WORLD ISSUES AND AIDS:
A GEOGRAPHICAL PERSPECTIVE
OAC GEOGRAPHY CURRICULUM OF AIDS FOR WORLD ISSUES

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A PROJECT

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Abstract

This project is designed to provide teachable curriculum along with supporting materials for the OAC Geography - World Issues course, as it is taught at present in the academic stream of Ontario's secondary schools. Discussions of guideline requirements and disciplinary matters are also included. The topic is the infectious disease Acquired Immune Deficiency Syndrome (AIDS).
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Chapter One - Educational Considerations

"The primary intent of the geography OACs is to provide a global perspective on contemporary issues. Studies based on global issues will assist students to increase their understanding of their world, recognize its diversity, and clarify their place in its varied, interacting systems."¹


"'Students come to us having sat around for twelve years expressing attitudes rather than analyzing,' he says. Again, these complaints are amply substantiated by data from the National Assessment of Educational Progress. On one test of analytic writing measuring 'the ability to provide evidence, reason logically, and make a well-developed point, 'only four tenths of one percent of eleventh graders performed at the elaborated...level....' Providing that basic intellectual scaffolding used to be a major function of a good high school education.... Essays in which the writer marshalls evidence to support a coherent logical argument are all too rare."²


The 'Curriculum Guideline' for the Ontario Academic Course (OAC) Geography gives the classroom teacher a pleasing degree of autonomy and wide latitude with regard to what is taught in the OAC World Issues course. The guidelines in Part F stipulate that roughly five to ten percent of the course time should be spent

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on an introduction to a geographic mode of analysis and thought, that roughly twenty-five percent of the course time should be spent on environmental issues (two), that roughly twenty-five percent of the course time should be devoted to economic and/or resource issues (two), that roughly twenty-five percent of the course time should be spent on cultural and/or political issues, and that throughout the whole course roughly fifteen to twenty percent of the course time should be used for directed and monitored independent study. Within the time framework of these stipulations, the individual teacher can, with due forethought and consideration, select appropriate content for his or her class. The 'Curriculum Guideline' provides some suggestions for the cultural and/or political issues to be studied:

* "the changing roles of men and women"
* "migration"
* "population compositions and their effects - factors of demographic change, age-sex ratios, disparities in wealth, provision of public health, characteristics of the labour force."

From amongst these suggested issues and the wide range of potential, though unmentioned topics, a teacher must select - in essence - two major issues for this section of the course. One of those potential issues of especial import in 1994 could be the global issue Acquired Immune Deficiency Syndrome (AIDS). Once more, the guidelines allow the selection of this particular issue: "There are many cultural and political issues that may serve as possible topics for study.... The issues chosen for study must be global in scale." The AIDS issue is certainly 'global in scale': many
scientific authorities have termed it a 'global pandemic'. In addition, AIDS has a striking immediacy for Ontarian eighteen and nineteen year-olds that few other issues of global scope have now. In a course like OAC World Issues, student interest and empathy is critically important.

Geography has not fared well during this period of educational adjustments of recent times in Ontario. In the 1990s, for example, an Ontario high school student needs only one full credit (out of thirty credits) in geography in order to matriculate. Traditional courses like geography and history are usually studied at the grade nine level for their solitary, mandated, Canadian-focus credits. Students in grade ten through to OAC fill up their timetables with what are seen as more 'relevant', 'profession-directed', or 'glamorous' courses such as computer sciences, marketing, accounting, law, business skills, or information technology and design. Lately, these latter courses are seen by a plurality of students - who have the freedom to personally select approximately fifty percent of their courses - as being attractive for their apparent utility and applicability to possible future occupations. Many parents and teachers hold different views. Thus, the young lawyer-to-be can now study the Law for three years in high school prior to his or her matriculation and feel somewhat more prepared for a legal career. The fact that generations of fine and brilliant lawyers studied history and geography, Latin and grammar instead in the past and succeeded nonetheless is now deemed irrelevant. The great specialization 'rush' is now on in the high schools. The high school student of the 1990s is being made to feel quite small.
if he or she cannot lay out his career path from grade ten. One result of this 'career focusing' has been that those courses that were deemed non-essential have been gradually eliminated from the high school offerings.

The OAC level (formerly known as grade thirteen for the vast majority of Ontario students) provides students with a range of courses that is as broad as the teaching staff at any given school is capable of teaching. Business-oriented students can take law, accounting, marketing, business mathematics, humanistic science (like OAC Science in Society), English, and something 'interesting'; science-oriented students take scientific mathematics (like algebra), physics, chemistry, biology, English, and something 'interesting'; Arts (those bound for Arts and Humanities subjects in the university level) students can choose from a range of courses depending on their aptitudes, inclinations, interests, and abilities. The courses range from modern western civilization (OAC History) to music, from physical health education to visual arts, and from marketing to geography. OAC students now select from a broad range of courses, OACs that will not only get them into the university of their choice, but will also introduce them to aspects of their future careers.

OAC Geography is or can be somewhat disadvantaged in this highly competitive market-place. OAC World Issues, as one of the two OAC Geographies offered in the curriculum guidelines, has enjoyed considerable popularity since its emergence during the mid-1980s. (The curriculum guideline for this course 'Part F' did not appear until 1988). In schools where OAC World Issues is taught well, it is
quite common for half the OAC students to take the course prior to graduation. As young adults in their final high school years, students are more and more aware of the world around them and of the specific communities in which they live. Many senior students are attracted to a course like OAC World Issues. Moving beyond a simpler analysis of current events, the course on World Issues introduces students to their world in a systematic and meaningful fashion using the discipline of geography. Though the typical OAC student usually lacks a proper background in geography, the course proceeds as "geographically" as is possible, under the circumstances. The guidelines, Part A in this case, spell out the "Fundamental Geographic Conceptions" central to any high school geography course:

1. Location - relative and absolute
2. Pattern - organization of phenomena
3. Region - areal distinctiveness
4. Spatial Interactions - linkages
5. Human Interactions - humans' interactions with the environment."

