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Rose Technic Staff

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A lot of hard work never hurt anyone.
IN THIS ISSUE

Suggestions on coping with an outdated magazine and irrelevant newspaper . . . Read Hardymon, page 10.

In defense of the traditional, now besieged, engineering magazine . . . Shindel, page 12.

Sarcastic, deceptively relevant, and often humorous comment on the Rose experience . . . Read Corbin, page 14.

An assumption you accepted in high school trig. is proven true by a meticulous Rose student . . . See Ehrenwald, page 20.

Here is a highlevel philosophical explanation of professional character in the amateur student . . . Read Gaines, page 26.

Clear statement of the banner which could organize student drive toward coeducation . . . Read Cook, page 31.

COVER NOTE:

This month's cover is a series of circumscribed triangles creating the effect of funneling or spiraling the reader's attention into the center of the design, symbolizing this issue's focusing on itself and the Rose scene. The design is by senior E.E., Pete Doenges.
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**Guest Editorial**

**Editorial**

**Miss Technic**

**Sly Droolings**

**Printed by Moore-Langen Printing and Publishing Co.**

140 North Sixth Street, Terre Haute, Ind.

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Second Class Postage Paid at Terre Haute, Indiana. Acceptance for mailing at special rate of postage provided for in section 1103, Act of October 3, 1917, authorized December 13, 1918. This magazine does not necessarily agree with the opinions expressed by its contributors.
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Contrary to popular belief we are experiencing an exciting period in Rose history. Consider - - -

Senior Traditions Evaluation Procedures
Teacher Evaluation Evaluation of Varsity Athletics
Project Impact Traffic Hazards
Grading System Overhead Projectors
Admission and Placement Admission Policies
New Catalogue

Unfortunately, it is too easy to distinguish which topics were faculty or student inspired.

Leaders in student, faculty, and administration ranks can be proud of recent advances at Rose; however, these must not lead to complacency. I am not sure how much credit we followers can claim. If those in the middle are silent they are forgotten. Student and faculty leadership must become more broad based; each becoming open to suggestions from the other!

Student leaders have exposed some problem areas. Now the faculty should define and analyze particular problems then decide upon specific actions. For these actions to be relevant more faculty must communicate with more students. Perhaps the informal bull session in dorms and fraternity houses will facilitate a better dialogue. If change cannot occur at Rose with its small body of superior students and concerned faculty, where can it occur?

Changes will not be rapid but times will change.
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EDITORIAL

SOME PASSING THOUGHTS

In the Spring issue of last year's Technic, Editor Denny Randle suggested a new policy for the Technic in that it would be willing to print unsolicited letters from students who wished to submit them. After almost a year without a response, the Technic was virtually "swamped" this issue with several articles offered by students for printing in the Technic. We have printed all of them with no attempt to alter their content in any way. I would like to remind the reader that these opinions do not necessarily indicate the views of the Technic staff or the Rose administration.

It is worthwhile to note that these articles are critical of certain aspects of the environment of Rose or of the Technic itself. I feel that any student is justified in being critical of his school and its publications; both are to a large extent subsidized by the student's tuition and fees. He has a right to expect that his money be put to good use.

Hence, in my last editorial, I would like to make an attempt to define the basic philosophy (if such a thing exists) under which we have been operating the Technic of late.

The Technic this year has been distributed to students, faculty, alumni (only certain issues), and some high schools from which Rose recruits new freshmen. This variety of readers creates some conflicts of interest. The publicity office is interested in sending out to high schools a Technic suggesting happy students living on a rustic suburban campus, getting a high quality education enriched with interesting extracurricular activities. What the alumni office wants is a magazine filled with newsworthy articles, preferably about familiar scenes about "Dear Old Rose," or the glittering plans for the future. The intent here would seem to be to arouse the nostalgic feelings of alumni while convincing them of the continuing splendor of Rose education. (Perhaps influencing them to be more generous in their next contribution to Rose). I doubt that either of these needs are exactly what the students are looking for in the Technic. Student interests are somewhat different than that of alumni or high schoolers, and this is necessarily reflected in what he wants to read.

The Technic was originally a technical magazine only, since it was assumed that Engineering students were genuinely interested in their field and enjoyed reading technical articles related to their future careers. However, I have found that very few students really have read the technical articles over the last few years. One might say that the quality of these articles has been poor, but how often do you see anyone reading a technical book for anything other than course assignments. An attempt to form an extra-curricular group for independent technical work flopped last year due to lack of interest.

Consequently, the Technic has tried to change its approach to its technical material to make it more relative to Rose students.

Only material involving the research of Rose students and faculty has been solicited. Term papers gathered from library books have been ignored as a source of articles. This has made the process almost too selective; the last three issues have averaged less than one technical article per issue.

In order to compensate the decreasing technical content the Technic has attempted to draw on more general issues of Rose's environment. Hopefully, this approach would complement the nationwide trend for greater student involvement in school affairs. The format of the Technic offers the opportunity for more thorough discussions of important issues than can the campus newspaper. Obviously, unless powerfully censored, critical articles will often appear in this kind of Technic, which interferes with alumni and publicity interests in the Technic. Many alumni frown on students publicly criticizing Rose policies as actions tainted with rebellion; such permissiveness was not permitted in the past; in fact, the Explorer, the campus newspaper before the Inklings, was disbanded for this reason. Similarly, the publicity office does not want grumbling students turning away prospective students by their use of the publication. The Technic, in trying to cater to all these factors has succeeded in completely satisfying none.

