets it.

ESTIMATED COST FOR THE PROJECT

<table>
<thead>
<tr>
<th>Item</th>
<th>Quantity</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excavation</td>
<td>7000 yd.</td>
<td>$10,000</td>
</tr>
<tr>
<td>Concrete and labor</td>
<td>270 yd.</td>
<td>13,250</td>
</tr>
<tr>
<td>End sections</td>
<td>2</td>
<td>4,000</td>
</tr>
<tr>
<td>Dome</td>
<td>1</td>
<td>bids not yet in</td>
</tr>
<tr>
<td>Bleachers and ramps</td>
<td>1 set</td>
<td>6,800</td>
</tr>
<tr>
<td>Sodding</td>
<td>5,000 sq. ft.</td>
<td>700</td>
</tr>
<tr>
<td>Heat and air cond.</td>
<td>2 sets</td>
<td>5,000</td>
</tr>
<tr>
<td>Pumps</td>
<td>2</td>
<td>2,301</td>
</tr>
<tr>
<td>Misc.</td>
<td></td>
<td>11,000</td>
</tr>
<tr>
<td>Total, excluding dome</td>
<td></td>
<td>$53,051</td>
</tr>
</tbody>
</table>

Note: the access road from highway 40 will have to be repaved upon completion of construction due to deterioration caused by heavy equipment.

THE FOOTBALL FIELD LAYOUT

As a football field, it is proposed that the yard markers be laid out in spiral fashion with a single goal post on one side and a midfield marker on the other in line with the grandstand so that everyone may have a choice seat at both midfield and the goal line. The yard markers are to be laid down according to the equations:

\[ x = a \cos \phi + a \sin \phi \]
\[ y = a \phi \cos \phi - a \phi \sin \phi \]

so that each will form the involute of the inner circle. This will effectively discourage running the ball toward the center of the circular field since in so doing, the player runs nearly parallel to the yard markers.

The average field length will be 159.1 yards with a uniform forty-foot width, leaving the inner thirty foot circle for the drainage apparatus. To further discourage running toward the center of the field the inner circle will be surrounded by an electric fence.

Due to the circular nature of the field, kickoffs will be replaced by a center jump circle at midfield; field goals will also be eliminated. At the end of each play, the ball will be brought back to the centerline of the field along the spiral yard markers in order to keep the distance to the goal line reasonably long. It is realized that the direction of the spiral markers will aid the team advancing in a clockwise direction and

(Continued on page 14)
interfere with counter-clockwise movement. Hence, when the ball changes hands, it is proposed that the teams change ends (ends on a circle? ?? ? ?) so that the offensive movement is always counterclockwise in the true mathematical spirit expected of Rose engineers.

OTHER USES FOR FIELD

This proposed construction will not only serve to maintain the moisture content of the turf foundation but will also provide Rose with new activities and possible sources of income for its expansion and improvement program. Conservatively speaking, this construction will bring Rose world-wide acclaim for ingenuity, practicality, and inventive genius of its extraordinary students. Much more could be said on this subject, but due to the modesty of the individuals responsible for master minding this perfect plan the praising of the project will be left for the rest of the world to participate in.

The activities other than football that the construction could provide for will now be discussed.

Earlier it was said that the dome should be sealed so that the entire area could be used as a vacuum chamber. This provision is made with a view toward using the field for final exams since, by so sealing and equipping the structure, the internal and external pressures on the student's brains can be equalized, after which better work is expected. This, it is felt, will also result in only the better quality student continuing at Rose since the slower workers will have been eliminated by asphyxiation.

Other uses could be made of the structure if the dome were made removable and if the saucer were extended on up above the playing field itself.

This possibility, first of all, will provide for the construction of bleachers to seat 50,000. This will give seating room for everyone with a desire to see athletics, football and track, at their perfected best; in other words, an opportunity to see the Rose athletes in action. This increased seating space will improve public relations by allowing spectators who have been turned away from our gates in years past to receive the satisfaction of viewing true athletic prowess.

An alternative plan would be to use the smooth soft upper slopes for blanket parties. The advantages to blanket parties on such a slope would be that it would save the energy of tossing beer cans from your immediate vicinity. When the cool contents of the cylindrical container are completely consumed, the container could be laid on its side in a position of unstable equilibrium allowing the gravitational attraction of the earth to urge it toward the bottom of the concave edifice. However, it would be important for one to start his blanket party early in order that he may obtain a portion of ground at the uppermost edge of the slope so that he would not be faced with the problem of dodging containers of patrons situated on the slope above him and his loved one. If the slope were used for blanket parties it would also provide a new and yet unusual landscape for planting trees of various denominations.

Other things that the structure could act as are a skating rink when flooded and frozen, a race track for motorcycles and submarines, a site for the senior bench, a saucer for Paul Bunyon's coffee cup, or the largest bird bath and sun dial in the world.

Money could be raised from the project by stretching a canvas over the top and holding circuses and rodeos inside. When the improvised tent isn't being used for circuses it would double as a huge trampoline or gigantic drum for frustrated witch doctors to cast spells with.

However, the most important thing that it could be used for, and the thing that makes this proposed plan completely foolproof, is that if for some fantastic reason there is a slight flaw in its planning or construction, and water should come in and flood it up to the brim, this magnificent work would make one hell of a swimming pool.

CONCERNING THE MODERN FOOTBALL PLAYER

With the advent of the new and improved playing field and football rules, some suggestions concerning the selection and training of players are in order.

First, since the game will be played on a sloping field, some modification in leg structure is necessary. This may be accomplished by recruiting players from the Ozark mountain region where one leg naturally develops shorter than the other. Another possible solution is the use of built-up shoes to lengthen one leg. Of course, care must be taken to train two equally adept teams, a "clockwise" team, all having a long right leg, and a "counterclockwise" team, all having a long left leg. It will also be necessary to have a defensive team made up of "clockwise" and "counterclockwise" men, since pass defense, etc., is rather difficult if one must always run backwards.

It is hoped that in a relatively short period of time all schools will see the merits of the modified system of football, and the decadent, outmoded level field will become totally a thing of the past. When this occurs a great revolution in training practice will undoubtedly sweep the country. The football player of the future will be taught to play equally well on a slope of either direction, thus eliminating the need for "clockwise" and "counterclockwise" teams.

Another consequence of the increasing popularity of this system will be an amount of proselytism for tall men second only to the basketball industry. Since the initial possession of the ball will now be governed by a tip-up rather than a kick-off, tall men will be essential for the
Having just completed a mile of college teaching, it seems appropriate to reflect a bit on the business of college education today as contrasted with "back when I was in school". (Admittedly, such a statement—particularly that in quotes—is a surefire method of losing readers, but then the appearance of the author's name may have already induced the same effect.)

Since the Second War, the general philosophy of this country has seen many changes. Paralleling the passing of the old coal heating-stove and cracker-barrel of an earlier period, more recently we have buried such archaic notions as:

a) "Man does not live by bread alone."

b) A day's pay for a day's work.

c) The essentials of life are food, clothing, shelter, car, TV, mad-money, etc., etc.

d) An apprentice aspires to the skill of the master craftsman.

e) Education for the educatable.

f) "I am the captain of my fate." 4

g) "No taxation without representation." 5

h) Obligations and responsibilities are always attendant to position.

i) Others equally as old-fashioned.

In the stead of these, more commonly we find the following less painful and easier list:

a) Man is entitled6 to steak.

b) "Forty hours" pay for thirty-six hours' work.

c) The essentials of life are food, clothing, shelter, car, TV, mad-money, etc., etc.

d) An apprentice deserves the pay of a master immediately upon learning the names of the tools.

e) Everyone who breathes is entitled to at least an M.S. if he wants it—so conjure up curricula, teachers!

f) I am a first-class passenger (non-paying) on the ship of life.

g) Why worry about taxes—it's take-money pay I bargain for.

h) Guarantees against everything from 'conception to resurrection.'

i) Others such as

1) "Who, me sweep the floor clean for only a buck an hour? How can I run my Caddy on that?"

2) "Whaddya mean I gotta dress and undress on my time?"

3) .................... (Other).