These fundamental approaches usually serve to underpin a teacher's approach to OAC World Issues and to provide foundations for the course. The curriculum guidelines advise throughout that a teacher should approach the subject matter or course content through the "Cognitive Skills Model", which furnishes a framework for a rigorous intellectual course of study. This prescribed "Cognitive Skills Model" consists of eight, 'higher order' cognitive skills. These are "focusing", "organizing", "locating", "computing", "interpreting", "applying", "evaluating", and "selecting".
"recording", "evaluating", "synthesizing", "applying", and "communicating". This model, so crucial to the academic viability of the OAC World Issues course, provides the students with an opportunity to structure and order a wide range of very varied material. The model is presented below:

"Cognitive Skills Model

<table>
<thead>
<tr>
<th>Skill</th>
<th>Description</th>
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<tbody>
<tr>
<td>Students:</td>
<td></td>
</tr>
<tr>
<td>Focusing</td>
<td>- limit, direct, or define a topic, a problem, or an issue under study;</td>
</tr>
<tr>
<td>Organizing</td>
<td>- select or develop a visual representation, a chart, or an organizer in</td>
</tr>
<tr>
<td></td>
<td>order to focus on the topic, problem, or issue under study;</td>
</tr>
<tr>
<td>Locating</td>
<td>- identify, find, and use reliable and relevant sources of information;</td>
</tr>
<tr>
<td>Recording</td>
<td>- summarize and translate the information they have collected;</td>
</tr>
<tr>
<td>Evaluating/</td>
<td>- determine the validity, appropriateness, significance, and</td>
</tr>
<tr>
<td>assessing</td>
<td>accuracy of the information they have collected;</td>
</tr>
<tr>
<td>Synthesizing/</td>
<td>- make connections among the bits of information they have collected and</td>
</tr>
<tr>
<td>concluding</td>
<td>draw conclusions from them;</td>
</tr>
<tr>
<td>Applying</td>
<td>- make predictions or generalizations;</td>
</tr>
<tr>
<td>Communicating</td>
<td>- describe the information, ideas, and process involved in their inquiry;</td>
</tr>
<tr>
<td></td>
<td>- communicate the solution in a way that is consistent with the purpose</td>
</tr>
<tr>
<td></td>
<td>of the inquiry and the intended audience (e.g., use maps, graphs,</td>
</tr>
<tr>
<td></td>
<td>photographs, charts, sketches, diagrams, and models where appropriate);</td>
</tr>
<tr>
<td></td>
<td>- write coherently and correctly;</td>
</tr>
<tr>
<td></td>
<td>- speak with assurance and accuracy;</td>
</tr>
<tr>
<td></td>
<td>- portray roles credible in simulated situations;</td>
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</table>

When taught well, the OAC World Issues course can be of enormous service to students as they prepare for the university stage. The value of this course for university-bound students has three dimensions. First, the course will help them develop and sharpen their skills in analysis and synthesis. Second, the course will encourage students to marshall evidence confidently, so that they can support and defend their own arguments and ideas. And third, the course helps build writing and communication skills, as students, who started out with many hypotheses of varying quality and value, come to develop and support their chosen theses. These skills, properly learned and adequately practised, can help them later at university. The results can be very rewarding.

* *

"One advantage of teaching world issues is that it is topical by nature and interesting so that the students who have elected to take the course find it relevant and meaningful." 9


There are at present three principal texts on the 'Circular 14' list (the Ontario Ministry of Education's "Official Collection of Approved Textbooks") for OAC Geography: World Issues. They are: Challenge For Change (second) by Margaret Fagan, World Issues: In the Global Community by Christine Hannell and Robert
Harshman, and World Prospects: A Contemporary Study (second) by Marilyn Mackenzie and John Molyneux. Each text reflects the issues of greatest concern from the 1980s. As a consequence, each book has become quickly dated. Health issues, especially in the relationships of humans to the environment, have become, generally speaking, more important, pressing, and central in the 1990s. The texts, therefore, have little to contribute to the development of potential curriculum. However, each does in its own way foreshadow the growing 'health issue'. For example, in Challenge For Change, Fagan allows that, "the WHO (World Health Organization)...directs and coordinates a global strategy to prevent and control AIDS..."¹⁰ She neither deals with the specific issue of AIDS in any depth, nor does she provide thorough coverage of health issues in general. In World Issues: In the Global Community, Hannell and Harshman devote a short section of their text to health issues. The section is titled "The Fight Against Disease in the Lesser Developed Nations". The material presented touches briefly on AIDS: "Health education where mothers are largely illiterate requires special approaches. Ballads are written and performed to explain how to prevent the spread of AIDS."¹¹ The section, though a thought-provoking beginning, is painfully superficial. It consists of a rather vague, eight page discussion of enormously complex health issues. In the textbook World Prospects: A Contemporary Study, easily the best and most scholarly text of the three, Mackenzie and Molyneux include a stimulating exercise in the interesting section entitled "Good Health as a Basic Need". The authors introduce this section with a general discussion
of disease and mortality. However, the bulk of the section consists of a concise case study dealing with "river blindness in part of West Africa" followed by a useful exercise for students. This latter material is presented below:

Fig. 6-1
Incidence of river blindness in part of West Africa
Slow victory over river blindness

By Claude Begin

OUAGADOUGOU, Upper Volta (Reuters) — The common sight of elderly blind men being gently led through dusty streets of half-deserted African villages by young children with swollen limbs should soon become only a bad memory.

For West Africa is winning a decade-old war on river blindness, a disease which has heaped human and economic hardship on millions of people for centuries, according to the World Health Organization (WHO).

Onchocerciasis, more commonly known as river blindness, is a parasitic disease the clinical manifestations of which range from itching, rashes and thickening of the skin to eye lesions leading to total blindness.