If this dissatisfaction becomes more serious, I feel that it will boil down to this: student interests should have first priority. The money comes mostly from student fees and advertising, and the work is done by students. The content of the Technic should reflect these facts. The content should be a compromise of what students really want to read and what the contributors want to write about. Any other approach would be a waste of time for both the reader and the Technic staff.

One final word must be said about the future of the Technic. The organization at present desperately needs some new blood to survive. A glance at the staff shows two glaring problems. It is almost all Juniors and Seniors of fraternity cliques. This narrowness limits the scope of the magazine and alienates the interest of those who have little personal contact with the staff. With a change in staff due for next quarter, I would encourage anyone with an interest in publications or even student affairs in general to take a position on the Technic. Their interest will be welcomed.

A.J.T.  P.K.D.
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THE TECHNIC MUST GO!

Felda Hardymon

Enter the *Rose Technic*, a student magazine with all the character of back issues of *The Saturday Evening Post* geared to stimulate the student of science and engineering in subjects concerning his education. Technical articles, education articles, a two-page layout of a semi-beautiful coed and a handful of folksy pre-Korean conflict humor comprise such a format. Wrapped in a glossy 3-color cover, printed by the best union shop Terre Haute can offer (with commensurate prices), this Disneyland view of Rose is delivered to each and every student’s box (well, most students’ boxes) periodically (would you believe approximately every two or three months?).

Enter the Rose student (hereafter referred to as “the Rose Man”) not to be confused with a brilliant academician in the fields of science and engineering whose least interests include science and engineering. An aggressive thirster of knowledge, this Roseman equates free time to vacation time free from problem solving and any reading which might be termed heavy or dull. Unfortunately, to be good the Technic would have to become the former which would be a change from what it is now: the latter.

Concern and quality go hand in hand and concern is precisely what the Technic lacks. This is simply because the Technic is the same magazine that served Rose twenty years ago. I have been told that the Roseman of that past ran back to his room to work on the radio he was designing. Tubes, gears, formulas, apple pie, uniforms and test tubes were his bag, so to speak, and the Technic was the kind of voice he, and Rose, needed. Dr. Bailey describes the change as: “3/4 of the students are plain lazy which is up from 1/2 of the students being lazy 20 years ago.” Dr. Bailey is probably right; the fashionably hardworking student went out along with the prepared lecture, the acceptable teaching masters degree, and the graded test returned in three days. Nevertheless, the Roseman has changed and the Technic has not.

For whom is the Technic being produced? Ostensibly, the Technic would seem to be an extension of the public relations office since they contribute some 1500 dollars a year to the Technic’s funds. But conversations with Ken Harris of the PR office indicated that the Technic has been of no use to his department this past year, further indication that the Technic is nothing more than a bed habit. Since it is of no apparent use to the students or the front office, and since ideologically and journalistically it can’t be associated with the humanities department, then it must be a gross subversion on the part of the ROTC department. But if this were so, the Technic would have long ago detailed the excitement of developing intricate new weapons systems for scrapping by congress. The answer is, the Technic is of no use to anyone, including the staff who ever so often, have to take two days of their time to put out another installment.

Not that there is no market for student publications; indeed, a recent survey indicated that 93% of the students read the Technic. Unfortunately, 35% are dissatisfied with the quality. But the Technic does not suffer from a lack of talent as these figures might indicate. There are good writers at Rose capable of producing interesting articles. Moreover, the Technic staff do present a rather professional looking product once it is put together. So how may Rose publications be reorganized to give the students something more interesting than the latest NASA reports?

Since I am now speaking of more than just the Technic, before offering alternatives, a few words about the *Institute Inklings* would be appropriate. It is also hoped these next paragraphs will save the trouble of writing a sequel: “The Inklings must go!”

Two years ago, the Inklings successfully made the switch from an inadequate, drab, dull newspaper printed in the tradition-bound, drab, dull newprint format to a ridiculous, drab, dull newspaper printed in an interesting new format. Those items of schools news particular to Rose which belong on the front page are generally either given second-rate write-ups buried in the paper or are not covered at all. In their place, the first page generally carries editorial type comment in the form of a semi-regular column. The columnists, Cliff Lewis and Don Spatz, are concessions to the loyal opposition and emerging Rose Left, respectively.

Unfortunately, the concessions seem more to good, interesting writing than anything else. Cliff’s style is reminiscent of old Republican campaign brochures and his analysis of all of Rose’s problems in terms of apathy has by now bludgeoned the collective student mind into a state of disinterest about disinterest, or if I may, (apathy). On the other hand, Spatz has allowed himself to be led into the corner marked “resident radical,” and there he sits. His comments (when they are not plagiarisms) reflect his concern, but, alas, (Continued on page 28)
"I don't want to wait for someone to die or retire in order to get promoted."

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Because at IH we believe a promotion is something you earn. Not some kind of hand-me-down just to fill an empty slot.

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So you'll learn a lot. (Maybe even teach us a thing or two.)

What's more, if you join us, you'll be part of a diversified company. One where there's plenty of action in farm equipment, motor trucks, construction and steelmaking.

And you'll also find we're banking heavily on research. (We've got some pretty far-out ideas on computers in trucks, laser beam construction equipment, applications of solar energy and nuclear power.)

As a result, we're looking for test, design, manufacturing and research engineers. We need accountants and production management people. And we need sales people for our wholesale and retail operations.

So talk to your campus placement officer about us. He'll fill you in on the jobs we want to fill.

With minds, not bodies.
THE TECHNIC MUST STAY!