Strangely enuf, these metamorphoses have not left college students unaffected (or it is uneffected?). On the contrary—time was when one borrowed money to cover the essentials of a college education. However, nowadays one finds that some scholarships are not scholarships but needships—money is borrowed for engagement rings, wedding costs, etc.13 In other ways these chameleon characteristics are noticeable—college is the alternative to "going to work"; college curricula should not cause a psychosis by being too demanding; teachers should spell out everything in detail and not expect (or even anticipate) outside study or promptness or attention to detail or scholarly inquisitiveness or anything that smacks of interference with TV westerns of yesteryear or with general "live-it-up-time".

Wellsirree Bob! (or is it "Bub"?), with all these changes taking place, it is high time someone charted the course on how to make a B+7. This goal is not beyond any student, given a bit of luck at finding the "right" curriculum and some intel.

October, 1959
This report was prepared during the 1958-59 school year at Rose Polytechnic Institute. Even though this report is statistical in nature, it presents many interesting and important facts about religion at Rose. Any student, faculty member, or alumni who is interested in religion should read this study of RELIGION AT ROSE.

Students at Rose have widely-varying backgrounds in religious and moral matters; when they mingled with each other without the direct presence of parental guidance, their original religious and moral views were sure to be discussed, debated, and probably confirmed or changed. This report shows the personal religious beliefs of the students and the changes in their religious and moral values since they came to Rose Poly.

A total of 70 freshmen, 36 sophomores, 51 juniors, and 23 seniors filled out questionnaires for this study.

RELIGIOUS AFFILIATIONS

Only one participating student did not adhere to Christianity; he considered himself an atheist. Of those participating 153 students or 85% were of the Protestant faith, and 26 students or 14.4% were associated with the Roman Catholic Church.

The participating Protestant students were associated with churches of 18 different denominations. Two students were members of undenominational churches, and one student did not specify his denomination. The numbers of students preferring each denomination were as follows:

<table>
<thead>
<tr>
<th>Denomination</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methodist</td>
<td>55</td>
</tr>
<tr>
<td>Disciples of Christ</td>
<td>22</td>
</tr>
<tr>
<td>Presbyterian</td>
<td>18</td>
</tr>
<tr>
<td>Baptist</td>
<td>13</td>
</tr>
<tr>
<td>Lutheran</td>
<td>11</td>
</tr>
<tr>
<td>Church of Christ</td>
<td>7</td>
</tr>
<tr>
<td>Congregational Christian</td>
<td>7</td>
</tr>
<tr>
<td>Evangelical United Brethren</td>
<td>4</td>
</tr>
<tr>
<td>Evangelical and Reformed</td>
<td>3</td>
</tr>
<tr>
<td>Episcopal</td>
<td>2</td>
</tr>
<tr>
<td>Others</td>
<td>11</td>
</tr>
</tbody>
</table>

A very large percentage of the students questioned were members of their respective churches: 143 out of 180 students, or 79.4%, were church members.

RELIGIOUS BELIEFS

Students at Rose exhibited a great deal of interest in religion. Only nine students or 5% of the total number answered “no” to the question, “Are you interested enough in religion to complete this questionnaire fully?” Of these nine students seven were Protestants and two were Roman Catholics.

The theological beliefs of the students questioned were generally very standard. A few doubted each theological point mentioned, but the majority stood firm with the beliefs of their churches or church leaders.

Several students felt that God was described in many different ways in the Bible. They did not see one clear picture of God and did not completely believe in God as He is described in the Bible; seven student or 4.1% were not sure what they believed.

Although 170 out of 171 students who answered the question, “Do you believe in Jesus Christ as the Son of God?” said they were Christians, only 160 or 93.6% believed this. There were five more persons or 2.9% who were not sure what they believed; 6 students or 3.5% did not believe in Jesus Christ as the Son of God.

When asked whether they believed in communion 146 students or 85.4% gave affirmative answers; 16 persons or 9.4% gave negative answers; nine persons or 5.2% had no opinion.

Several students expressed their disbelief in the virgin birth. Of those participating 17 or 10.0% did not believe in the virgin birth of Christ; 15 others or 8.8% were not sure about the virgin birth; this left 139 students or 81.2% who believed in the virgin birth. It was surprising to find that one Catholic student, whose religion rests firmly upon the concept of the virgin birth, expressed his disbelief in this miracle.

The great majority of the students believed in baptism as a basic part of Christianity. A total of 88.3% of the students believed in baptism; 5.85% did not believe in baptism; 5.85% were not sure what they believed.

Considering the 151 students or 88.3% who believed in baptism, 90 students or 59.6% of the 151 students felt the manner of baptism made no difference. Then 20 students or 13.2% felt that baptism must be by sprinkling; 30 students believe in God as He is described in the Bible; seven student or 4.1% were not sure what they believed.
or 19.9% felt that immersion was the only way for baptism; 11 students or 7.3% felt that the Catholic method of aspersion was the only acceptable form of baptism.

Life after death of some form was widely accepted. Only 14 students, 8.2% of the total, did not believe in life after death, while six students or 3.5% were not sure of their beliefs. This left 151 students or 88.3% who believed in life after death.

In every specific point over 80% of the students questioned believed in the religious idea under discussion. This indicates, for the most part, uniformity of religious opinions and conformity with those opinions that are generally accepted. However, the nearly 20% who differ with many of the points discussed indicate that students at Rose Poly probably give a great deal of thought and consideration to religious matters.

CHANGE IN MORAL BELIEFS

More concrete changes have been made in moral beliefs than were made in religious beliefs. Many students approved of drinking alcoholic beverages at the time this study was made that did not approve before coming to Rose. Also a large percentage of the student questioned believed that their personal moral code had been lowered since coming to Rose.

There were 96 students or 56.2% of those questioned who approved of drinking before coming to Rose. However, 72 students or 42.0% did not approve of drinking, while three students or 1.8% were not sure whether they approved or not.

At the time this study was made 114 students or 66.7% approved of drinking, 54 students or 31.6% did not approve of drinking, and three students or 1.8% were not sure of their approval.

This means that 18 students or 10.5% of those questioned have

(Continued on page 32)
The CMC Home is a new concept in home building which offers the builder and buyer the advantages of expensive masonry at low cost. The homes are constructed of 20 inch wide Calsi-Crete panels stacked side, locked in place, then sealed and painted. There are four basic floor plans available in the CMC Homes line, with living space ranging from 1000 to 1240 square feet. By using versatile Calsi-Crete panels, the exterior of the home can be altered without disturbing the interior floor plan.

There are four basic CMC Homes floor plans. Each has its own unique features for comfort, safety and ease of family living. All plans are available with carports and basements. Two of the most popular floor plans are the Deerfield, with 1240 square feet of living space, and the Oak with 1146 square feet of living space. The other two floor plans are the Glenview and the Highland, each with 1000 square feet of living space.

A CMC Home arrives at the building site by truck complete with cross beams for the roof. Calsi-Crete panels are erected starting at the corner of the home, and proceeding around the shell. Using as few as three workmen, the shell and roof of a CMC Home can be constructed in under 80 man hours. The fire-proof concrete Calsi-Crete panels, which can be sawed and nailed, are light enough for two men to handle. The panels are caulked and finished inside either by painting, plastering, papering or wood paneling.

NUCLEAR SHIP SAVANNAH

Look around the atomic-powered merchant vessel N.S. Savannah on its maiden voyage, and chances are you’ll see stainless steel wherever you glance. Perhaps no other American commercial vessel, and surely no foreign liner, contains more of the rugged beauty that connotes stainless. From the nuclear power plant buried deep within the ship’s vitals, to the lustrous hardware guarding the entrance to each passenger cabin, stainless steel finds needful use.

Located amidships is the 26½-foot tall nuclear reactor that powers the ship. The 145-ton reactor houses the core of uranium fuel elements and the control rods. In the reactor vessel, heat is produced by the fission
of uranium atoms.

The inside of the reactor is completely shielded with stainless steel to protect the 6-1/2 inch thick steel plating against the ravages of 1750 psi radioactive water surrounding the fuel elements.

Stainless tubing tested to many times actual working pressures conducts pressurized fluid from the reactor to the heat exchangers, where steam is produced to drive the ship's power turbines.

Radioactivity will be no danger. Reactor design and use of tough metals like stainless make the nuclear ship as safe as a quiet evening at home in your easy chair, and certainly far safer than a vacation trip in the family automobile.

The primary source of power for the N.S. Savannah is a nuclear power reactor located amidships. The reactor designer estimates the merchant vessel could travel as much as 350,000 miles on one fuel loading.

