

Dr. Leo Yaffe, and the hazards of not going nuclear

by David Matsch

Marked by blind emotion and a definite lack of scientific credibility, the anti-nuclear faction needs to accept that "no endeavour in this world is absolutely safe," said a McGill University nuclear chemist on Thursday.

Dr. Leo Yaffe told his audience at Dalhousie University that nuclear energy is one of the safest ways of generating electricity when compared to such conventional sources as hydro and fossil fuels.

As well, Yaffe believes a nuclear energy program is necessary for Canada's economic and political independence and stability. Without the development of nuclear power this country will continue to rely heavily on oil supplies from the OPEC nations — sources that are both unreliable and finite, he said.

Even if present consumption of coal and oil rises by only 3.3 per cent each year, the United States' coal reserves will be exhausted in 150 years and world oil supplies will last a mere 45, he said.

Conservation can only "act as a small palliative" and solar energy is promising but still without practical universal applications. By the year 2000, it is estimated that only six per cent of the total electrical energy used in the U.S. will be produced by solar energy, he said.

Yaffe repeatedly singled out the media for attack, for hyping the dangers of nuclear energy compared to the well-known dangers of non-nuclear energy.

He presented a wealth of facts pointing to the hazards of non-nuclear sources of energy, that are in fact well-known but do not receive the amount of media coverage that their comparative seriousness calls for.

He cited the examples of coal miners dying from black lung disease, the environmental damage from oil tankers breaking up, and many lives lost when a hydro dam bursts.

12,000 people died in 1979 in India, when a dam broke. Had the cause of these deaths been nuclear, "the world would have been shocked," Yaffe said.

Yaffe drew further comparisons between the environmental and health hazards of non-nuclear energy and nuclear sources. It is estimated that 2300 dams in the U.S. are virtually unsafe. A single 1000 megawatt coal fired power plant releases daily nearly 300 tons of sulphur dioxide (SO₂ plus water equals acid rain), nitrosamines and fly ash to the atmosphere. A nuclear reactor of similar energy output would produce none of those wastes, Yaffe said.

A coal powered station "normally emits" one million times as much radioactive waste as the oldest U.S. nuclear plant every year, he said.

The "systems and schemes

for properly containing the radioactive wastes are extremely well-developed," Yaffe asserted, whereas the ashes from the coal fired reactor, with all their "radioactive burden", are "indiscriminately distributed." Today, nuclear wastes can be safely encased in glass and indefinitely stored in selected areas. Scientists have discovered glass beads that have existed for millions of years without being damaged, he said.

Yaffe said the anti-nuclear movement was caused by "public hysteria." Yaffe equated the oft-heard comment that there is enough radium in a nuclear reactor to cause cancer for everyone in the world, to the idea

that there is enough water in the St. Lawrence Seaway to drown everyone in the world. "Of course this just doesn't occur."

As well, anti-nuclear protesters "seem oblivious to the fact" the number of reporters on the scene. -- the media 'seeks' sensation more than the truth.

When questioned about the long-term health effects of the radioactive gases released at Three Mile Island, Yaffe replied that the dose to the surrounding population was negligible (20 times less than that of a standard chest X-ray), adding that irradiation health hazards had been widely studied and those as low as at Three Mile Island were believed to be harmless.

that an average of 200 coal miners are killed in accidents and thousands more suffer from black lung disease annually, while deaths and disabilities in the nuclear industry are few and far between, he said.

Yaffe puzzled over why nuclear critics like Jane Fonda, untrained in the technology, could command more public attention than the nearly 300,000 scientists and engineers who have endorsed nuclear power.

Perhaps, he observed, it is true what a Montreal commentator said of the emotional furor surrounding the Three Mile Island accident -- "the gravity of any situation varies directly as

Yaffe's presentation is incomplete, says Ecology Action Centre

by David Matsch

As a nuclear chemist, Dr. Leo Yaffe can speak with technical authority but he should not attempt to discuss energy policy or medical statistics because neither are his field of expertise, the research coordinator at the Ecology Action Centre said yesterday.

Susan Holtz scoffed at Yaffe's assertion that energy conservation could act "only as a small palliative" and questioned whether the scientist had done the "paper homework" necessary to keep pace with recent federal studies on soft energy policy.

Because Yaffe is a renowned scientist he could declare that the Three Mile Island incident may only cause one additional cancer death to the 325,000 that would be expected in the lifetime of the two million people within 80 kilometers of the plant, Holtz said.