Bill Schindel

The Technic must not go. A basic need exists at Rose for a publication whose goals include:

(i) Providing a medium of expression for those students who are truly interested in a topic of science or engineering, and wish to communicate the notions of that topic, or their special ideas concerning it, to the rest of the student body. Yes, believe it or not, creating solutions to engineering or scientific problems is a valid form of self-expression, just as are music, painting, literature, or other pursuits in which men express or create reference frames, explanations, interpretations, or other meaningful abstractions.

(ii) Providing a framework for experiencing the idea of complete technical writing, for comprehension by the reader, since the downfall of the laboratory report (and indeed, the laboratory itself) has removed this dimension from formal education.

(iii) Promoting respect for work done in technical areas in general. If a need exists at Rose for a magazine or newspaper which has as its main goal a commentary on the American scene, morals at Rose, or the local government’s latest debacle, let such an organ develop itself out of this need, led by the people who feel that need. But let us not “rob the cookie jar” by taking over a magazine which has been through its own struggle in establishing itself as a technical publication, just so that such a new “literary comment” form would be saved a similar justification of itself. If a true need exists for a publication of a different form, let that organization develop itself, not ride on the coattails of another’s successful development.

Unfortunately, The Technic has already started to go, of its (or our) own accord. While the jokes have held at their traditional level of excellence, while Miss Technic has remained her ravishing self, and while the faculty has continued to contribute thought-provoking editorials, the major function of the magazine has slipped into a sticky mire so far from its intended goals that any attempt to liken them cannot be taken seriously.

Instead of publishing the work of students genuinely caught up in a project or outside interest (translation—doing their own thing), The Technic has become Rose’s answer to the “publish or perish” syndrome. Instead of honestly being inside a piece of research or experimentation, and then writing an account, our journalists are generally inspired by a desire to get into print, to win kudos, to carve another notch on their participation totems. But this, friends, is not participation.

Blame not The Technic, or the idea of a technical magazine, though this pattern is only a symptom of a larger trend at Rose and in science and engineering in general. As potential professionals, entering fields that one supposedly does not enter without some enjoyment or fascination, we might be expected to show some “tinker’s interest” while in school. But how many of The Thousand spend a night in the lab on “their own thing”, how many books are read for sheer personal satisfaction, how many classes are entered for reasons other than a requirement? And where does the blame rest? But this, as the old engineer’s saying goes, is another story...

The Technic must not go—but something must.
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MUST I GRADUATE IGNORANT?

Terry Corbin

As I sit here wondering how to write an article which will finally solve the Big Problems, which will make the Rose community Aware, which will once and for all kill that bastard, Student Apathy (who has suddenly become so famous and commonplace that no one pays attention to him), I am attacked by that tradition which is so highly respected here: Ours is not to reason why, ours is but to do and then, and only then, will we get a good job in the real world where everybody knows you can't question anything.

Maybe it is my secret desire to be hated by the establishment for being disrespectful and trying to change horses in the middle of a stream; maybe it is because I am paranoid; maybe it is because I feel that I can never make it in this real world for which I am being trained, but somehow I suspect that the real motivation for this article is a feeling that Rose could be a pretty good school with a few changes.

I suppose that I have already turned off what few readers I had to start with, but for you that remain, pay close attention because there are a few witty and sarcastic remarks ahead which may be worthwhile; you may ignore the constructive parts.

My sermon is on fatalism at RPI. (I've learned from reading the Inklings that all thoughts on What's Wrong With Rose should be presented in sermon form.) I picked fatalism because I didn't want to say apathy because nobody cares about apathy but maybe somebody will think fatalism is some kind of chemical reaction mechanism and will keep on reading. Fatalism is the belief that all events are in the hands of the Fates or, in our case, the Generals, Hershey and Motors. Another way of looking at it is: fatalism is the belief in the impotency of the individual.

I have been involved in Student Government here for all three of my years and I have become discouraged. It is not because no one who can make changes cares what the student says; everyone listens, either because they want to know what ideas the Communists are planting in our minds, or because they like to see us interested (even if our ideas are totally impractical), but barely because they believe that one of these impractical ideas just might be a sign that all is not perfect. I am discouraged because even the Student Government system, because of its limitations stifles inventive (I almost said revolutionary) thought.

The cause, I believe, for all fatalism is business: the professors think of teaching as a job, they teach only things that will be useful in business, and the school unintentionally instills in us the idea that the only thing we will have when we graduate is a good paying job. On the last point I cannot disagree.

Now I have a quote from our catalog:

Launching a young man successfully on a professional career in engineering or sciences places great demands on his students. Because it has been fortunate in securing such competent and dedicated teachers, Rose Polytechnic is more than a close-knit academic community in a beautiful suburban setting. It is a strong resource for educational leadership in its field. I can only hope to understand this quote by reasoning that the catalog was published before I came to Rose and the fire has since gone out. Sometimes I wonder how many of our faculty would survive if the renaissance system was still in effect—the students voted upon the salaries of the professors and could even fire a particularly uninspiring individual.

I know that I am tending to lay all the blame on the faculty when, in fact, the students are nearly as much at fault. It is just that the student has been taught to accept everything without question, despite the fact that "he is encouraged and given every opportunity to develop initiative and self-reliance". That is more catalog propaganda. Upon the faculty lies most of the responsibility for the quality of our education.

But this really is beginning to be a sermon, the last thing I wanted to write since they are so easily forgotten. I have lost the spirit of sarcasm with which I began. I could tell a joke from an old Technic to regain your interest, but instead I think I shall just ask you to hang on and maybe there'll be a humorous typographical error in what follows. The greatest criticism of all contemporary radicals is that they reject the present without trying to shape the future. Rather than being classified as a radical (Heaven for-
Do you keep an eye on the time line?