Within the reactor are 32 fuel elements, each containing 164 fuel rods of type 304 stainless steel. The interior of each stainless rod is filled with sintered uranium oxide pellets that act as fuel.

Each of the 164 fuel rods are composed of four bundles of 41 rods each. Rod spacing is maintained by small tubular stainless steel ferrules, brazed in place about every eight inches along the 76-inch long element.

Fuel elements fit into an “egg crate” type lattice which provides the equivalent of a pressure can around each element. To withstand the pressure differentials created during reactor operation, the lattice-work is constructed of stainless steel, ranging in thickness from 0.094 to 0.109-inches thick.

Modulation of the nuclear reaction is achieved by 21 control rods, each shaped somewhat like a cross. Control rods are 0.375-inch thick stainless steel of sandwich design with 3/32-inch thick stainless steel plates.

The reactor vessel containing the fuel elements is approximately 27 feet tall by 11 feet in outside diameter, with an inside diameter of about 7 1/2 inches thick. The entire interior surface of the vessel is clad with stainless steel, 0.109-inches thick. The metal container is designed to operate at 650 degrees F, confining water coolant at 1000 psi.

The bottom head of the reactor vessel is forged from a 58,646-pound circular plate of carbon-silicon steel, 15-feet in diameter. Before forming, the plate surface which became the inside of the forged head was clad with type 308L low carbon stainless steel. The reactor head is believed to be the largest, thickest and heaviest pressure vessel closure ever forged in one operation by die-forming.

Water coolant for the reactor is circulated by four primary circulating pumps of the canned rotor type. All primary pumping is made from type 304 stainless steel hollow forgings with a design pressure of 2000 psi.

Two steam generators act as heat exchangers to convert superheated, pressurized reactor water to steam for the power turbines. Each generator consists of a U-shell, U-tube boiler about 20 feet long overall, and contains about 800 stainless steel tubes, 3 inches OD.

The reactor designer estimates that about 200,000 pounds of stainless steel is used in the primary system—up to but not including the power turbines.

(Continued on page 30)
Solid propellants for rockets are as old as rockets themselves. All solid propellant rockets until 1943 had certain faults which almost junked them in favor of liquid propellants. (1) The fuels were unpredictable explosives which were extremely hazardous. (2) Long durations of flight were not possible since the pressure vessel was always exposed to heat. (3) Thrust control could not be incorporated. In the early 1940's the Jet Propulsion Laboratory of California Institute of Technology made an important contribution to the field of solid fuels. They demonstrated a cast-in-place propellant charge which used as a binder a material which was formerly used for synthetic rubber. This polysulfide rubber was changed into a liquid polysulfide polymer by reducing a few of the disulfide links. This can best be demonstrated by the following formula: \(-R-S-S-R+2H\rightarrow 2-RSH\). The solidifying process, which is exothermic, is merely an oxidation: \(2-RSH+ZnO\rightarrow R-S-Zn-S-R+H_2O\). Chemical engineers then took over the task of scaling up this process and developing it for use in large missile projects.

The selection of all the ingredients to go into the fuel is a very complicated one. Not only must the fuel have a good thrust output but it must have desirable physical characteristics.

1. It must be viscous enough to pour when in the liquid state.
2. It must not shrink away from the rocket shell when it cools.
3. It must have natural strength since it is used to strengthen the rocket shell.
4. It must be unaffected by normal storage temperatures anywhere on earth.

Once the proper blend is chosen it must be sized, since size of particles plays a great role in the characteristics of the fuel.

Mixing is the most dangerous operation done with the fuel. Although the propellants are not explosive, they are extremely combustible. Horizontal, jacketed, sigma blade mixers are probably the most common used. The mixer is placed in a separate fireproof room and is operated by remote control. All possible causes of fire such as static electricity or sparks must be eliminated in this area. The mixer is heated to lower the extremely high viscosity of the mixture, but care must be taken not to apply enough heat to start the curing process which solidifies the propellant.

One problem that had to be solved was bubbles in the mixture. These bubbles caused erratic burning of the fuel which made it unreliable. This duration is done by pouring the propellant from the mixer through slits into a vacuum chamber. The bubbles expand and burst from these ribbons leaving a practically bubble-free mixture.

The next step is casting. The fuel chamber has already been cleaned and has had a mandrel of some geometric shape centered in it. The fuel is pumped into the container and special care must be taken to see that there are no void spaces.

When the casting is completed, the filled motor is set aside for curing. This usually takes from 24 to 72 hours at moderate temperatures. Although heat is required for the cure, the temperature must be watched carefully since the reaction also gives off heat. It is possible that the kindling temperature of the fuel might be reached in this process if extreme care is not taken. When the cure is complete, the mandrel is removed and the whole casting is given a radiographic inspection for cracks or bubbles.

The geometric shape of the mandrel mentioned above is the factor which gives the rocket thrust control. This control had been a major problem until the cast in place method was adopted. To understand this problem fully, two facts must be mentioned. (1) The thrust exerted at the nozzle of the rocket is equal to the integral of all the pressure forces on the surface of the propellant. (2) These pressure forces are proportioned to the rate of the solid fuel being converted into working gases. Or in other words, the larger the surface area being burned, the larger the thrust. If the propellant

(Continued on page 30)
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October, 1959
The long summer of relaxation and steady dating has passed; it is time once again to show our abilities in other fields.

This new school year brings with it many interesting changes. Many new faces are seen on campus in the faculty as well as the student body. Our school is also blessed with a very distinguished gentleman, Dr. Ralph A. Morgen, our new president.

Several new professors joined the Rose staff this year to instruct in their chosen departments.

Mr. Kenneth R. Carr has joined the Electrical Engineering Department after receiving his BS and MS in electrical engineering from the University of Illinois and teaching there.

After attending British Institute in Israel as an external student of Cambridge and London Universities, Mr. Benjamin Benjaminov, a native born Bulgarian, came to the U.S. in 1948 to further his studies. He received his B.S. in chemistry from the University of Kansas and his M.S. from the University of Massachusetts and Allegheny College while teaching there. After being on the staff of Rockford College and associate professor of chemistry at Alliance College, Mr. Benjaminov comes to Rose to join the chemistry department. Employed this past summer by the American Chemical Society-Chemical Abstracts in affiliation with Ohio State University, Mr. Benjaminov was in charge of evaluating Russian chemical material.

Lt. Col. F. M. Walker comes direct from his last assignment as Battalion Commander of the 802d Engineer Bn. (Heavy Construction) in Korea to be the newly appointed Professor of Military Science and Tactics at Rose. Col. Walker graduated from Michigan College of Mining and Technology in 1942 and holds a B.S. in civil engineering. He obtained his M.S. in industrial engineering at Stanford University in 1958. The Colonel has had varied experience in Airfield construction, as a military instructor, and as a combat unit commander.

Capt. Harrison S. Smith has been appointed Assistant Professor of M. S. and T. at Rose after his last assignment as Port Engineer at the Port of Whittier, Alaska. Capt. Smith graduated from the Citadel, The Military College of South Carolina, with his B.S. in civil engineering, and obtained his M.S. at Texas A. and M. in 1956.

M. Sgt. Noel Arther reported for duty 1 Sept. 1959 thus making this his second tour of duty at RPI. Sgt. Arthur come here from Fort Rich-
ardson, Alaska. He has also served in Africa, Italy, France, Germany, and Korea.

M. Sgt. Michael Zupansic, the Supply Sergeant, has been with us since July of this year. He came here from Fort Chaffee, Arkansas. Also, his service of 10 years in the armed forces has stationed him in both Korea and Germany.

Freshmen Welcomed

On Sunday, September 13, the new Rose freshmen and their parents were welcomed by the faculty and dormitory counselors. Monday morning, however, they were welcomed by the sophomore class in a somewhat less genial manner. The alert sophomores, still suffering from their humiliation the previous year, rapidly banned together to stress the importance of wearing greencaps and garters by all frosh. The sophomores soon started checking the “greencaps” on their obedience to the time honored traditions of Rose. Those frosh found to be delinquent of important articles were punished for their infractions of the rules by being thrown into the lake. Some were even marched into the crystal clear lake! So far, the upper-classmen have been entertained by only one, en-mass, inter-class laking party. Better luck next time, freshmen. Unfortunately, some of the frosh have trod on the sacred path; some of the more artistic have even painted the class of 1963 on the walk. However, the boastful offenders were forced to remove their work with rough rocks, sandpaper, and rubbing.