"But where did he get those figures," she asked. "Yaffe never offered a reference."

Holtz admitted that extensive research had been conducted on the health effects of radiation but debated whether Yaffe could reasonably imply that

doses released at Three Mile Island were so low as to be insignificant. "A lot of research does not mean there has been enough" ... "just because we know about doing or preventing something doesn't mean we implement it collectively," she said, adding that governments often neglect safety because of the financial (technical) cost of putting it into practise.

The problem of human fallibility and people taking safety shortcuts (Three Mile Island) become dangerous during the technical demanding operation of a nuclear power reactor, she said.

As well, the scientist in Yaffe appeared unable to comprehend the present economic fac-

tors of nuclear energy, she said. Besides continuing the study of nuclear safety, it is important to examine the cost and demand for electricity via nuclear reactors. In the Atlantic, Holtz said the electrical requirements are different than those in central Canada, where the demand comes from a more concentrated industrial base. But the seasonal fluctuations of electricity use inherent in home owner use, as is the case in the Atlantic, is inefficient and hence more expensive.

Holtz has just finished conducting a research project (funded by Energy, Mines and Resources Canada) on the soft-energy strategy for the Atlantic region. The report (as yet

unpublished) challenges the traditional energy growth curves nuclear proponents uphold as proof that Canada needs nuclear power. It concludes that increases of five to seven per cent in annual energy requirements are unrealistic and out-dated.

By the year 2000, energy demands will begin to taper off, Holtz claimed

But Holtz's scenario does not mean "we are talking of a deprived future." Canadians will pay more for energy but their society will be far richer in technology. She said the study claims that economic growth and technical efficiency can be realized primarily through effi-

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Dal is into mindpower

by Heather Roseveare

"Canada's Energy is Mindpower" is the slogan attached to a campaign used by twenty-five Canadian universities, including Dalhousie, to sensitize the public to post-secondary needs.

"It's not necessarily to increase financial contribution

to Dalhousie," says Roselle Green of Dalhousie's Information Office, which co-ordinates the Mindpower campaign. Any type of support from citizens, businesses and the government is appreciated.

The campaign originates with the Council for Advancement

and Support of Education, an American-based public relations organization which has attracted Canadian involvement in its program.

The promotional logo decorates much university and community literature. Two features have been sponsored in conjunction with the campaign. Last November, Benito Casadas of the Jet Propulsion Laboratory in Pasadena, California, addressed a full house of high school students at the Cohn Auditorium. Last Friday, a forum entitled "Scientific Research: Boon or Threat?" was held at the Weldon Law Building.

Green reports that the promotion was originally to be used by Dalhousie for one year after it was adopted last October, but, because of its effectiveness, the campaign will continue after a year is up. "It will be an ongoing thing," says Green.

Green encourages "anybody at Dalhousie" to contact her (424-2517) if they are interested in using the Mindpower theme with their activities. The School of Pharmacy will be tacking the Mindpower logo to their promotion posters for the upcoming Pharmacy Week.

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unacceptable technology: 1. Scientists should stop taking research money from firms who will not take responsibility for any unwanted discoveries; 2. Scientists should deny their services to these questionable firms; 3. There should be an organized effort to publicize scientific knowledge; 4. Scientists should exercise self-control in certain areas of research.

However, many did not agree on the practicality of a knowledge bank, including Yaffe. The bank would have "no relation to reality" since much technology is only understood by a handful of people in the world, he said.

A scientist in the audience explained that science is a cooperative effort. For example, a discovery by a biologist is later

studied by a virologist and a pharmacologist, a problem exists as to when the new knowledge should be added to the bank.

Hammond said a problem lied in how scientific knowledge should be distributed as a resource. There needs to be a "balance between creation and dissemination and utilization of technology."

Karen Knop explained that there is value in seemingly useless knowledge that society is not aware of. As a mathematician, she noted that advancements in polynomial theory are relished by the CIA, who apply this technology to their use of secret codings.

Knop is aware of the social restrictions placed on the work

of scientists. "Society should allow the scientist to study freely, then place restrictions on how this knowledge is used."

The question of the quality of media attention given to science and technology was addressed by Braybrooke. Scientific knowledge is "unrecorded and misrecorded in the press" although "raising the level of scientific literacy will not diminish the responsibility of scientists."

Yaffe explained that society was ignorant on science issues because "scientists are horrible communicators." Most scientists keep to their laboratory.

Chambers said scientists are responsible citizens, too. They are only as good in their field as other citizens are in their's, he said.