To gain the competitive edge, the experts in downhill slalom have this advice: “Watch the time line—the fastest course line.”

“In the race against time, if a skier slips off and goes too low in the traverses, he’ll lose precious seconds.”

As you look to your future course, watch for the company whose progress is on a time line with your own.

Ask companies how their expansion and modernization programs stack up in their industry. Find out if you’re interested in the markets they’re interested in. If they have a position that fits the course you’ve set.

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Decisions!
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Consult your college placement officer—or write Mr. William L. Stoner, Engineering Department, Pratt & Whitney Aircraft, East Hartford, Connecticut 06108.
Linda Barkinton is our maid for the month. A junior at Indiana State, she majors in English and seems to minor in bartending. Standing five and two-fifths hands high, she has long brown hair, brown eyes, and a very warm smile. Hailing from Evansville, Indiana, she seems a fitting representative for the month of February.
What company was responsible for the following engineering innovations?

The transistor
Radio astronomy
Negative feedback
High Fi and Stereo
Synthetic crystals
TV transmission
Magnetic tape
Sound motion pictures
Microwave relay
Electronic switching
The solar battery
Telstar

The reason we give this "test" is because the answer to all of the questions is: the Bell System. And because, if the thought of working for us ever crosses your mind, we wanted you to know what kind of company you'd be in.

Be sure to see your Bell System recruiting team when they visit your campus. Or ask your Placement Director for the name of the Bell System recruiter at the local Bell Telephone Company, an equal opportunity employer.

We hope the above final can be the start of something great.
The theory of trigonometry as usually presented in elementary textbooks rests upon an unproved assumption; that with any arc of a circle, there is associated a number which we call its length; or that with any sector of a circle, there is associated a number that we call its area. The notion of the length of a curve or area is capable of precise mathematical analysis; however, this analysis is decidedly more involved than one might suppose. Therefore, we shall in this article lay a firm foundation for the theory of the trigonometric functions.

The following results are essential to our developments, and will be stated for future reference and no attempt will be made at proof.

**Definition: Power Series**

A series having the form

\[ \sum_{n=0}^{\infty} a_n x^n \]

where \(a_0, a_1, a_2, a_3, \ldots\) are constants is called a power series in \(x\).

**Theorem 1: Multiplication of Power Series**

Two power series, for example \( \sum_{n=0}^{\infty} a_n x^n \) and \( \sum_{n=0}^{\infty} b_n x^n \) can be multiplied together to obtain a third power series \( \sum_{n=0}^{\infty} c_n x^n \), where \(c_n = a_0 b_0 + a_1 b_1 + \ldots + a_n b_n\) for the coefficients of the series for \(z_1\) and \(z_2\).

**Example:**

\[ \exp(z_1) \exp(z_2) = \left(1 + \frac{z_1}{1!} + \frac{z_1^2}{2!} + \ldots\right) \left(1 + \frac{z_2}{1!} + \frac{z_2^2}{2!} + \ldots\right) \]

\[ = 1 + (z_1 + z_2) + \frac{z_1 z_2}{1!} + \frac{z_1^2 z_2}{2!} + \ldots \]

Assumption:

All power series in this article will possess derivatives of all orders.

This completes the list of definitions, theorems, and assumptions that will be required as a prerequisite.

The exponential function of a complex variable, \(z\), is defined by the series

\[ \exp(z) = 1 + \frac{z}{1!} + \frac{z^2}{2!} + \frac{z^3}{3!} + \ldots \]

Since \(\exp(0) = 1 + 0/1! + 0^2/2! = 1\)

We shall now define the functions \(A(z)\) and \(B(z)\) by the equations

\[ A(z) = 1/2i [\exp(z) - \exp(-zi)] \]

\[ B(z) = 1/2 [\exp(z) + \exp(-zi)] \]

It can be seen that the infinite series representations of \(A(z)\) and \(B(z)\) are

\[ A(z) = \sum_{n=0}^{\infty} \frac{(z^n)}{n!} \]

\[ B(z) = \sum_{n=0}^{\infty} \frac{(z^n)}{n!} \]

The reader is advised to check the above details. In a similar manner we can also obtain:

\[ B(z_1 + z_2) = B(z_1)B(z_2) + A(z_1)B(z_2) \]

This completes the list of definitions, theorems, and assumptions that will be required as a prerequisite.
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TRIG. FUNCTIONS

(Continued from page 20)

A(z)

It may also be proved that:

\[ A^2(z) + B^2(z) = 1 \]

Proof;

\[ A^2(z) = -\frac{1}{4}\exp(zi) - 2 + \exp(-zi) \]

\[ B^2(z) = \frac{1}{4}\exp(zi) + 2 + \exp(-zi) \]

\[ A^2(z) + B^2(z) = 1 \]

The Periodicity of the Exponential Function

If \( p \) is a complex number such that \( \exp(p) = 1 \), then for all integral values of \( n \);

\[ \exp(nzp) = \left[ \exp(z) \right]^n \exp(p) = \exp(z) \]

Thus, the exponential function is said to have a period \( p \). It will now be shown that there exists solutions of;

\[ \exp(p) = 1 \]

other than zero.

