## Elevated pipe recommended

Forestry Service recommends pipelines in the north be built above ground rather than buried.

In a telephone interview with Gateway he said "original calculations" in planning the pipeline were wrong and there

Steve Zoltai of the Canadian would be heating in the line which would melt permafrost if the pipe is buried.

The pipe would be without support, possibly leading to cracks and leakage.

Zoltai said at a Boreal Circle meeting Tuesday

pipe designed to run cold would create permafrost where originally there was none and have a damming effect on the environment's natural flow of

I'm no engineer and the details should be worked out by them, but pipe should be built above ground," he said.

"Wherever possible, damage should be minimized and can even be nonexistent if the information we have already is put to good use.

"The least damage can be done by avoiding deterioration or promotion of permafrost," he

How? "Well, that could be fairly difficult," Zoltai said, "Perhaps by laying the pipe with sections above ground on struts or by laying it on the ground and covering it with gravel. I repeat I'm not an engineer.

An elevated gas pipeline would be extremely costly, he said, probably about four or five times more expensive than bury-

It would need high carbon steel because the gas is under high pressure in the line. Temperature changes and stresses require a thick-walled pipe of high quality steel and the struts need to be extremely strong

However, he suggested, it may make repairs easier and less costly in the long run.

"In all, we have got to be more flexible in our thinking and planning. I know the plans in the beginning were absolutely inflexible, but they're bending a bit now.

"Wrong calculations have been found, so alternatives are being sought. Then again recommendations of the Berger

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well as National Energy Con sion findings.

If this permafrost mells result is mud. Using slin lustrations, Zoltai showed of the actions of this perm on the overlying active soil

Many areas, he said, subject to frost heaving churning soil so that the va horizons are mixed togethe

"The polar gas route cover a great deal of this ten said Zoltai.

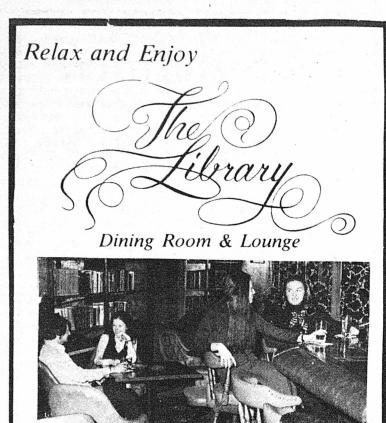
Part of the gas route plan said, involved blasting but will heaving and water seer affect this land? He said would work on other object

Some solids, he said, li when only slightly disturbed water. "Solifluction" and flow downslope an active lave soil may occur on top o permafrost.

Sometimes vegetation promote permafrost by sulating pockets of ice. Z illustrated how these clump vegetation could be related small but as the landso matures, so does the amou permafrost.

Man also has left scars northern landscape. § slides were shown of bulldozed in the past.

Subsidence or sinking of around results. With such subsidence, he said, often will collect in the trench cause gullying. An instand this was well illustrated by as of an old mining road which sunk 10 feet down and wide 60 feet and was now threate the mining camp.

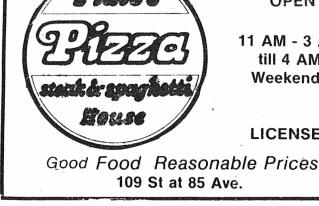


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**ALL LECTURES BY** PROFESSOR McKILL, ENGLISH DEPT. 12:00 - 1:00 P.M. **Tory Lecture - 12** 

MONDAY **JANUARY 24**  Approaching a Topic

researching

point of view

narrowing/focusing

WEDNESDAY **JANUARY 26** 

MONDAY

**JANUARY 31** 

Outline

- structure

organization

**First Draft** - introductions

- topic sentences

- transitions

- conclusions

WEDNESDAY

**FEBRUARY 2** 

Revision I

common grammatical errors

MONDAY **FEBRUARY 7** 

Revision II common problems in punctuation

WEDNESDAY

**FEBRUARY 9** 

Revision III

writing more effective sentences

writing with greater economy

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