Presently, the sophomores seem to have everything under control. These last few days of strict obedience to all rules is suspected to be the lull before the storm of retaliation.

Blue Key Smoker

Monday evening, September 14, the annual “freshman smoker” was held in the cafeteria of the Deming dormitory under the sponsorship of the Blue Key Fraternity. The smoker is designed to acquaint the freshmen with the faculty and some of the extra-curricular activities at Rose. Several informal speeches were given by heads of departments and organization presidents. Dr. Morgen gave the freshmen a formal greeting, complimented these men on their choice of an institute of higher education and stressed the importance of their grasping this opportunity to work to their own advantage. The meeting ended with refreshments and informal mixing between the new students and the faculty.

Introductory Convocation

The entire student body and faculty assembled in the auditorium Thursday, September 17, to hear an introductory address by Dr. Ralph A. Morgen, new president of Rose Poly. Making the introduction of the new president to the faculty and students was Dean Herman Moench. The assembly was anticipating the new president’s first comments after Dean Moench had elaborated on Dr. Morgen’s qualifications for such a position. His educational background and engineering success in industry and research has made him a very distinguished gentleman in the field of science. Dr. Morgen leaves the position as Head of the Purdue Research Foundation to fill his new position here at Rose.

Dr. Morgen described in his introductory speech some of his minor policies for the school and its different organizations. His comments were clear and concise about his intentions for sports on the Rose Poly campus, both varsity and intramural.

Dr. Morgen’s manner of speech and comments portray him as a man of pleasant disposition, great foresight, and determination to lead Rose progressively forward.

Fraternity Get Acquainted Parties

At the last meeting of the inter-
Oh, to be a freshman now that fall is here! No experience could be more rewarding, yet so exasperating, as the life of a college freshman. In order to be a freshman, one must first ask himself the question: What is a freshman?

The classical definition of a freshman is that he is a first year college student. More specifically, he is at the stage between the prestige of the high school senior and the enjoyment of the college sophomore. Simply, a freshman is the lowest thing on earth!

Living up to such requisites should be an easy task, but actually it is an exacting chore. The first menial obligation is to get adjusted to life away from home. This means trying to solve little problems like what to do with one’s dirty clothes besides wearing them. How to keep one’s room in order without Mother’s prodding is another concern. A great item of torment is meeting expenses. Every freshman does some penny-pinching now and then. It’s all part of the game of going to college.

A freshman has another obligation: that of upholding the school traditions, or, as we freshmen think of it, playing “patsies” to the sophomores. As one freshman walks to class even so innocently, someone shouts, “Hey, you with the green cap, come here!” So, begrudgingly the freshman trods over to the hecklers. It’s up with the pant legs for garter inspection, out with the matchbook to light sophomore Joe’s cigarette, and off with the beanie for measurement of one’s name printed so articulately on the cap. All this while the freshman must remain quiet and unflustered. Failure to meet any of these regulations can result in only one thing, a dunking in the campus lake. Such are the woes of a college freshman.

However, a freshman can even have a little fun if he has a mind to. For instance, it is his obligation to clean and paint the school mascot, a huge elephant mounted on wheels. This is not the end of it, however. The freshmen must push this big hunk of flesh around the quarter-mile track after every home touchdown. Another perennial duty for the freshmen is to build the annual homecoming bonfire. The enjoyable part is the actual guarding of the structure, lest some nasty upper-classman or other saboteurs try to light it. Just picture the undeserving freshman waking to the tune of the alarm clock at 2 A.M., going out in rain, sleet, and snow, and protect in the carefully constructed wood pile. What joy it is to be a freshman!

In conclusion, to be a good freshman one must be studious, sociable, courteous, and an obliging individual. He must study hard. He must attend mixers, convocations, and the like. He must be ready to answer to sophomore. A freshman must be an all-around good fellow.
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ABOUT OUR PRESIDENT
(Continued from page 11)

school. We should try new things,” says Dr. Morgen. “Of course, we would have to start out with simple research.”

Dr. Morgen is well acquainted with the problems encountered in carrying out a research program. In addition to his other achievements, he holds patents in gas purification, detergents, and machinery for cleaning industries.

After reviewing a few of the goals Dr. Morgen has set for Rose, we should realize that only the cooperation of students and faculty in these plans and the contribution of other constructive ideas will make Rose the “finest small engineering college in the country.”

Editors’ Note: Starting with the November issue, the Technic will feature a new column, “From the President’s Desk,” which will include Dr. Morgen’s views and policy concerning Rose.

SPECTACULAR SPIRAL
(Continued from page 14)

jump. However, the need for very tall ends will decrease, since a short man may run to the outside of the field and be elevated considerably to be a pass receiver.

The electric fence guarding the jump at the center of the field poses some special training problems. It is obvious that the team which does its offensive running closest to the center of the field has the shortest distance to run for a touchdown. However, this shorter distance is compensated for by a greater possibility of intimate contact with the electric fence, which can be unpleasant. Thus, it becomes the job of the coach to condition his players to these encounters. Regular training will be necessary and could probably be best provided by a special shower. The shower should have a copper floor which may be charged to varying degrees. A certain time in the showers should be specified and the voltage should be started low at the beginning of practice and increased slightly each day until the team can withstand the full 2300 volts at the time of the first game.

Rose Polytechnic Institute has a distinct advantage in that it will be the first school to use this new system. The changes in rules and field design must be kept secret until the first game is played. The element of surprise is most important here. While other schools are groping and hurrying to adjust to the new system, Roe should have no trouble winning every game, and should challenge all the “Big 10” schools to games during the first season of the new system.

In summary, therefore, we recommend this simple procedure as the only logical and economical means for eliminating the flooding problem, and further urge that the construction begin soon after September 14 as sufficient slave labor again becomes available.

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The spotlight this month is on one of the truly outstanding alumni of Rose Poly. Mr. Robert Shattuck, class of 1936, is a man from whom we can all learn. Born in Clinton, Indiana, in 1913, Mr. Shattuck never considered anywhere else to obtain his education.

In 1930, Mr. Shattuck entered R.P.I. and went through school on a “shoestring”. He now recalls that at the time he could see no merit in it, but so many times since, he has realized that those strained financial conditions doubtless worked to his ultimate advantage. “If finances were no problem, I might have gone to some large pretentious engineering school and missed the wonderful training Rose affords.”

These words are from a man who graduated from Rose Poly during the worst depression in the history of the United States. Yet he went out into industry and because of his desire to do a little more, he has risen to the presidency of Marbon Chemical, a division of Borg-Warn-er.

Mr. Shattuck cites two advantages of Rose Poly apart from providing a thorough engineering training. 1) Rose is small enough that it can work you over as an individual. 2) Rose is independent and will tend to turn out men who are independent. This is a tremendous advantage in today’s society where conformity and uniformity have begun to poison.

An example of this man’s desire to succeed is the fact that, after two years at Rose, he ran out of money and couldn’t borrow any more. After a great deal of looking he found a job with DuPont in Belle, West Virginia. There he worked for two years so that he could continue his education at Rose.

Mr. Shattuck joined his present company in 1942; he was made General Manager in 1944 and President in 1953. In the Marbon program, research and development have received major emphasis since the conception of the company in 1934. From these development programs have come a series of rubber-to-metal adhesives. Subsequent Marbon resin developments have found their way into the rubber industry in the manufacture of spiral 4 cable used extensively by the Signal Corps. In 1956, a new $10 million dollar plant was constructed at Washington, West Virginia, nine miles south of Parkersburg, West Virginia on the Ohio River.

Although Mr. Shattuck is a graduate chemical engineer, he stated, as have so many other alumni, that he has been required to use his knowledge in other fields. Current positions held by Mr. Shattuck are Board Member of the Commercial Bank and Trust Company, Parkersburg; Past President-Gary Rotary Club; Gary Fund Drive; Past President Chicago Rose Tech Club; Past President-Rose Polytechnic Alumni Association; Vice-President-Mid-Ohio Valley United Fund; Board Member-First Methodist Church, Parkersburg.

When asked to state some of the applications of his education, Mr. Shattuck replied with two lessons he had learned from Doc. Sousley. One of the lessons is that it is possible to fail if you lose interest and quit trying. The second was that failure is something that should not get you down: you must rise again. These lessons apply to any activity and while most of Doc’s formulas that were initially not too securely placed have slipped out of our minds, these valuable lessons have not, but continue to guide our lives.