Let \( p = a + bi \) where \( a \) and \( b \) are real. Then;

6. \( \exp(p) = \exp(a + bi) = \exp(a)\exp(bi) = \exp(a)\cos(b) - \exp(a)\sin(b) \)

adding the equations;

\[ 2\exp(a)\cos(b) = \exp(zi) - \exp(-zi) \]

\[ 2\exp(a)\sin(b) = \exp(zi) + \exp(-zi) \]

we have;

7. \( \exp(zi) = B(z) + iA(z) \)

Substituting into equation 6 and equating real and imaginary coefficients we have;

\[ \left[ \exp(a) \right]^2 = \exp(2a) = 1 \]

Squaring these equations, adding and using the identity

\[ A^2(z) + B^2(z) = 1 \]

we get;

\[ \left[ \exp(a) \right]^2 = \exp(2a) = 1 \]

It is apparent from equation 6 that when \( a = 0 \). Hence,

\[ A(b) = 0 \]

However, since \( A^2(z) + B^2(z) = 1 \)

we need only consider \( B(z) = 1 \). It is more convenient to utilize the equation \( B(x) = 0 \). It is readily seen that if \( B(x) = 0 \) then; using the addition formula:

\[ B(4x) = B^4(2x) - A^2(2x) \]

\[ = B^4(2x) - \left[ 1 - B^2(2x) \right] \]

\[ = 2B^2(2x) - 1 \]

\[ = 2[B^2(x) - A^2(x)] \]

\[ = 2[\exp(zi) - A^2(x)] \]

\[ = 2[\exp(zi) - 1] \]

\[ = 2 \]

Thus;

a) The function \( B(x) \) is continuous on the interval \([0,2]\) since it is differentiable.

b) When \( 0 < x < 2 \), we have;

\[ 1 - x^4/4! + x^6/6! > 0 \]

\[ x^8/8! - x^{10}/10! > 0 \]

adding these terms together we get \( B(x) = 0 \) for \( 0 < x < 2 \)

c) the value of \( B(2z) \) is;

\[ 1 - 2 + 2/3 - \ldots > 1/3 \]

Therefore, by the preceding theorem \( B(x) \) has a root between 2 and 2. To prove that \( B(x) = 0 \) has only one root; we note that for \( 0 < x < 2 \)

\[ A(x)/x = 1 - x^2/2! + x^4/4! + \ldots > 1 - x^2/2! > 1/3 \]

Therefore, \( A(x) > 1/3 \) for \( 0 < x < 2 \).

Now suppose that \( B(x) \) has two roots \( x_i \) and \( x_2 \). Let \( x_2 > x_1 \).

Then;

\[ A(x_2 - x_1) = A(x_1)B(x_2) - A(x_2)B(x_1) \]

\[ = A(x_2)B(x_1) = 0.1 - 0.1 = 0 \]

But \( A(x_2 - x_1) > 1/3 \) and \( B(x_2) > 1/3 \) for \( 2 < 2 \). We have reached a contradiction, and therefore \( B(x) = 0 \) has only one root in the interval \([0,2] \).

We shall call this root \( c \). Thus; \( B(4c) = 1 \) and \( P = 0 + 4ci \). The exponential function is seen to have a period of \( 4ci \).

The functions \( A(z) \) and \( B(z) \) are also periodic, with a period of \( 4c \).

Thus;

\[ A(z + 4c) = A(z)B(4c) + A(4c)B(z) \]

\[ = A(z) + 0 \]

\[ = A(z) \]

\[ B(z + 4c) = B(z)B(4c) - A(z)A(4c) \]

\[ = B(z) - 0 \]

\[ = B(z) \]

Let us now consider the unit circle \( x^2 + y^2 = 1 \). The area of this circle is:

\[ 4 \int_0^1 (1 - x^2) dx = \pi \]

To evaluate this integral we let:

\[ x = A(z) \]

\[ dx = B(z)dz \]

Thus;

\[ \pi/4 \]

\[ \pi/4 \]

\[ \pi/4 \]

\[ \pi/4 \]

\[ \pi/4 \]

\[ \pi/4 \]

\[ \pi/4 \]

\[ \pi/4 \]

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\[ \pi/4 \]

\[ \pi/4 \]

\[ \pi/4 \]

\[ \pi/4 \]

\[ \pi/4 \]
Everyone on campus is reading it!

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GRADUATE IGNORANT
(Continued from page 14)

bid), I offer the following suggestions, none of which are new or original. They would hopefully serve to nourish inner creative fires in both students and professors.

1. The proceedings of the faculty meetings should be published. Admittedly, much of the business is just routine upkeep, but I believe that the student should be allowed to sort through the routine and see when things that really affect him are being discussed.

2. An outlet should be provided for those interested to express opinions on subjects that the faculty is discussing. These might be surveys or open forums, such as the ones on senior traditions.

3. Faculty evaluation should be reinstated, perhaps with the results seen only by the individual professors.

4. Some consideration should be given to making grades more uniform, especially inside of each department. An A should indicate the same high level of achievement in every course.

5. Students should have some voice in shaping their curricula. This could take the form of departmental bitch sessions and course evaluations.

These are not demands for, as just one person, I am in no position to demand anything except the education which I am promised by our catalog. It just seems that some of the hypocrisy should be removed: the school should either strive to attain the levels it professes to have already reached, or it should admit its mediocrity.

That was originally the end of my article, but as I re-read it, I feel that I must say something else. I really hate to dilute that last sentence, because I thought it was pretty good—the kind of sentence that makes half the people happy and the other half mad; the half that gets mad is always the one that counts and then they throw away the magazine and mutter idealist and commie and he'll never be an engineer.