Parts of the Near East as well as Central and South America are affected. But the savana area of the Volta basin in West Africa is among the worst onchocerciasis zones in the world.

There are about 100,000 blind victims spread over seven West African nations and an estimated 1 million more, including young children, are suffering from the earlier stages of the debilitating disease.

But now, thanks to a privately financed, WHO-led international campaign, river blindness is being dramatically wiped out, according to Adeline Mate, at the campaign headquarters here.

The crippling disease is transmitted by small black flies which, unlike mosquitoes, breed in fast-flowing water such as waterfalls or dams.

"The black fly transmits a tiny thread-like worm into the body of the victim. These worms multiply under the skin and start reproducing millions of minute parasites which circulate in the body and eventually penetrate the eye," explained Mate.

The link between living near rivers and the risk of onchocerciasis has long been recognized by local people, many of whom have moved from fertile lands to settle in less hospitable, often arid areas, adding economic hardship to human misery.

In 1968 it was decided to take large-scale action against the black fly in order to reopen fertile land to human settlement.

Helicopters and other aircraft poured thousands of tons of insecticide on 11,000 miles [17,500 kilometres] of river.

"It has been a dramatic success and we have eliminated the fly in 80 per cent of our program area, which covered a total of 500,000 square miles [1,250,000 square kilometres]." Mate said.

WHO reports show that six years after the start of its operations there is a marked decrease in the disease in all the villages treated.

"And the incidence is nil among children under five in most countries while no child under 10 suffers from river blindness in Mali," Mate said.

The success is such that in parts of Upper Volta many people have returned to their riverside dwellings.

The picture is not all rosy, however. There have been several cases of reinvasions in previously fly-free areas, mostly during the rainy seasons.

"We suspect the flies are to be found beyond the original program area, which will have to be extended," Mate said.

And a drug has yet to be discovered to kill the parasite, or at least make it infertile, in the human body.

The program will have to continue for another decade because the parasite has a 20-year lifespan. Only then will the scientists deem it a complete success.

The Toronto Star 1983 © 20
STATISTICAL ANALYSIS

10. Fig. 6-1 is a map showing the locations of settlements in a part of West Africa in which "river blindness" (onchocerciasis) used to be common. Ascertaining the $\phi$ (phi) coefficient of relationship (see Appendix 4) between the incidence of river blindness and the location of settlements on the floodplain of the river. It was the use of such correlative techniques that led to partial control of the simulium fly, which breeds along the water's edges and is responsible for transmitting river blindness.

11. From Column U of Appendix 3, select the 20 countries with the lowest per capita GNP (Gross National Product), excluding Western Sahara, for which data are unavailable. Set up a table with seven columns, and enter the names of the 20 selected countries in the first column in any order. Enter their appropriate per capita GNP data in the second column. In the third column, enter their appropriate life expectancies from Column G of Appendix 3. Use the fourth column to rank the GNP data from 1 (highest) to 20 (lowest). In the fifth column, rank the life expectancy data similarly from 1 to 20. In the sixth column, calculate the difference in rank by subtracting the life expectancy rank from the GNP rank, and head the sixth column "Net excess of life expectancy rank." Some of your answers in the sixth column will probably have negative values. In the seventh column, rank the information in the sixth column from the largest positive number to the largest negative number.

a. The low GNP data may be taken as an indicator of poverty; the life expectancies as an indicator of health care. What do your calculations in the sixth column tell you about the relationship?

b. Why do you suppose some countries are doing a much better job of health care than others, even though they may be poorer?

This case study is an interesting and thought-provoking example of the potential for a developing health or medically oriented geography at the OAC level within the World Issues course. This material allows the students to do some actual 'hands on' work, rather than being lectured to without interruption. The statistical analysis (questions 10 and 11) is a useful exercise for students. Question 10 is especially challenging as it recreates the actual steps involved in the 'real life' health intervention.

When one looks beyond the textual sources allowed by the Ministry, the resources are very rich indeed. The materials available in print are unlimited and they are completely up-to-date. The wide variety of material available is very detailed and richly textured. Most importantly, the students themselves can present and develop their own ideas, interests, and opinions. Though the concept of a health issue, for example AIDS, is quite recent its applicability and topicality are both very appealing in the 1990s. AIDS is an important issue both globally and locally, a bitter reality in an age of relative sexual liberty and licence. All students are likely to have an awareness of the disease from the outset. This is always an advantage, so long as the students' viewpoints are not too fixed or rigid. The unit on AIDS which is presented here can help prepare university bound students to cope academically at the post-secondary level. To be relevant to students, teaching material must have an immediacy and present a challenge for those who are studying. The students bring
their own keen and active minds to bear on the deeper implications of the major issues. One hopes that they will be able to analyze and synthesize the wealth of primary and secondary resources. The study of the origins of the disease AIDS, and the many competing theories regarding the evolution of the disease and its geographic diffusion, offer a unique focus for study. With the growing concern and awareness of the effects of environmental pollution on human health, it is crucial that students are introduced early to the unique perspective that geography can offer. Health is now defined, quite reasonably, as a basic right and an essential human resource. Issues relating to AIDS, when studied in the classroom, allow special insights into human health, as well as varying cultures and political systems.