One other thing that Mr. Shattuck thinks is important is the philosophy of doing as much as we can to make a contribution rather than doing just what is necessary to get by. Christ said, “If a man commands you to go with him one mile, go with him twain.” When a man receives a major promotion, it is interesting to try to analyze why he was the one selected. Almost invariably it was the result of doing something more than the job assignment.

Mrs. Shattuck has one final bit of advice for Rose students. “What the world is looking for these days is not people who are looking for a job, but people who are looking for work. There is a difference!”
Alpha Tau Omega

With the new school year came a new look around the Indiana Gamma Gamma Chapter of Alpha Tau Omega. The large new addition to our present house at 1454 South Center Street completely removed the need for the annex of years past. With the new addition there is more than enough room for thirty-three men to live at the house, thus making the house quite spacious for the 27 men presently there. In fact, as of now there are two rooms available for card playing, T.V. watching, and just general bull sessions. The roomy new kitchen and dining room are Mom Srofe’s pride and joy, and she’s rewarding us with the best home cooking in town.

Congratulations to Brother Staggs who was elected vice president of this chapter of A.T.O. Brother Marshall Garino was also appointed rush chairman at the same meeting.

The Freshman Get-Acquainted Parties of September 18 were rousing successes. They performed the service of letting the frosh and upperclassmen get together and talk in an informal manner. It is our sincere hope that we of A.T.O. will see all of those same men plus those that weren’t able to make it that night at the next get-acquainted parties later in the semester.

During the weekend of October 3, the chapter was honored by the presence of our national president, Mr. Gerald E. Johnson, and Mrs. Johnson. Accompanying Mr. and Mrs. Johnson was our national executive secretary, Mr. Stewart D. Daniels. An evening dinner was held at which alumni and school officials were in attendance.

Preparations for homecoming are going on two fronts for us. This year’s display is well on its way to completion and hopes are high that it has what it takes. It will be another huge production, and everyone in the chapter is busy getting his section done for the big night.

The second group of preparations going on is with the football squad. Under the leadership of co-captain Woody Stroupe, the team is working hard. Brothers Bob Stark, Hal Booher, Jack Munro, and Dean Powell are all digging in for the big game. Brother Dick Foss is this year’s manager for the team.

Over the summer four Taus lost their pins to the fair members of the opposite sex. Brother Dean Powell gave his to Miss Janet Schell while Miss Judy Jensen is the new pinmate of Brother John Walden. The other happy victims are Brothers Fred Wright and Dave Burns who are pinned to Misses Judy Stell and Anita Browning respectively. Best wishes and congratulations go out to each of you.

A more fateful step was taken by Brother Louis Roehm as he became engaged to Miss Barbara Birck. Barbara is a senior at St. Anthony’s Hospital School of Nursing.

Brother Bill Johnson took the biggest step of all, the one over the threshold of matrimony. The new Mrs. Johnson is originally from Hobart, Indiana. Mr. and Mrs. Johnson are now living here in Terre Haute while Bill finishes his senior year, and Virginia finishes hers at I.S.T.C.

With the new year off to such a fine start, and with everyone working and studying hard this should be another great year for the Brotherhood of Alpha Tau Omega.

—Bill Carter

Lambda Chi Alpha

Summer is over? Impossible! It seems as though we just finished those hateful final exams. However, the brothers always seem to accomplish much during the sultry summer. Marriages, engagements, pinnings galore!

New wives are: Mrs. Carolyn Lyons Hallcom, Mrs. Chris Tiek Brady, and Mrs. Nancy Ireland. Bill Young became engaged to Miss Daryl Pifer as did High Alpha Gary Phipps to Miss Liz Ramsey. Pinned are Bill Schaper, Steve Skersick, and Dick Pike to Misses Sally Scarlett, Judy Ash and Donna Pound, respectively. Oh yes, I almost forgot. The James Coffenberrys became the proud parents of a baby boy as did the Larry Hartleys.

—Bill Carter

THE ROSE TECHNIC
The Lambda Chi Alpha Management Training Seminar was held at DePauw University from August 30 through September 4. Attending from Theta Kappa were High Alpha Phipps and High Delta Bill “Flip” Fenoglio. We hope that they learned much to benefit our chapter.

Studying has become more pleasant (?) with the addition of new formica-topped desks which were refinished and painted by the brothers.

We were very happy to welcome the freshmen to the Get-Acquainted parties at the beginning of school. They were very successful for all concerned.

Lambda Chi Alpha is very proud to have retained the scholarship trophy. We hope to keep our good academic standing in the future.

Larry Myers is directing our fraternity football team which holds high hopes of capturing the IF Football trophy.

Elected as members of the Student Council are brothers Jim Funk and Terry Halcom, while Noble Huff is serving as the Senior Class Vice-President.

Joining lettermen Bob Michael, Ron Ireland, Terry Halcom, Bob Checkley and Dick Pike on the football team are Joe Andel, Andy Hrezo, and Fred Terry. Let’s keep that 17 game winning streak going men!

Serving as Homecoming Chairman is Bob Amos, assisted by Bill Schaper. At last report, this year’s display promises to be even better than last year’s winning display.

It looks as though this year will be one on the most successful years of Lambda Chi Alpha, scholastically, athletically, and socially.

—Tom Feutz

Sigma Nu

Well, to coin a phrase, fall is here and so are we. Everyone came with bulging billfolds and smiling faces. Isn’t it a shame we can’t remain that way? But, lets face up to the situation! Isn’t it better than working?

Everything is much the same with most of us—but there are the exceptions. The chapter extends its congratulations and best wishes to three Brothers. Brother Ron Higgenbotham became engaged to Miss Phyllis Quick, who is a junior at Eastern Illinois University, and President of the Sigma Kappa chapter. Brother Ed Kostra was married to the former Miss Gail Wood, who is now, well, a housewife. The third “lucky fellow” is Alumnus Ned Kurtz who was wed to Miss Judy Gephart, who is a music major at Indiana State Teachers College.

If you should drive past the house at 831 South Center you will notice Sigma Nu’s major summer improvement—the newly painted trim around every single window and door. We’re all quite proud of our “face lift”.

Brothers Hal Miller and Johnny Kirk spent a week learning the history and planning for the future of Sigma Nu, at National Leadership Conference, at Denver, Colorado.

Our social life hasn’t really begun yet, but it won’t be long.

—Jim Onnen

Theta Xi

The lights are on once more at 902 South Sixth Street as the Tigers prepare for another year of Readin, ‘Riting, and ‘Rithmatic. Everyone’s summer experiences have been told and retold and the brothers are ready to manipulate slide rules again.

Brother Bob Honegger was Kappa Chapter’s delegate to the National Convention of Theta Xi, which was held in Estes Park, Colorado, during the first week of September. In addition to some entertaining stories, Red brought back a certificate which was awarded to Kappa for exceeding the scholastic all-men’s average on the Rose campus.

Dan Pool and Jim Malone have been named co-chairmen of the Homecoming display. Both are strongly in favor of adding another trophy to the TX collection. Ideas have been flyin about with wild abandon—no decisions yet, but everyone is thinking.

(Continued on page 32)
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RESEARCH & DEVELOPMENT
(Continued from page 19)

NEW V-6 TRUCK IN PRODUCTION

An entirely new GMC lightweight highway tractor with the long-awaited V-6 Diesel engine goes into production this month. The V-6 engine, long a technician's dream, offers more power per pound, better accessibility for servicing, greater smoothness of operation, and increased rigidity over in-line six cylinder engines. The 2 cycle engine is rated at 189 gross horsepower at 1800 RPM, with a 17 to 1 compression ratio. The main bearings for the 138 lb crankshaft are 4.5 inches in diameter, an inch more than the in-line six. Several parts, such as pistons, rings, wristpins, cylinder liners, housings, 2nd timing and injector mechanisms are interchangeable with the in-line engine.

Among the other space saving features incorporated in the truck is the new short cab. It is only 48 inches from bumper to back of cab. This was developed by building the truck around the driver.

New weight saving features permit an extra ton of cargo and still stay within the gross limits required by law. The fabricated frame is 300 pounds lighter and is stronger than current channel units. Air suspension was adapted because it incorporates greater stability and safety. As the rig always stands at the same height, the fifth wheel and trailer floor are lowered by 3 inches. This increases cargo by 70 cu. ft. in a 35 foot van.