There is another kind of fatalist at Rose—my kind. I know of many potential activists—people with ideas—that are so discouraged that they have dropped out, some literally, some figuratively. I have stated most of their reasons for their withdrawal above; in general, they don't like to be ignored. It would take only a small amount of attention to bring them back—if they could be given the feeling that they could do something or learn something.

I am feeling a little more belligerent now, even though I know that everything you have read has already been forgotten. I challenge anyone to prove me wrong on any of my points, and I DARE anyone to try to correct any of the ills that I have mentioned.

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THE ROSE STUDENT IS BOURGEIOUS

Casey Gaines

What I'm after here is to verbalize that nature, that general conduct, that controlling of the spirit through the continuous series of highs and lows toward some basis which typifies the majority of Rose students.

Now what I mean by "bourgeois" when regarded as an element always to be found in human life, is nothing else than the search for a balance. It is the striving after a mean between the countless extremes and opposites that arise in human conduct. If we take any one of these coupled opposites, such as piety and profligacy the analogy is immediately comprehensible. It is open to a man to give himself up wholly to spiritual views, to seeking after God, to the ideal of saintliness. On the other hand, he can equally give himself up entirely to the life of instinct, to the lusts of the flesh, and so direct all his efforts to the attainment of momentary pleasures. The one path leads to the saint, to the martyrdom of the spirit and surrender to God. The other path leads to the profligate, to the martyrdom of the flesh, the surrender to corruption. Now it is between the two, in the middle of the road, that the bourgeois seeks to walk. He will never surrender himself either to lust or to asceticism. He will never be a martyr nor agree to his own destruction. On the contrary, his ideal is not to give up but to maintain his own identity. He strives neither for the saintly nor its opposite. The absolute is his abhorrence. He may be ready to serve God, but not by giving up the fleshpots. He is ready to be virtuous but likes to be easy and comfortable in the world as well. In short his aim is to make a home for himself between two extremes in a temperate zone without violent storms and tempests; and in this he succeeds though it be at the cost of that intensity of life and feeling which an extreme life affords. A man cannot live intensely except at the cost of the self. Now the bourgeois treasures nothing more highly than the self (rudimentary as he may be). And so at the cost of intensity he achieves his own preservation and security. His harvest is a quiet mind which he prefers to being possessed by God, as he does comfort to pleasure, convenience to liberty, and pleasant temperature to that deadly inner consuming fire.

Once, when I was involved in conversation with a father and in all respects a respectable family man, the discussion turned into one of those mutual admiration and acceptance tones as we began to discuss the church. He summed up what he thought the real message his church had had for him was by teaching him temperance and acceptance in all things. My first thought, in the context of church history, was what Jesus would have thought if he knew that the message of his death was to be interpreted as an admonition toward moderation in all things. My first thought, in the context of church history, was what Jesus would have thought if he knew that the message of his death was to be interpreted as an admonition toward moderation in all things.

But then, I thought that this is actually what the church, with all its "Thou shalt nots", authoritative ness and institutionalizing had become. It calls you to obey Christ's teaching, not to experience, for yourself, his thinking. It has become just another regulation, rather than development of life. It no longer calls you to do the things the way he did them but just to do them and thus, seems to have sacrificed his example for his words. It's as if saying, "Oh yeah, I'll obey the rules of the church but saintliness is for one of those underprivileged medieval farmers in Spain or somewhere. After all, I've got my family to protect."

Anyway, my point is not that everyone should be a saint but just to show how the bourgeois looks upon an intense life. He will never lose himself in any aspect of his character but balances them all to keep a tight grasp of his self.

The bourgeois is consequently by nature a creature of weak impulses, anxious, fearful of giving himself away and easy to rule. Therefore, he has substituted majority for power, law for force, and the polling booth for responsibility.

And yet these people flourish. They abound both here at Rose and in society in general. They are the easily forgotten "forgotten Americans" of Nixon's campaign, the tidy shopkeepers and the diligent every day plodders through every single day. Why is it then that they are sustained?

First I would like to describe this amorphous "they" in our own context at Rose. Most of us here allude to engineering, science, industry or more schooling as our road to fulfillment and will define ourselves as what we do, or more accurately, by what we feel we can accomplish. This is the same thing

(Continued on page 28)
Where will Matt Tate be tomorrow?

Wherever the project leads, Matt Tate is on his way. Board bench conference table. This young engineer sees them all at Delco. He was there when the project came from the car division. He'll be there when the model shop builds his prototype. He'll be looking over the shoulders of draftsmen, mechanics and stylists. The project's his. From start to finish. Step by step, skill by skill, Matt Tate's growing with the job. The question is can you say the same? Take a good hard look at how your career shapes up, compared with Matt's and his colleagues' at Delco. We need men who want every week to be a little different. For details, call collect, Area Code 317/459-2808. Or write: Mr. C. D. Longshore, Supervisor, Salaried Employment, Dept. 500, Delco Radio Division of General Motors, Kokomo, Indiana.

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as stereotyping other people and oneself in particular, by grade points. However, this same relegation, this defining of people in terms of output and moreover, oneself as some notch on an intangible scale, is just what I mean by "they", the anxious bourgeois. But then again, who are the rulers of these easily ruled? The answer for the most part here at Rose is because of the thinkers.

By a thinker I mean he, who makes thought his business—that person so disposed as to see thought as an end in itself, he who relishes in the products of his mind and thus, gives credence to the activities of the bourgeois. And yet, what is the plight of this talented minority, the thinker? His produce is far reaching, his spirit intense and yet, in the end, his life is an abstraction. He is as a fish who has given up the water. He has tried to disinherit his instincts for thought and though he may go far in it, he has bartered the solid earth for the water all the same, and one day he will drown.