This kind of geography is active, investigative and provocative. The disease AIDS is still largely a great mystery to mankind. In the past, early geographers - cartographers really - like Prince Henry the Navigator, the fifteenth century Portuguese Prince who both explored and supported exploration, could be sure of a life filled with the excitement derived from discovery. The "terrae incognitae" are now fully known and mapped in the terrestrial domain; the new "terrae incognitae" are metaphorically the frightening and emerging landscape of infectious diseases that defy traditional, Western science and medicine. Health or medical geography, within the broader context of environment and health, is an exciting new sub-discipline, bringing together geography and medical science. It has the potential to involve its students in a new era of discovery. Nothing is surer to attract students. To perform well in this exciting
new field the students will have to marshall their evidence meticulously and produce careful research using current sources which change day by day as the issue reveals itself.
Chapter Two - AIDS: Geographic Considerations

"Petrarch must be right. No man who has not lived through a great and incurable plague can possibly imagine the horror and despair that attend it. Appeals to human and the divine intervention are alike in vain. The Black Death must have seemed of supernatural origins, a punishment inflicted by a higher power upon unknown sinners for unknown crimes. Culprits were sought: nobles, cripples, and Jews in turn came under suspicion. The Jews, in particular, were suspected of purposely spreading plague by contaminating wells or by 'anointing' houses and persons with an imagined poison. Their persecution started at Chillon on Lake Geneva in 1348.... At Basel and Freiburg all known Jews were herded into a large wooden building and burned to death."\(^1\)

Frederick F. Cartwright
Disease and History, 1991.

"What a tragedy that our moral stupidity caused us to lose precious time, the greatest enemy in fighting an exponential spread, by downplaying the danger because we thought that AIDS was a disease of three irregular groups: minorities of lifestyle (needle users), of sexual preference (homosexuals) and of color (Haitians)."\(^2\)


"The human immunodeficiency viruses are the cause of the new plague, a plague whose final toll already threatens to dwarf even the thirty million deaths of the influenza pandemic of 1918-19. It is a slow plague, but a sure plague. The average time between

15.
initial infection and the collapse of the immune system is about ten years: death from once-rare, but now symptomatic pneumonias, cancers and brain infections almost invariably follows within three or four years.... On this small planet, where hardly anyone is more than a day away from anyone else, we have a new plague."


By the late 1970s, infectious disease appeared to have become a much diminished threat to health and life. Though people in industrialized or 'developed' countries still suffer disproportionately from the chronic diseases, such as the range of cancers (lung or breast, for example) and heart disease or stroke, the threat of infectious diseases, which terrorized past generations, has waned. The influenza pandemic immediately after World War One, for example, resulted in more deaths than combat during the war. The development, largely since World War Two, of antibiotics and vaccines has led to the decreased prevalence of infectious diseases throughout the world. In the nonindustrialized, more agrarian and 'developing' world, much benefit resulted from Western medical advances. For example, in the 1970s, the infectious disease smallpox was announced as having been eradicated throughout the world by the World Health Organization (WHO). The final case was treated in Somalia in October, 1977. Vaccination campaigns in many 'developing' countries largely financed by Western monies have helped make significant inroads into eliminating infectious diseases there. However, results have often been less successful than might have been hoped for a great variety of reasons. These range
from administrative incompetence to government corruption, from personal irresponsibility to cultural variations that render Western treatments useless, or even harmful. In the ‘developed’ countries, from the 1950s, orthodox medicine and public health care gained ascendancy over much dreaded infectious diseases like poliomyelitis. In the realm of human sexual practices, for example, antibiotics - especially penicillin - freed many from fears of being infected with one of the family of perennial, sexually-transmitted diseases, while at the same time the advent of the birth control ‘pill’ liberated many women from a very real anxiety over unsought pregnancies in the 1960s and 1970s. The Canadian director and social observer Denys Arcand wrote of these two decades: “There was a blessed 20 years there, from 1960 to 1980, when you could have this incredible sexual party.... We were - I think of myself and my friends, and people my age - the only generation...for whom sex was not a menace.... Now the party’s over, obviously (because of AIDS).”

Many people did participate fully in the ‘sexual party’ during a time when infectious diseases appeared controlled if not conquered. For those twenty or so years in the advanced, prosperous, and ‘developed’ countries infectious diseases were in abeyance. The victories of traditional medicine and effective public health were so evident as to be taken almost for granted. Behaviour was adapted accordingly amongst large segments of the population because the genuine fear of infectious disease was minimized. Since 1980, however, diseases like tuberculosis and
pneumonia have re-appeared in hardier, more treatment resistant forms; other diseases like AIDS, have emerged for the first time.

Three recent articles reflect upon the reality of the modern infectious disease. The article titled "The Disease Detectives" by Peter Jaret in the January, 1991, issue of the 'National Geographic', looks at the emergency of AIDS in North America:

"...until this past decade it seemed as if most infectious diseases were being tamed, at least in the developed world. Until 1981 - when we first realized that a new, appallingly destructive disease was silently spreading...in the early 1980s young men in San Francisco, New York, Los Angeles began to sicken and die - wracked with fever, gasping for breath, bodies often covered with strange sores."6

The article by Mary Gooderham titled "Antibiotics losing the battle" in 'The Globe and Mail' of 21 February 1994, reflects on the growing inadequacy of existing antibiotics:

"Infectious diseases are returning to the top of the public-health agenda for the first time in half a century. Reports of new diseases and the resurgence of ones considered conquered have rocked the medical community in recent years...the two main reasons for the problem are that the bacteria are acquiring genes that resist antibiotics and that a growing part of the population is immunodeficient or immunodefective...."7

The Harvard Working Group on New and Resurgent Diseases wrote an article in the American Scientist January-February 1994. These research scientists and medical practitioners examine the contemporary situation:

"As recently as 25 years ago, the threat of plague seemed old-fashioned.... Death from infectious disease was thought to be the result of poor hygiene and a lack of good antibiotics and vaccines, problems that by the mid-1970s had been largely overcome in...most industrialized nations.... Wrote one
prominent biologist in 1975, 'During the last 150 years the
Western world has virtually eliminated death due to infectious
disease.'

Then came Lyme disease (1975), Legionnaire's disease (1978),
toxic-shock syndrome (1978) and, more recently, AIDS (1981)....
The seventh cholera pandemic began in Indonesia in 1961,
spread to Africa in the 1970s and reached South America in
1991, and now a new variant has emerged.... Suddenly, the
proclamation of freedom from infection seemed, at best,
premature."

