

...Reports of our health are greatly exaggerated...

Every Canadian should be able of informed thought about the energy question. Even if it is just a predicament, the energy crisis cannot be ignored, it can be left to specialists. The energy crisis must be based upon quantitative facts. We must be capable of carrying out appropriate calculations: the "feel" for data must be a feel for facts and numbers. The energy question cannot be left to specialists because it is a moral question and demands moral judgements. Those judgements cannot be responsibly made in ignorance of elementary physical principles. It is not the instinct for self-preservation which is engaged, it is the quality of life which is threatened. Distinctions of quality can be made only through morality, and therefore the energy question cannot be answered only by facts, figures, tables and new technology. Any effort to be purely "objective" and "scientific" about energy is misconceived. Changes in attitude and behaviour must be accompanied by philosophical reorientation if preservation is to be practised as a way of life. The change should occur in terms of the biosphere, with no appeal to divine agencies. The hydrocarbon-based technology of the twentieth century has been mismanaged economically, environmentally and philosophically. Stewart Udall, who spoke at the U of A on May 18, 1976, is convincing on that point. He speaks of the "super-optimism" and the naive faith in technology and economic growth which dominated the thinking in the 50s and 60s. He speaks of "litanies" to technological advance, and isn't using the word lightly or metaphorically. As secretary of the Interior during the Kennedy and Johnson administrations his policy was based upon "bigger and better", but Udall is now convinced that bigger only appeared better. "Bigger" was actually the product of a machine advancing toward destruction under its own momentum. Udall thinks the machine may grind to a halt, if it doesn't self-destruct, and to avoid catastrophe immediate action must be taken. When the statistics, graphs and tables are presented, they must be absorbed critically. The vice to be avoided is commitment to an inflexible ideology, whether it be industrialist, Marxist or environmentalist. The salvationist tone must be avoided also: cutting energy consumption in half will not guarantee a place in heaven. In 1973 the U.S. Atomic Energy Commission had 93 million gallons of liquid radioactive wastes in storage. Is it a dangerous amount? No, fully satisfactory storage system exists, but one of the best burial of radioactive wastes in abandoned salt mines. The projected radioactive wastes on hand in the year 2000 could be stored in 1 per cent of the available 400,000 sq. miles of U.S. salt formations. Does this mean that the disposal problem can be easily solved? Plutonium, the most dangerous waste, has a half-life of 24,000 years. That means that you have a chunk of plutonium emitting 100 units of radiation per hour, in 24,000 years it will be emitting 50 units per hour. One estimate of the world plutonium stock in 1980 is 21,000 grams. Another way of looking at the disposal and contain-

ment problem is to ask, "How dangerous is plutonium?"

One millionth of a gram of plutonium inhaled into the lungs as dust gives a high risk of lung cancer.

The accepted industrial safety level is one billionth of a gram.

The world population is about 4 billion people.

A little arithmetic gives the absurd result that in 1980 there will be enough plutonium stockpiled to kill every human being on the planet 5000 times.

Is there any reason to worry?

"...let me cite you three examples of what are euphemistically called 'mis-routings' during SNM (special nuclear material) shipments:

"In March 1969, a container of highly enriched material was scheduled to go from Portsmouth Ohio, to Hematite, Missouri. It didn't get there. The AEC, the FBI, the airline, the police and untold numbers of individuals searched in vain for the shipment which was dispatched on March 5th. Finally, on the fourteenth, it was located in Boston.

"Also in March 1969, highly enriched uranium was booked for departure from New York's Kennedy International Airport on the 11th for deliver to Frankfurt,

Germany, on the afternoon of the 12th. The material did not arrive. Five days later, on March 17th, it finally turned up in London where it had apparently been offloaded in error.

"Only last month a drum of waste containing a small amount of 70 per cent enriched uranium was consigned for delivery from one firm to another in the same California city. It was, instead, sent to Tiajuana, Mexico. The report on this matter was imaginatively entitled "Inadvertent export of special nuclear materials."

Plutonium must be regularly transported back and forth between reactor sites and chemical processing plants, and will not all be buried because it is used in breeder reactors as a fuel.

The danger is nuclear blackmail by terrorists. One pound of plutonium pounded into fine dust then sprinkled off rooftops would be enough to induce lung cancer in every resident of London, England.

The calculation and the numbers suggest that there is an energy problem. Someone who was told that the projected radioactive waste for the year 2000 can be stored in 1 per cent of the available U.S. salt formations might be lulled into complacence.

cy.

The present world power consumption is about seven million million watts. An average Edmonton home burns 180,000 cubic feet of natural gas per year. Assuming four people in the house, 15 light bulbs per person of power are used just for heating.

That doesn't include transportation, light, electric stove and all the energy used to make stereos, bridges, combines, aircraft hangars and university buildings.

Plainly, Edmontonians consume much more per capita than the world average. But are we consuming too much? What if we could harness solar power?

The surface temperature of the sun is about 5500°C. Knowing the radius of the sun and earth, the distance of the earth from the sun, and making a crude correction for the effect of the atmosphere, we can easily calculate the amount of solar energy striking the earth's surface at any given moment. The figure is about ten to the 17th watts, more than 10,000 times man's total energy consumption.