**TECHNIC MUST GO**

(Continued from page 10)

comes across like Dr. Logan speaking on teacher competence to the faculty: sincere but inhibited.

A main section of the Inklings is a potpourri of the trite, the ridiculous and the antiquated known as "Fraternity News". The general format for the articles which make up "Fraternity News" is to include information which is of interest to that particular fraternity and which I sprobably already known to them anyway. This "news" is set down in language reminiscent of a warm Fizzies, generously sprinkled with such terms as "Brother", "pledge", "The men of", and other holdovers from goldfish swallowing days. It should be noted here that the most interesting fraternity news is usually from Theta Xi. This is probably not because they're the best fraternity but because they're the least like a fraternity, in print anyway. The point is, there must be more going on in the fraternities to write about and, if not, there must be a better way of writing what is now being written.

The rest of the Inklings is comprised of letters to the editor, an editorial, a sports page and a gagle of clippings from the College Press Service. These all seem to be good features except the CPS clippings tend to sometimes overrun the paper. Ken Burkhart should be commended on his editorials which at least takes clear positions on topics relevant to Rose students.

The missing common denominator in all of Rose's publications seem to be organization, concern and excitement. Neither the Technic nor the Inklings have held regular staff meetings, must less, brainstorming sessions which dealt solely with new ideas for articles, features and format. Many people who have been connected with the publications have quit for lack of something to do while others have worked themselves silly doing too much in too short a time. The result is a every -monthy magazine which is conceived, written and layed out in two weeks and a newspaper which relies on CPS and the public relations office to fill in between the two or three semi-news articles written the hour before deadline.

The Rose Publications seem to exist only to perpetrate themselves. That is, in the final analysis, the Technic and the Inklings only come cut as a result of habit much like the proverbial ground hog. There is no discernable concern in either publiction to give direction to what is printed. It seems there is a wide range of concerns to which the publications might address themselves. Notable among these are: broadening student interests, deepening student interest in Rose, supporting the Student Government actively, and acting as a sounding board and spokesman for the student body. Neither publication is actively engaged in any of these but both are promising and sometimes claiming to be all of these.

The problem of making what is printed exciting should more or less take care of itself with organization and concern. Any real problems with interest in articles can be handled in regular staff meetings and recruitment of good contributors.

The most plausible alternative is to combine the staffs, resources, and funds of the Technic and the Inklings into one weekly magazine. The organization would revolve around alternating editors so that the body of the magazine would be the product of two weeks work. The magazine should meet weekly with all involved to discuss new ideas and solve old problems. The columnists should be given a complete free hand. not subject to censorship from either the student editors or the faculty.

Most important, the magazine should attempt to outline a purpose and then strive to meet that purpose. This involves taking stands and sometimes making issues. The students who worked on the Rarely Pro Institute, which came out late last quarter, gave an example of concern and excitement. Unfortunately, much of the quality of the paper was sacrificed to being para-noic about signing the author's names. It is encouraging that with the exception of two of the articles, the paper was conceived, written and produced by Freshmen and Sophomores. Most of these students would be interested in becoming a part of a student publication which did not drag its feet.

It is important that this new magazine not be just a reorganization of the present Technic or Inklings. The idea of a totally new product would dispell the stigma attached to the old. It is just as important that the new publication be a totally student function. This would mean a loss of $1500/yr. contribution by the public relations office but the $2000/yr. which the student government now funds the publications, plus advertising revenues, is sufficient to produce a weekly magazine.

Student publications not only reflect the students, but also provide the life blood to the student body. I am too optimistic about the Roseman to allow that the Technic and the Inklings are doing that now.
You might think that if you come to work for us we'll stick you behind a desk making phones for the rest of your life.

Uh-uh.
Don't be misled by the word Telephone in our name.
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TAU BETA PI ESSAY

WHY SHOULD ROSE POLY BE COEDUCATIONAL?

John Cook

Rose Polytechnic Institute, located on "The Banks of the Wabash," has had a proud and dynamic heritage since its founding in 1874 by the industrialist Chauncey Rose. "Since its first day, Rose has placed emphasis in instruction upon the fundamentals of science and engineering, and upon offering a good foundation in non-technical subjects with the purpose of enabling each graduate to live intelligently in an industrial environment."

However, though these goals of the institute were practiced and soundly justified for our past male-dominated society, I find them lacking in reality in our space-age society of the 1960's. We cannot be prepared educationally in a sexually segregated college to meet the needs of a modern sexually integrated business world. This creates an artificial environment. And so, our continued isolationism as an all men's college has no sound educational arguments to support its continued existence, as was true in our past society. But quite the contrary, the improvements and advantages of a sexually integrated campus here at Rose are many.

First of all, with a little time, we could learn that women are useful for other things than our sexual releases and pleasures. For the present, due to our isolationism, Rose students are learning to associate on a professional basis with men only. Having spent four years in a professional atmosphere of segregation from women, a Rose graduate finds himself in a very uncomfortable position when he suddenly has to relate with women on a job-to-job basis. Because of the need for highly trained persons in our ever increasing complex world, there is more and more occasion to work and associate with business women. They are demanding to have a career of their own, and we should be prepared to work with them. Although a typical Rose graduate has probably had some wild weekends in some girl's apartment or has just had some nice casual dates, he is not by any means prepared to work competitively or in harmony with a business woman. Have you ever, for example, tried to do some studying in a coed library after having spent a couple of days on our campus? Not too easy, is it? What is needed at Rose is integrated classroom and laboratory work with serious-minded career women. The students need this exposure to eliminate the prejudices that could be formed during the college years. This would help them later to better meet these situations in their careers and eliminate the unusual atmosphere of working and studying with women.