It is in the light of the rise of these virulent, recurring, infectious diseases and in
addition the apparently new immunodeficiency viruses, where geography of human
health or medical geography has gained a new standing.

*

"In brief, the medical geographer's tools are to prepare and
collate disease data and to map them to show where a certain
condition is rife (or absent); to apply objective statistical tests to
these distributions to assess whether or not the pattern is likely
to have occurred by chance; to measure the degree of
coextensiveness between disease and other spatially varying
factors; and then to apply tests to decide whether any spatial
association he has shown could be causative."9

Neil D. McGlashan (ed.),
Medical Geography: Techniques and Field Studies, 1972.

"...the association between disease and environment and the
initiation and diffusion of diseases form the basis of, what may
still be called, medical geography."10

John Eyles and Kevin J. Woods,
The Social Geography of Medicine and Health, 1983
Peter Gould dedicates his book *The Slow Plague* thus: "liber geographicus pro bono publico" or "a geographical book for the public good." In his preface, Gould contemplates the importance of a geographic approach to understanding the unending battle by human beings against disease. He argues convincingly that the study of disease falls naturally into the field of geography because diseases have inherent ‘spatiality’ and ‘interconnectedness’. As well, much geographic research is concerned with processes of spatial diffusion or "the ways things spread." He maintains that not only can geography shed a fresh and unique light on a disease but it can also provide 'the common touch' that makes the research accessible to the general public. Medical research is rarely presented in such an accessible manner. Gould summarizes his conclusions: "...a geographer writes about the AIDS pandemic...the geographic perspective focuses a rather different light on it compared to traditional (and they can be very traditional!) people in medicine and epidemiology." The implication here is that Westernized medicine has, perhaps, only one consistent way of approaching ill health or disease. This singular approach was neatly captured by Sir Douglas Black, the former Chief Medical Scientist in Great Britain: "The most characteristic function of a doctor lies in the diagnosis and treatment of disease in the individual patient...the great majority of doctors will remain concerned with disease and not positive health or community medicine or social medicine."

In an era when various neglected groups, such as women with breast cancer, can look back over the past twenty to twenty-five years and not see many major
medical 'breakthroughs' or 'advances' then traditional, Western medicine beings to appear somewhat inadequate and impotent. In an era when vociferous activists in groups like ACT-UP (AIDS Coalition To Unleash Power) demand attention, money, further research, and treatments for AIDS patients by such activities as marching in demonstrations, picketing government offices, storming newsrooms, tossing condoms at priests, and conducting vitriolic advertisement and information campaigns (predominantly in America), then orthodox, cautious medicine seems, at times, insufficient. People, individually or communally, are beginning to examine their environments and their behaviour patterns, to look to education and to prevention, and to take responsibility for their own health firmly into their own hands. Diseases like most cancers and AIDS exist in what has been termed a medical 'black box'. This means, in essence, that these diseases neither are fully understood nor are they treatable beyond the provision of palliative care after a certain point. Thus, a patient with an inoperable cancer or with a rampant case of AIDS can only look to medicine for the relief of pain. And that is clearly not enough in this most individualistic age, especially not to people brought up on the myth of medical infallibility since the 1950s. Thus prudent behaviour and wise prevention have become more important in the 1980s and 1990s. Governments have stressed increasingly the importance of personal responsibility in health decisions and in lifestyle choices, perhaps partially as a function of medical costs. It is patently less expensive, for example, to advise, to instruct and to inform an eighteen year-old youth to not smoke or to wear a condom,
though the latter is of quite dubious benefit in anything other than preventing conceptions, than to spend literally hundreds of thousands of dollars on the final and exorbitantly expensive, years of that man's life as he succumbs to heart disease, cancer or AIDS. As the ACT-UP organization realized early, power and control are dependent variables in the medical research equation. With power (money primarily, public voice secondarily) comes research grants, education campaigns, prevention programs, innovations in treatments, and heightened global awareness. These, in the absence of cure or vaccine, are the important things. The geographic role here is important. With cures nowhere to be found data on the patterning of the occurrence of the disease, its diffusion from alleged sources, and its regional variations in incidences become much, much more significant issues. The new, or revisited, medicine is the lay-medicine of prevention and prudent living. Michelle Hoffman writes in "AIDS - Solving the Molecular Puzzle", published in the American Scientist, March-April 1994:

"While the world looks to science to end the spread of AIDS, the best solution is also the simplest and requires absolutely no technology. Scientists stress that no one ever needs to become infected again, if only people would take care not to engage in behaviour that places their tissues in contact with the body fluids of an infected person.... In short the solution to the world AIDS crisis is to change human behaviour. Therein lies the greatest hope and greatest tragedy for eradicating the new plague, AIDS."\(^{15}\)
"The month of August, 1854, was hot and dry and when Cholera broke out in Broad Street it spread through the little neighbourhood like fire in a rickyard. Within ten days the population was literally decimated.... (Dr. John Snow's) suspicions quickly fell on the well in Broad Street and these were strengthened when he discovered 'nearly all the deaths had taken place within a short distance of the pump.' He was able to establish that almost all the people who had died had consumed water from the pump. After pursuing his inquiries further, Snow recorded, 'I had an interview with the Board of Guardians of St. James's Parish on the evening of Thursday, 7th. September.... In consequence of what I said the handle of the pump was removed'.... It is interesting to note that the minutes of the board...contain no reference to Snow's intervention."\(^{16}\)

Michael Warren and Huw Francis (eds.),
Recalling the Medical Officer of Health: Writings by Sidney Chave, 1987.

Cholera, a waterborne disease, was once as widely feared as diseases like cancer and AIDS are feared at present. Part of this fear was derived from the apparent mystery of cholera. People did not understand its origins and causes, its pathology, or the processes of its transmission. These elements of mystery, the medical 'black box' in which cholera existed, did not deter Dr. Snow in his battle against cholera. Prevention and prophylaxis were his sole weapons. Neither was an exclusively medical invention. It is on that point this project hinges.