A new independent front suspension has replaced the old type solid axle. Its advantages are low steering effort, improved road feel, and elimination of front wheel dive due to severe braking. In combining the independent suspension with the air suspension, and adding a brake regulation valve, equalized braking on all wheels under all load conditions is obtained. This valve not only adjusts for static conditions, but also adjusts for forward shift during deceleration.

SOLID PROPELLANTS
(Continued from page 20)

were merely a solid cylinder which burned on the end, the thrust would be constant; nevertheless this method is not used since the burning area is not very large and the metal casing is exposed to extreme heats immediately. One suggestion might be to have the flame burning in a cylindrical hole running the length of the motor. The unburned fuel would give the rocket strength and would keep the shell cool until the very last. The only disadvantage in this case would be that the thrust would start out small and increase, which is not usually the best approach. Figure (a) gives a star design which has the same advantages as the inner burning cylinder, but it programs its thrust at a high constant rate. The angles on the star points have been figured mathematically so that the exposed surface area will be constant through the entire burning time. Figure (b) shows a design which decreases its surface area progressively while (c) has a high thrust at first and then decreases to a lower increasing thrust. Figure (d) might be a design to launch an earth satellite. It starts with a moderately large thrust to get it off the ground. It decreases again until it reaches maximum height. Then as the rocket tilts over to the correct angle, it reaches a fuel with a much higher burning rate which gives the entire rocket its orbiting velocity.

Now that you have had a small glimpse of present day solid fuels, let us look to the future. Solid fuels have a theoretical maximum of 406 specific impulse, which is defined as pounds of thrust per second per pound of fuel. Present day fuels can reach about 250. This leaves a lot of room for improvement by research men. However, using present day fuels and methods we could build a rocket with a thrust of 500 million pounds. This rocket would have to be cast at the launching site due to the terrific weights involved. Solid fuel proponents are now trying to prove that such a venture would be worthwhile.

THE ROSE TECHNIC
"Books guard the wisdom of the past and kindle the ideas of tomorrow."

Dwight D. Eisenhower

ARE YOU OFF TO A GOOD START?

The new college student faces an abrupt change in the transition from high school to college. He finds that he is called upon to make many personal and social adjustments. Especially is he required to make adjustments in his method of studying. The study habits he acquired in high school just aren't suitable nor sufficient for the increased work load he carries at the college level. We can't guarantee you that these books will get you an A, but we can guarantee you that they will help you use your time more efficiently.

Armstrong, W. H. Study Is Hard Work
Bennett, M. E. Getting the Most out of College
Brown, H. E. This Is the Way To Study
Crawford, C. C. Methods of Study
Crawford, C. C. The Technique of Study
Headley, L. A. How To Study in College
Jones, E. S. Improvement of Study Habits
Smith, S. Best Methods of Study
Staton, T. F. How To Study

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Have you heard the latest additions to our record collection? They are worth a few minutes of your time.

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Beethoven Symphony #5
Beloved Choruses (Mormon Tabernacle Choir)
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Famous French Fanfares and Marches
Grieg Peer Gynt Suites
Offenbach Orpheus in the Underworld
Rimsky-Korsakov Scheherazade
Rodgers Babe in Arms
Sandburg Great Carl Sandburg
Song of the West (Norman Luboff Choir)
Tchaikovsky Sleeping Beauty

FROM THE NEW SHELF

I Remember, by Boris Pasternak

In this book, which is both less and much more than an autobiography, Boris Pasternak recalls the incidents and influences that made him the poet and the man he is today. Pasternak belongs to a generation that gave Russia some of the greatest names in modern poetry. Subtly, by implication rather than direct statement, Pasternak describes the anguished climate of the terrible years when the greatest among his fellow artists, the closest among his friends, were drawn to suicide or met otherwise tragic ends. The passages in which he speaks, in a few penetrating sentences, of their work and their fate, are marvels of evocation and compassion. It is through this small book, through what it tells and what it omits, that one comes to understand on what anvil the man was forged who since has become a symbol of lonely courage, and stepped out of the history of literature into the history of mankind.

The Steadfast Man, by Paul Gallico

Born in England in A.D. 385, Patrick was captured by invading Irish tribes as a boy. In his captor's pagan land he first heard the religious call. He escaped then to the Continent to begin years of intensive religious study. When he returned to Ireland he Christianized the country so successfully that he won both the respect of the pagan ruler and the blessing of the Pope.

In Paul Gallico's knowing hands, Patrick's story becomes a thrilling inspiration. The Steadfast Man is a rich, authentic, lovable, and often humorous portrait of one of history's greatest missionaries.

Soviet Space Science, by Shternfeld

This book, just translated from the Russian by the United States Air Force, recommends itself to American readers on two counts. It is one of the best surveys of the new science of astronautics that has been published in any language. And it gives a remarkably full and detailed account of the Soviet thinking and work on space flight. Here, told from the Russian point of view, is not (Continued on page 32)
changed their minds about drinking since coming to Rose.

The following table breaks down the approval or disapproval of drinking into the four classes, showing the changes that have occurred in each class.

<table>
<thead>
<tr>
<th>Class</th>
<th>Before</th>
<th>After</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshmen</td>
<td>51.5%</td>
<td>55.8%</td>
</tr>
<tr>
<td>Sophomores</td>
<td>37.5%</td>
<td>53.1%</td>
</tr>
<tr>
<td>Juniors</td>
<td>70.8%</td>
<td>81.3%</td>
</tr>
<tr>
<td>Seniors</td>
<td>65.2%</td>
<td>66.7%</td>
</tr>
</tbody>
</table>

Many students felt their personal moral codes had been lowered since coming to Rose. In fact, out of the 69 students or 40.3% of the total questioned who thought their personal codes had changes, 44 participants or 25.7% of the total felt their moral codes had been lowered. This left only 25 students or 14.6% who felt their moral codes had been raised.

**CHURCH ATTENDANCE**

Many students did not attend church regularly at the time the questionnaire was filled out that did attend regularly before they came to Rose. Before coming to Rose 123 students or 71.9% attended church regularly. At the time this study was made 83 students or 48.6% attended church regularly.

This represents a drop of 40 students or 23.3% from regular church attendance.

**CHANGE IN RELIGIOUS BELIEFS**

The conclusions that can be drawn regarding change in religious beliefs are few. Approximately four times as many students feel that their belief in God has been strengthened as feel that their belief in Jesus Christ is the Son of God. The percentages of students who feel that their belief in particular church has been strengthened since coming to Rose Polytechnic Institute (32.8% of participating students).

Many students did not attend church regularly at the time the questionnaire was filled out that did attend regularly before they came to Rose. Before coming to Rose 123 students or 71.9% attended church regularly. At the time this study was made 83 students or 48.6% attended church regularly.

This represents a drop of 40 students or 23.3% from regular church attendance.

**FRATERNITY NOTES**

(Continued from page 29)

Coach Jack Schreiner is readying his Tigers for the coming IF football season. A new trophy will be in circulation this year—the old one rests proudly and permanently above our fireplace. "Peggy" Schreiner is confident that there will be another one beside it come November. Back for another year of action are such stalwarts as Brothers Gross, Cunningham, Honegger, Wardle, and Lange. Brother Pitt also claims to know how to play.

Larry Wilson, an alumus of three months' standing, will return October 18th to wed Miss Sharon Sandberg. It is rumored that an old-fashioned shivaree will be held.

It was encouraging to see an enthusiastic turn-out at the freshmen get-acquainted parties. We were glad to have the opportunity of meeting new Rose men and wish to join the other fraternities in thanking those who attended.

Bob McCardle

**LIBRARY NOTES**

(Continued from page 31)

only the story behind the launching of the first artificial satellites but also the U.S.S.R. program for further ventures into space—to the moon and other planets.

Clearly and systematically, the Soviet author explains the many aspects of travel in space: rockets, navigation, communication, life aboard a space ship. All this is documented with a comprehensive report of the experiments and researches being conducted in various countries. The author shows an astonishing familiarity with American work in this field. That Americans have not been nearly so well informed on Soviet work is due primarily to the fact that the Russian literature has not previously been available in this country. This book is an opportunity for Americans to catch up on the worldwide developments in what is essentially an international science.