Secondly, by integrating the campus with women, a more stimulating intellectual environment through daily interests and enthusiasm could be reestablished at Rose. The all male student body causes men to live only for the weekends. The men dread the long academic weekdays without seeing an occasional skirt. They can hardly wait for the weekends to release their academic and sexual tensions.

Likewise, with women on campus, the student body would show more enthusiasm for campus activities and events. Instead of the students showing a non-involvement attitude by wanting to take their girls someplace where they could be alone (a natural desire since they have only one chance a week to be together), they would be more likely to participate in joint activities with the whole student body. For after all, there would be other times during the week to be alone together.

The integration of women might also eliminate the "suitcase college" atmosphere here at Rose where every weekend fellows go home to see Mom and Dad and to get some free sex. This is alright for a while, but part of the college life is to help the student in his "break away" from home. This cannot take place if he is constantly running home. With women on campus, he would be more likely to hold closer to campus life; thus he would be leaving behind his close family relation as during high school. He, in essence, would become more mature and better able to live intelligently in an industrial environment.

Finally, the integration of women at Rose would help meet the needs of the whole country. The constantly increasing demand for highly trained technical people has attracted many women, but the proper universities have failed to provide enough facilities for them. The colleges to which women are admitted are usually liberal arts and science colleges or just "finishing schools." Certainly Rose could help provide these technical needs. Likewise, if there were more career women in our country, there would be less of a population problem. Women would have interests in life other than being completely domesticated. Thus, if Rose was to open its doors to women, it would be helping the entire country as well.

So if Rose is going to keep with its goals of preparing each student to live intelligently in an industrial environment, there seems to be no alternative except to make Rose Polytechnic a coeducational institution.

Highway engineering is a rewarding career and the State of Washington is an exciting place to work and live. Every phase of highway civil engineering is employed in the Washington Highway Department.

Representatives from the Washington Department of Highways will be on the Rose Poly Institute campus Tuesday, February 18, 1969 interviewing civil engineers. Interested students please sign up for an interview at your campus placement office.
Compliments of Paul B. comes the following:

A plumber wrote the U.S. Bureau of Standards about using hydrochloric acid to clean drain pipes...

Several days later he received this reply, "The efficacy of hydrochloric acid is indisputable but the corrosive residue is incompatible with metallic permanence."

Confused, he wrote again and asked if the acid "is okay to use or not."

A second letter advised him, "We cannot assume responsibility for the production of toxic and noxious residue and suggest that you use an alternative procedure.

Still baffled, he wrote, "Do you mean it's okay to use hydrochloric acid?"

A final letter resolved the question.

"Don't use hydrochloric acid. It eats the hell out of pipes."

Editor's Note: Many of you readers have not learned to appreciate good humor. (That probably explains why I've received so many threatening letters since I started this job.) Consequently, I have decided to give you a basis for comparison by devoting the rest of this issue to jokes used in Technics of the past.

October, 1932:
First Coed: "Ted told me you love tomatoes and are a restless sleeper."
Second Coed: "I wonder how he knows I love tomatoes."

June, 1917:
Zero: "Bill told me a funny story in New York and when I got to Chicago I couldn't remember it."
Kolder: "That was carrying a joke too far."

October, 1965:
Prof: "Will the gentlemen in the back of the room stop passing notes."
Student: "We're not passing notes, sir. We're playing bridge.
Prof: "Oh, I beg your pardon."

April, 1908:
The following definition of "quiz" is found in Webster's dictionary:
Quiz: A hoax; a jest; one who quizzes, v.t., To make fun of as by obscure questions.

February, 1933:
Minister (at baptism): "His name, please?"
Mother: "Algernon Phillip Reginald Mortimer Duckworth."
Minister (to his assistant): "A little more water, please."

November, 1926:
Small boy looking at elephant: "Mother, ain't that a hell of a big animal?"
Mother: "Son, how many times have I told you not to say ain't?"

May, 1923:
"The sky's the limit," cried the aviator as he flew over Terre Haute.
May, 1927:
"The next person to interrupt the proceedings will be sent home," declared the irate judge.
"Hurray!" shouted the prisoner.

November, 1962:
Strolling out the door we overheard two aging but spirited professors discussing a gorgeous blonde who was walking nearby.

"You know," said one, "I feel like taking her out again."
"What," said the other, "you mean you've been out with her before?"
"No," admitted the first, "but I felt like it before."

May, 1923:
It is said that an absent minded professor once poured syrup down his back and scratched the pancake.

April, 1927:
"So I told the freshman to endorse the check his family sent him."
"Did he do it?"
"Yes. He wrote on the back, I heartily endorse this check."

May, 1933:
Head Engineer: "Sorry I can't give you a job. There is hardly enough in sight to keep the men I have busy."
Poly Grad.: "That's all right. The little I'd do wouldn't make any difference."

April, 1927:
Sophomore: "What is your greatest ambition, Frosh?"
Freshman: "To die a year sooner than you."
Sophomore: "What is the reason for that?"
Freshman: "So I will be a Sophomore in Hell when you get there, sir."

November, 1922:
Wagge (in Thermo): "Tyler, what is a British Thermal Unit?"
Tyler (just come to life): "Why, a B.T.U."