Victorian Britain was plagued by outbreaks of cholera. Outbreaks are still quite common in the world's poorest (in financial terms) places like Peru and Rwanda so tragically. One outbreak in London, England, caused the deaths of hundreds of people during 1854. At that time, and even for several years thereafter, there were a
number of hotly contested theories about cholera's intrinsic nature and its infectiousness (or lack thereof). The theory most actively championed in the leading scientific journals of the Victorian age was the miasma theory. According to this theory the obvious and omnipresent filth in many urban, industrial slums, over which could hang a near-tangible cloud or "miasma' of assorted stenches, was responsible for cholera. The atmosphere, in general terms, could be, depending on season and weather, redolent with sewage odours, the smell of many, close-packed, infrequently bathed bodies, livestock manure, decomposing household wastes, and nightsoil. In dealing with the Soho outbreak in 1854, Dr. Snow, a forty-one year-old physician, came to suspect the pump on Broad Street near the intersection with Cambridge Street, rather than the "foul vapours". Others suspected that cholera sufferers were experiencing "divine retribution" for wanton behaviour (real, imagined or ascribed), licentious living, sinful thoughts, or general immorality. Dr. Snow ascertained that this pump was the "source of the Broad Street contagion" by plotting out geographically the distribution of deaths in the immediate vicinity. On his map(s), he found that deaths were clustered around the Broad Street pump. Dr. Snow theorized that the pump was the source of cholera-infected water and had the pump-handle removed. He recorded his experiences in his book, On the Mode of Communication of Cholera, published in 1855. The cholera outbreak dwindled rapidly, concurrent with the removal of the pump-handle. It has been a triumph for medical geography and public health.
This famous historical intervention provides considerable insight into the potential role of geography in the battle against AIDS in the modern setting. Dr. Snow, though a trained physician, did not cure cholera; rather, he showed cartographically a spatial correlation between this cholera outbreak and a specific water source. Snow's intervention prevented, by all appearances, further cholera infections and deaths at this location during the cholera outbreak. And, at that time in the mid-1850s, prevention was all that was really available to the population: the same is now true of AIDS. Cholera then existed in a medical and scientific 'black box'. At best, cholera could be prevented, in many cases through altered behaviour patterns. At worst, it could be documented and studied as people were afflicted and, frequently, died. Only in the 1880s was the actual cause of cholera ("a bacterium called 'Vibrio Cholerae'") discovered in the laboratory; and, only in the twentieth century was an effective treatment established. Dr. Snow's medico-geographic research on this dreaded disease saved untold lives at a stage when medical science was still investigating the causes. A geographic approach to the current 'black box' of AIDS can save lives too. Thoughtful preventative measures are fully within the usual domain of medical or health geography where the principal sources of data for research are such records as death certificates, death registers, hospital records, past disease surveys, survivor anecdotes, interviews with bereaved families, observations and assorted environmental data, statistical evaluation and manipulation, and documents like maps. These are geographic ways of looking at the patterns of
disease. Research of this type can lead to very effective interventions. Dr. Snow’s research in Soho, London, is one example that will never be forgotten.

AIDS can be seen as a new incurable infectious disease of pandemic proportions. It can also be seen as largely preventable or avoidable. Prevention or avoidance may be best achieved on an individual basis through a healthy regard for and awareness of this frightening and lethal disease. AIDS has, thus far, caused considerable change in the behaviour of some groups. The closing of ‘bathhouses’ by public health officers in cities like San Francisco is an obvious example. Though the origins of AIDS provide fertile ground for discussion and debate, the transmission of the disease and the infection routes are quite well understood and well documented. Once more, the lessons of Dr. John Snow and the Broad Street pump need to be revisited, while the world awaits the next medical breakthrough or advance against this most recent infectious disease accorded epidemic or pandemic status.

* "The three of us were on the track of the killer diseases which Uganda seems to spawn with monotonous and cynical regularity. During that same year of 1986, for instance, there were also serious outbreaks of sleeping sickness and bubonic plague. Normally such epidemics, even when they caused tens or hundreds of deaths, were dismissed by most foreign reporters as being of only limited news interest when viewed in the general African context of famine, disease, and civil war. This epidemic, however, was different.... Slim was Uganda’s latest horror. Its victims seemed simply to waste away to nothingness. Over the last twenty years Ugandans have become experts at coping with violence and suffering. They have developed a special love of euphemism and ‘double entendre’ knowing as
they do the power of humour to debunk, to soothe and to heal.
Thus the word 'Slim' - the shape of Western models, and the fit
of fashionable men's shirts - was readily adopted as the
nickname for this new and terrible phenomenon."20


AIDS is a strikingly complex and incurable disease. The disease's pathology
is that of a group of viruses called 'retroviruses'. David Suzuki, the familiar Canadian
geneticist, has described these 'retroviruses' as being especially dangerous and
damaging to humans: "these viruses are capable of inserting themselves into the DNA
of the host cell.... Once this has happened, the cell is infected forever.... Every time
the cell divides, it replicates not only its genes, but also viral genes.... There are no
known methods of removing the virus from the DNA of an infected cell."21 Therefore,
this virus (or 'retrovirus') becomes, quite amazingly, as integral to the human body as
the body's own native Deoxyribonucleic Acid (DNA). The disease caused by the virus
is, at present, invariably fatal after an indeterminate latency period, usually ten to
fifteen years. While the scientific research on AIDS is technical and cannot easily be
explained to the uninitiated, the geographic perspective on the disease can take the
infection as a given. For the purposes of the geographer, it is the disease's diffusion
or patterning that is crucial. Though AIDS is a relatively recent disease, there are four
distinctive patterns that already are discernible in the world. These patterns, based on
the World Health Organization's groupings, are presented in A. Olufemi Williams's
book *AIDS: An African Perspective*, published in 1991. Williams, a noted doctor and research scientist from Africa, lays out the patterns as follows:

"Pattern 1 - Most cases of AIDS occur in homosexual and bisexual males and intravenous drug users. Heterosexual transmission is responsible for a small, but increasing, proportion of the total. This is observed in the U.S., most European countries, and some Latin American countries.