**THE ROSE TECHNIC**
RCA Electronics introduces the tube of tomorrow

Called the Nuvistor, this thimble-size electron tube is likely to start a revolution in electronics. RCA engineers scrapped old ideas—took a fresh look at tube design. The result will be tubes that are far smaller, perform more efficiently, use less power, can take more punishment, are more reliable. Developmental models now being tried out by designers will have a profound effect on the size, appearance, and performance of electronic equipment for entertainment, communications, defense, and industry in the future. It is another example of the way RCA is constantly advancing in electronics.
This year Rose Poly has a new football coach, Max Kidd. Max replaces Phil Brown, who has accepted a public relations position with Convair Astronautics at Cape Canaveral, Florida.

“Pappy” coached the “fighting engineers” for 31 years. During this time, he had many good seasons, and developed many outstanding players. Among them were two National Scoring Champs — Eddie McGovern in 1942 and last year, Carl Herakovich. We wish Phil Brown the best of luck in his new position.

Max Kidd is no stranger to the upper classmen, for he has been the very able intramural director for the past two years, a position which he will retain for the present time. Before coming to Rose, Max had had much coaching experience, being the head coach at Brazil High School for many years. During that time he compiled an impressive record.

The team this year has the potential of being another great Rose Poly squad. There are many returning lettermen and quite a few freshmen who will give the team the depth needed to produce another real good season.

At the different positions we have:

Ends: Woody Stroupe, Tom Horn, Jack Schreiner, Jack Munro, Joe Andel, and Jon Modesitt.

Tackles: Terry Hallcom, Ed Kostra, Bob Stark, Fred Terry, Randy Coapride, Ed Blahut, and Don Pierce.

Guards: Don Scott, Al Raquet, Dick Pike, Dan KIngery, Andy Hrezo, and Dick Wahnui.

Centers: Dick Tucker, and Chuck Gilbert.


The co-captains of the fighting engineers this year are Woody Stroupe and Gary Anderson.

The Engineers have already won their first game against a very weak St. Procopius team. The Engineers scored at will during the first half, rolling up a total of 22 points during this half. Checkley, Booher, and Yochum received the credit for the scoring.

The Rose men seemed to tire in the second half, and were content to hold the opposition scoreless, although they did press within a few yards of another touchdown several times.

It was gratifying to see Lost Creek Stadium filled better than it has been since last Homecoming, and certainly there was a better attendance than there has been for a regularly scheduled home game in the past few years.

INTRAMURALS

Max Kidd has a big job on his hands this year. As usual, he is serving the school in fine style. The intramural football program is beginning to roll already with six teams being fielded. It looks like there will be many a bruise picked up down on the intramural football field each evening.

Interfraternity football has also begun. In the games on September 27, Theta Xi met Sigma Nu, and Alpha Tau Omega met Lambda Chi Alpha.

Defending champion, Theta Xi, was knocked off by Sigma Nu, 6-0, in a thrilling game. Maybe there will be a new champ this year.

This looks like a good year for the favorites to get beaten, as last year’s runner up, ATO, was beaten 6-0 in a see-saw battle. The game went until the last minute when a series of pass plays spearheaded by Bill Fenoglio led Lambda Chi to their victory.

It looks like it will be a race down to the wire for four evenly matched teams.
How to get steel tubes to harness highest steam pressures and temperatures

In constructing Philadelphia Electric Company's revolutionary new Eddystone power plant, engineers had to harness the highest combination of pressure and steam ever achieved in a central station with 5,000 psi at 1,200°F. This called for superheater tubes (see diagram above) of a special stronger steel never before used in steam power plants. No one had ever succeeded in piercing this tougher steel to make seamless steel tubing.

The problem was given to Timken Company metallurgists, experts at piercing steels for 40 years. And they turned the trick. They made the steel for the platen and finishing super-heaters with the alloying elements in just the right balance for perfect piercing quality. They pierced 20 miles of tubes free from both surface and internal flaws.

Timken Company metallurgists and Timken steels have solved all kinds of tough steel problems. They can help you on problems you may face in industry.

And if you're interested in a career with the leader in specialty steels . . . with the world's largest maker of tapered roller bearings and removable rock bits . . . send for free booklet, "Better-ness and Your Career at the Timken Company". Write Manager of College Relations, The Timken Roller Bearing Company, Canton 6, Ohio.

Creep-Stress Rupture Laboratory in our new Steel Research Center. Here we test the resistance of steels to deformation at temperatures as high as 1800°F.
fraternity council last June, the council members proposed to have fraternity get acquainted parties for the new freshmen during the first weekend of school. These parties held Friday, September 18, were designed to allow the new men and the upper-classmen to become casually acquainted and simultaneously familiarize these new men with the fraternities represented at Rose. All four fraternities feel the parties were successful and an asset to both the hosts and the visitors.

Campus Club
The 1959-60 Campus Club organization has already planned several social functions for the men on campus. The new president, Leonard Bennett, scheduled a mixer with the ISTC girls for Friday, September 25, from 7:30 P.M. to 11:30 P.M. in the Student Center. The dress was informal: dancing music was recorded. Future plans have been made for more mixers with St. Mary's of the Woods and ISTC including invitations to football and basketball games.

Pep Meeting
School spirit toward the supporting of athletic teams has undergone an innovation by the introduction of pep rallies held before games. Thursday, September 24, the entire student body and faculty assembled in the auditorium to personally recognize each football player and to boast, their morale by cheers. Also, the students have been urged to wear badges with the number 16 written on them, significant of our hopes for 16 straight victories.

The recently organized “Swing Band” consisting of 14 men started the pep rally off with a few rousing stanzas of “Rambling Wreck.” Rose athletic director, Mr. Jim Carr, then gave a short speech retrospective of past events relative to student support. He stated that he is more confident now that more interest is being shown.

Mr. Max Kidd, football coach, gave favorable comments on the team strength. He had the football players to gather on the stage while the pep band played “Dear Old Rose.”

Interest was added also by a contest held by Bob Schukai, acting as master of ceremonies for the pep rally sponsoring organization, Blue Key Fraternity. Each class and the faculty were to gather in front of the stage and give a cheer. The loudest was to be rewarded with a statue of Rosie. This statue was to be marked with their class designation and placed in the second floor trophy display case until the next pep rally.

The three senior judges (impartially?) judged the seniors as winners of the yell contest after participating in the yell themselves.

Placement Convocation
On Tuesday, October 27, Mr. Zader of the Placement Office will conduct a discussion on techniques of interviewing and other “good business practices” when applying for a job. All seniors should attend and all underclassmen interested in interviewing for summer jobs are urged to attend.
World Wide... it's Mobil

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ligent (but unprincipled) friends. So in the interest of raising the "all-men's average", several suggestions are forthwith proferred, to-wit:

a) Admit girls so that boys have some competition and so that instructors can escape having to look at twenty-five wardrobes taken from "Mad".

b) Always encourage the instructor to think he's running the show (under your direction, of course).

c) When you copy someone else's work, alter it slightly or rearrange it—it's the format that counts, not the content.

d) Come to class late, shuffle your feet as you move forward and drop into your favorite front-row seat—this breaks the monotony of an otherwise dull lecture. (It helps to prop your feet on the instructor's desk—this lends a sort of "buddy-buddy" atmosphere to it all.)

e) Complain about the way the instructor graded your® paper—this tactic demonstrates your interest in the instructor's work. (A good opening question on such an occasion is "Where on your ouija-board® did you find this grade?"

f) When you go to an instructor for extra help and he asks "What part seems to be troubling you?", always reply "All of it."—this leaves plenty of room in which he may maneuver.

g) Have your parents write (or better still, come down to see) the instructor and ask that time tested question which never fails to put the instructor on the defensive, namely "What did you do with genius I sent you?"

This list of suggestions is not intended to be exhaustive but merely a basic set (or "starter set" in the china trade) of devices to get you on your way. After some five or six years in undergraduate school, you will find that you can write a much longer list (of reasons why you have not graduated).

So for those (few though they may be) who are so decadent as to believe in the dignity of the individual and the value of hard work, remember that the rewards promised in the next decade are described by the luring chant "We Give TV Stamps". However, keep your waterwings inflated and be patient and you will survive when the tidal wave of realism returns once more.

P.S. If the author is still around, a sequel to this literary masterpiece will follow sometime in the future.