Does solar energy then offer the ultimate renewable energy

source? Can world governments tell whether solar energy research deserves ten or ten million or ten billion dollars per year?

The total radiation falling on a horizontal surface in Edmonton is .41 million B.T.U. per square foot per year. Our average home burns 1.85 hundred million B.T.U. worth of gas per year.

A solar heating system which was 100 per cent efficient would require 460 sq. feet of receptors. The cost of the receptors, accessory plumbing and the type of heat-storage facility necessary in Edmonton could not be earned back over the lifetime of the house.

The same kind of computations are necessary in discussion of oil, wind power, fusion and the MacKenzie Valley Gas Pipeline.

It is sobering to note that on June 28, 1971 the city of Chicago experienced a heat wave. Partly due to air-conditioners the city consumed an amount of electricity which would require the burning of 100,000 tons of coal at a coal-fired power plant.

The scale is monstrous.

Colin Ross
Commerce 2

Thakur's views twice lampooned

Will it never end? I refer to the constant verbal diarrhea issuing from one Vidya Thakur (representative of Guyana, FSAC, Arts, Education, etc. *ad nauseum*), who would appear to have discovered *Gateway*.

Although I have little desire to deny Mr. Thakur his freedom of speech, I find his constant allegations of various 'isms' (directed at individuals or groups unwilling or unable to accede to his whims) indicative of an unusual outlook, and detrimental to the various causes with which he associates himself. His latest attack, on Jan Grude, again uses all the right words for the wrong purpose. He still manages to bring both political motivation and racial connotations into his argument. I find this surprising as it is my understanding that Mr. Thakur is still a member of the Edmonton Cricket League who's actions he had described as racist.

May I suggest that anyone in doubt of the stupidity of his constant allegations review but one of them by attending any function connected with cricket in this city. It will be seen that the last charge that can logically be levelled at this group is racism.

In spite of Msrs. Thakur and Finkel's cheap shot, I am confident that Eileen Gillese and Ken McFarlane will not sacrifice their Rhodes Scholarships simply to ingratiate themselves with the Free South Africa Committee. I refer, of course, to the disgusting letter which appeared in the *Gateway* of December 9, 1976. I am writing as a graduate student unfortunate enough to have to share his faculty with the likes of Rishee Thakur.

A Rhodes Scholarship is universally regarded as being the highest academic distinction in the British Commonwealth. No one can honestly fail to recognize

its significance, regardless of what one may think of the circumstances of the Rhodes Scholarship Foundation. One could easily dismiss Thakur and Finkel's letter as the work of ignorant cranks. Unfortunately for Thakur at least, he, as a postgraduate student, doesn't even have that excuse.

If Thakur and Finkel have the incredible gall to get opinions like theirs into print, they ought to show the minimum decency of a public apology to Eileen Gillese and Ken McFarlane.

F.S. Singh
Commerce

P.S. I applaud the stand of the B

But then perhaps logic is not necessary when levelling 'ism' charges, emotion is surely more effective.

Peter Wrenshall
Grad Studies

of G re Foreign Students — do attitudes such as Mr. Thakur's, make their task easier?

Dipzhits dicker

"It is better to live on your knees than to die on your feet," proclaimed gay activist Fletcher Wimp after enjoying a particularly mirthful faux pas by council last week.

Following on the heels of their denunciation as 'dipzhits' by another prominent politician, council seemed doomed, according to some observers, to a lifetime of fumbling and waffling.

Chortled one, "Never too young a shirt to stuff."

Hank Luce
Graduate Studies

Charles Lunch

It's been nearly a year since Joe Clark replaced Robert Stanfield as Leader of the Opposition. In that short time he has risen from obscurity in the bush of Alberta to become one of Canada's most dynamic political leaders ... or has he?

Mr. Clark suffers from a strange disease that often proves fatal to up-and-coming politicians. It struck down his predecessor (Boring Bob) in his prime of life, just as it had destroyed such notables as Arthur Meighen and Adlai Stevenson.

The disease is obscurity, and no one knows better than Joe himself that it will only be a matter of time before he begins to fade into the thin air of anonymity.

His surprise meeting with (the late) President Ford last July, on the eve of Prime Minister Trudeau's visit to Washington, was a desperate attempt to show Canada that he too could discuss relevant issues with major world leaders.

Only much later did we learn that the President had in fact been expecting the coach of the Miami Dolphins, and had spent all his time with Clark trying to lay

odds for the next season. As it turned out, poor Joe lost \$150 on a pre-season NFL game.

Clark has had nothing but trouble since then. It was only last week that he finally forced the Ottawa Press Club to stop referring to him as "Joe Who?"

Even Canada Post has trouble remembering who he is — Clark's invitation to the Carter Inaugural on January 20th (which he paid through the nose for), was sent by mistake to a Joe Clark of Goose Harbour, Newfoundland. The 57 year old herring salesman has refused to return the tickets until his wife decides whether or not they can afford the trip to Washington.

These problems are merely a drop in the bucket compared to what awaits Joe at the next election. If the Canadian public continues to mistake him for the host of Front Page Challenge, he can rest assured that the keys to 24 Sussex won't be leaving Trudeau's sweaty palms.

As one reporter friend said recently — "Joe Clark can't even get his wife to recognize him in bed. What hope has he with the Canadian electorate?"

What hope, indeed?