Pattern 2 - Most cases of AIDS occur among heterosexuals. The male to female ratio is approximately one.... Most sub-saharan African countries and Latin American countries conform to this pattern.

Pattern 3 - Most of the cases have been introduced from outside into these countries and there is no predominant mode of transmission. Asian, North African, and Oceania countries fall into this category.

Pattern 4 - Most cases occur in countries where there was predominant homosexual transmission becoming heterosexual with very few intravenous drug abusers. Some countries in the Caribbean basin fall into this group."^^

It is the difference between Pattern 1 and Pattern 2 which provides health or medical geographers with astonishing scope for research. Geographers and those doing environment and health research must address the question as to why a principally, though not exclusively, homosexual infectious disease in the North American context appear as a predominantly heterosexual disease in Africa south of the Sahara desert? From *AIDS: An African Perspective*, one learns that in Africa eighty-five percent of Human Immunodeficiency Virus (HIV-1 - the preliminary infection stage in the great majority of AIDS cases) infections are transmitted through
heterosexual contact. In North America, on the other hand, sixty-six percent of HIV-1 infections are transmitted through male homosexual contact and only five percent through heterosexual contact as of 1990.21 This variation is dramatic and is exactly the type of starting-point for geographic research. In uncovering the reasons for such variation, researchers can go to work directly to combat this incurable disease through prevention. In battling against cancer, Sir Richard Doll and Richard Peto, distinguished British clinicians and epidemiological researchers, wrote The Causes of Cancer, published in 1981, a landmark work that suggests cancers in humans are avoidable or preventable in at least seventy-five percent of all cases. Doll and Peto, established this percentage by comparing the widely varying incidences of specific cancers in different places and countries. They then eliminated statistically certain types of behaviour (like smoking which, according to Doll and Peto, is a contributing factor in as many as thirty-eight percent of American cancer deaths annually) to arrive at the fact that only twenty-five percent of cancer deaths cannot be prevented.24 However, human behaviour is hard to change and many environmental influences are difficult to pinpoint. Nonetheless, Doll and Peto demonstrate that while the world waits for an effective medicine, prevention as part of prudent living is probably the only viable choice. The same position can be taken with an infectious disease like AIDS. Most people, based on the best available research and information, have important lifestyle decisions to make to prevent their contracting AIDS. And though behaviour change, especially with respect to sexual practices and drug abuse, would
not completely eradicate AIDS, behaviour change would limit the disease enough that it might no longer be considered epidemic or pandemic. The widely varying infection and incidence rates from the homosexual community to the heterosexual community demonstrate the geographic patterning inherent to this disease.

OAC Geography students can be introduced to the AIDS issue by showing them that there is a distinctive relationship between humans and the environment. This includes culturally varied behavioural practices. No student can ask for a more topical subject of study. That is the best education can be. AIDS is an issue of 'gravitas' in the 1990s for students. 'The Toronto Star' editorialists recognized this fact as early as 1988:

"No issue in recent times has provoked a greater public response, or had a more profound impact on our behaviour, than AIDS. Only two years ago in the Goldfarb Report, a study which traces national behaviours and attitudes on an annual basis, Canadians ranked AIDS 19th on a list of issues of important national concern. This year, AIDS ranked first."25
Chapter Three - Curriculum

The course organization (for full year), the class schedule and plan (for month long units), and the basic curriculum (lessons) are presented in the same format as was used in teaching OAC Geography - World Issues (four classes) at Hillfield-Strathallan College, Hamilton, Ontario (1990-3). AIDS was not then taught as part of World Issues, but for the purposes of this project it has, in unit form, been slotted into the course organization. The course, as a whole, is worth one (1) full academic credit toward the thirty (30) required for matriculation in Ontario.

COURSE ORGANIZATION

<table>
<thead>
<tr>
<th>Month</th>
<th>Topic(s)</th>
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<tbody>
<tr>
<td>September</td>
<td>- Introduction to OAC Geography - World Issues</td>
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<tr>
<td>Unit 1</td>
<td>- Course expectations</td>
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<tr>
<td></td>
<td>- Marking schemes: how to do well</td>
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<td></td>
<td>- Outline of basic geographical skills</td>
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<tr>
<td></td>
<td>- Explanation of course content</td>
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<td></td>
<td>- Discussion of present issues</td>
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31.
- Selection of students' individual issues for ongoing, independent study (worth twenty percent of the year's mark)

- Presentation of the Cognitive Skills Model.

October
Unit 2

- Cultural/Political issue (1): The Republic of South Africa

- Independent Study (Focusing, Organizing, Locating): ongoing:

November
Unit 3

- Environmental issue (1): Pollution

- Independent Study (Recording): ongoing.

December/January
Unit 4


- Independent Study (Recording, Evaluating/Assessing): ongoing.

February/March
Unit 5


- Independent Study (Evaluating/Assessing): ongoing.

- March break (long holiday).

April
Unit 6

- Cultural/Political issue (2): Acquired Immune Deficiency Syndrome (AIDS)

- Independent Study (Synthesizing/Concluding, Applying, Communicating): ongoing.

May/June
Unit 7

- Environmental issue (2): Deforestation

- Independent Study (Communicating): final essay submission

- Examination (study weeks).
UNIT 6 CLASS SCHEDULE AND PLAN

- The class schedule works on the basis of a monthly average of eleven (11) classes and three (3) independent study periods (including interviews on an individual basis with course teacher). The eleven class periods are every second day usually for a duration of one (1) hour. For April (unit 6) the class schedule and plan are as follows.