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MUCH ADO ABOUT NOTHING

(Continued from page 15)

15®Or whose-ever else it is.
16Pronounced "wee-gie-board".

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He's an Allis-Chalmers Engineer

He has confidence born of knowing where he's going and how he's going to get there. The graduate training program at Allis-Chalmers helped him decide on a specific career — and he had a choice of many. He knows his future is bright because Allis-Chalmers serves the growth industries of the world . . . produces the widest range of industrial equipment. He is confident of success because he is following a successful pattern set by Allis-Chalmers management.

Here is a partial list of the unsurpassed variety of career opportunities at Allis-Chalmers:

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- Research
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- Development
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- Cement
- Chemical
- Construction
- Electric Power
- Nuclear Power
- Paper
- Petroleum
- Steel

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- Hydraulic Turbines
- Switchgear
- Transformers
- Electronics
- Reactors
- Kilns
- Crushers
- Tractors
- Earth Movers
- Motors
- Control
- Pumps
- Engines
- Diesel
- Gas

**Fields**
- Metallurgy
- Stress Analysis
- Process Engineering
- Mechanical Design
- High Voltage Phenomena
- Nucleonics
- Electronics
- Hydraulics
- Insulation, Electrical
- Thermodynamics

from GTC to "VIP"

The graduate training course helps you decide on your "Very Important Position," by giving you up to two years of theoretical and practical training. This course has helped set the pattern of executive progress since 1904. For details write to Allis-Chalmers, Graduate Training Section, Milwaukee 1, Wisconsin.
Larry: “Do you know what good clean fun is?”
Lou: “No, what good is it?”
She: “What’s the matter? Don’t you love me anymore?”
He: “Sure I do. I was resting.”
“We’ve got a case of beriberi up here. What’ll we do with it?
“Give it to the Engineers. They’ll drink anything.”
The younger generation still has great respect for old age—provided it’s bottled.
There are those who claim that silk isn’t necessarily the best thing in the world, but most people will agree it’s about the nearest thing to it.
Second: “Well old man. I’m afraid you’re licked now.”
Boxer (gazing dizzily across to opposite corner): “Yeah I shoulda got him in the first round when he was alone.”
Anyone can play bridge, but it takes a cannibal to throw up a hand.
Counselor: “How do you like this room as a whole?”
Freshman: “As a hole it is fine; as a room, not so good.”
Two characters had been drinking merrily for sometime when one lost his grip on the floor.
“That’s what I like about Slim,” his companion remarked “He’s dependable—always knows when to stop.”
Kitty: “The man I marry must be a hero.”
Katty: “Oh, really dear, you’re not that bad.”
ROTC Sergeant: “Does your uniform fit satisfactorily?”
Frosh: “Well, the jacket is okay, Sir, but the pants are a bit snug under the armpits.”
Doctor: “I’ve examined you thoroughly, but I can’t seem to find the cause of your trouble. However, it’s probably due to drinking.”
Engineering Student: “Oh that’s okay, Doc. I’ll come back sometime when your sober.”
A C.E. the other day was seen trying to calculate the fiber stress in the cross member of a Wheatstone Bridge.
As he felt his way around the lamp post, the overloaded chemical engineer muttered, “S’no use, I’m walled in.”
OXIDATION
His love reached out for me as rust reaches out for new steel,
His passion weakened the structure of my resistance, and...
I rusted.
The height of bad luck: seasickness and lockjaw.
First Coed: “Does your boy friend have ambitions?”
Second Coed: “Oh yes, ever since he’s been knee high.”
Scene: A lonely corner on a dark night.
A voice: Would the gentleman be so kind as to assist a poor hungry fellow who is out of work? I haven’t a thing in the world besides this revolver.
C. E. Prof: “Now watch the blackboard while I run thru it once more.”
Thermometers:—Something else graduated with degrees without having brains.
“Was her father surprised when you wanted to marry his daughter?”
“Was he surprised? Why the gun fell right out of his hands.”
Thought-Of-The-Month: A pinch of salt is greatly improved by dropping it into a can of beer.
Rippers really rough it—
So radiography checks their stamina

RIPPER SHANKS and clevises at the business end of a high-powered tractor lead a torturous life as they tear through overburden and rock. No place here for a flaw to ruin performance! So Caterpillar makes sure of their stamina—has them radiographed at the foundry that casts them. This is the place for any imperfection to be shown up. For here Radiography can do two things. It can make sure that only sound castings go out. It can point the way to improving casting technique so that a consistently better yield can be had.

Radiography is but one branch of photography that is working day in—day out for the engineer. It is saving time and cutting costs in research and development, in production, in sales and in office routine. You will find that in whatever field you choose, photography will be ready to serve you too.

EASTMAN KODAK COMPANY, Rochester 4, N. Y.

CAREERS WITH KODAK

As Radiography becomes more important in the business and industry of tomorrow, there are excellent opportunities for scientists who want to grow in this field. If you have a doctoral degree in physics and a desire to follow radiography as a career, write for information about careers with Kodak. Address: Business and Technical Personnel Department, Eastman Kodak Company, Rochester 4, New York.
Interview with General Electric's
Charles F. Savage
Consultant—Engineering Professional Relations

How Professional Societies Help Develop Young Engineers

Q. Mr. Savage, should young engineers join professional engineering societies?
A. By all means. Once engineers have graduated from college they are immediately "on the outside looking in," so to speak, of a new social circle to which they must earn their right to belong. Joining a professional or technical society represents a good entree.

Q. How do these societies help young engineers?
A. The members of these societies—mature, knowledgeable men—have an obligation to instruct those who follow after them. Engineers and scientists—as professional people—are custodians of a specialized body or fund of knowledge to which they have three definite responsibilities. The first is to generate new knowledge and add to this total fund. The second is to utilize this fund of knowledge in service to society. The third is to teach this knowledge to others, including young engineers.

Q. Specifically, what benefits accrue from belonging to these groups?
A. There are many. For the young engineer, affiliation serves the practical purpose of exposing his work to appraisal by other scientists and engineers. Most important, however, technical societies enable young engineers to learn of work crucial to their own. These organizations are a prime source of ideas—meeting colleagues and talking with them, reading reports, attending meetings and lectures. And, for the young engineer, recognition of his accomplishments by associates and organizations generally heads the list of his aspirations. He derives satisfaction from knowing that he has been identified in his field.

Q. What contribution is the young engineer expected to make as an active member of technical and professional societies?
A. First of all, he should become active in helping promote the objectives of a society by preparing and presenting timely, well-conceived technical papers. He should also become active in organizational administration. This is self-development at work, for such efforts can enhance the personal stature and reputation of the individual. And, I might add that professional development is a continuous process, starting prior to entering college and progressing beyond retirement. Professional aspirations may change but learning covers a person's entire life span. And, of course, there are dues to be paid. The amount is graduated in terms of professional stature gained and should always be considered as a personal investment in his future.

Q. How do you go about joining professional groups?
A. While still in school, join student chapters of societies right on campus. Once an engineer is out working in industry, he should contact local chapters of technical and professional societies, or find out about them from fellow engineers.

Q. Does General Electric encourage participation in technical and professional societies?
A. It certainly does. General Electric progress is built upon creative ideas and innovations. The Company goes to great lengths to establish a climate and incentive to yield these results. One way to get ideas is to encourage employees to join professional societies. Why? Because General Electric shares in recognition accorded any of its individual employees, as well as the common pool of knowledge that these engineers build up. It can't help but profit by encouraging such association, which sparks and stimulates contributions.

Right now, sizeable numbers of General Electric employees, at all levels in the Company, belong to engineering societies, hold responsible offices, serve on working committees and handle important assignments. Many are recognized for their outstanding contributions by honor and medal awards.

These general observations emphasize that General Electric does encourage participation. In indication of the importance of this view, the Company usually defrays a portion of the expense accrued by the men involved in supporting the activities of these various organizations. Remember, our goal is to see every man advance to the full limit of his capabilities. Encouraging him to join Professional Societies is one way to help him do so.

Mr. Savage has copies of the booklet "Your First 5 Years" published by the Engineers' Council for Professional Development which you may have for the asking. Simply write to Mr. C. F. Savage, Section 959-12, General Electric Co., Schenectady 5, N. Y.

*LOOK FOR other interviews discussing: Salary * Why Companies have Training Programs * How to Get the Job You Want.