<table>
<thead>
<tr>
<th>Day</th>
<th>Content</th>
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<tbody>
<tr>
<td>class one</td>
<td>- Introduction: AIDS background</td>
</tr>
<tr>
<td>class two</td>
<td>- Introduction: AIDS transmission</td>
</tr>
<tr>
<td>class three</td>
<td>- The lessons of Dr. John Snow</td>
</tr>
<tr>
<td>class four</td>
<td>- Statistical exercise (text)</td>
</tr>
<tr>
<td>class five</td>
<td>- AIDS: competing theories (Theories I, II &amp; III)</td>
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<tr>
<td>class six</td>
<td>- AIDS: competing theories (Theories IV, V, VI, VII)</td>
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<tr>
<td>class seven</td>
<td>- AIDS: in the Canadian context</td>
</tr>
<tr>
<td>class eight</td>
<td>- AIDS: in the American context</td>
</tr>
<tr>
<td>class nine</td>
<td>- AIDS Film: &quot;Philadelphia&quot; (1994)</td>
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<tr>
<td>class ten</td>
<td>- AIDS in Africa: the Ugandan experience.</td>
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<tr>
<td>class eleven</td>
<td>- AIDS in Thailand</td>
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<tr>
<td></td>
<td>- Summary and Conclusions</td>
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<td></td>
<td>- Assignment.</td>
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</table>
CURRICULUM (Unit 6)

This curriculum unit is intended to introduce students in the academic, university-bound stream to a geographical approach to the study of the incidence of AIDS through the World Issues course. The cognitive skills to be emphasized are those laid out in the Cognitive Skills Model. There is special emphasis on Synthesizing (and Analyzing)/Concluding, Applying and Communicating. The geographic skills to be emphasized are geographic writing, mapping and statistical analyses, and distribution evaluation. The topic is the geography of AIDS. Much of the curriculum can be organized and planned to a great extent. However, given the nature of the issue and the types of materials that the students will read or be exposed to, there also is much curriculum that cannot be planned. Many of the articles are affecting, unsettling, and thought-provoking. This is only appropriate in a World Issues class. Informed discussion should not only be allowed, but also encouraged. In this way students will begin to process the material efficiently, to evaluate and to synthesize, and to challenge their preconceived notions and biases. There is a large amount of information available, and the teacher must be catholic in his or her selection and presentation so that students can be exposed to a variety of perspectives on the issue. Therefore, part of the curriculum has to be allowed to evolve as the class progresses. The topic of AIDS is certainly not a comfortable one. However, it must be examined. Students must draw their own informed conclusions. This is part of a liberal
education. The opinions of any individual teacher must always remain secondary to the students' experiences. They must receive a balanced approach to the issue through the class, their reading, and the presented materials. The materials for the unit are chosen with strong, academic student preparing for university in mind. These materials are presented below in the order they would appear to support each respective classroom session.
Curriculum Top Sheet

Course: GWI (World Issues)

Level: OAC

<table>
<thead>
<tr>
<th>Unit 6</th>
<th>Topic</th>
<th>Time</th>
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</thead>
<tbody>
<tr>
<td>Cultural/Political Issue</td>
<td>Acquired Immune Deficiency Syndrome (AIDS)</td>
<td>Eleven (11) classes</td>
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Objectives: Students shall be provided with opportunities to -

Knowledge

1. Learn the key elements in approaching a health issue from a health or medical geography perspective;

2. Understand the concept of AIDS;

3. Theorize the geographic spread, diffusion, and inherent spatiality of AIDS;

4. Describe and explain the interrelatedness of the environment, personal behaviour, and human health;

5. Recognize divergent human lifestyles;

6. Manipulate statistics;

7. Evaluate an epidemic.
Skills

1. Gain awareness of the different forms of geographic research;

2. Process varied information, from texts to maps, from personal narratives to statistics;

3. Analyze and synthesize a wide range of material;

4. Detect and account for biases and prejudices;

5. Communicate personal responses verbally;

6. Write a geographic research paper;

7. Utilize the recall skill.

Attitude

1. Establish informed perceptions about infectious disease (particularly AIDS), disease sufferers, and disease geography;

2. Appreciate the complexity of disease pathogenesis 'in vivo' and of disease diffusion in space;

3. Empathize with the plight of those affected adversely by disease;

4. Affect an attitude of informed comprehension and understanding.
<table>
<thead>
<tr>
<th>Teaching Strategies</th>
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<tbody>
<tr>
<td>- The Socratic method (in deference to other methods to best prepare university-bound students for first year lectures);</td>
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<tr>
<td>- Readings followed by informed discussions;</td>
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<tr>
<td>- Blackboard notes;</td>
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<td>- Student led dialogues;</td>
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<td>- Video support materials;</td>
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<td>- Statistical analysis.</td>
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<tr>
<th>Evaluation</th>
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<tr>
<td>- Statistical exercise;</td>
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<tr>
<td>- Essay;</td>
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<tr>
<td>- Examination (during examination period).</td>
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<table>
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<tr>
<th>Resources</th>
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<tr>
<td>- Attached, included or excerpted.</td>
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<table>
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<tr>
<th>Unit Background Reading</th>
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<td>- Michelle Hoffman,</td>
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Midway through, the 1980s were dubbed the “AIDS decade,” a reflection of America’s preoccupation with and fear of the disease. Yet buried within the grim epithet was a kernel of optimism. The decade was finite, and so, too, would be the epidemic.

The AIDS decade has come and gone, but the epidemic is still with us. In fact, numbers suggest that the problem is growing. Today, more than 600,000 people worldwide have been diagnosed with acquired immune deficiency syndrome, or AIDS, and in the United States alone at least 1 million are infected with the human immunodeficiency virus (HIV), the agent that causes AIDS. Throughout the world, an estimated 11 million people are infected and have yet to develop the symptoms of disease.

But numbers alone do not reflect the dimensions of the “world AIDS crisis,” as President Clinton called it in his 1993 inaugural speech. What distinguishes AIDS from every infectious disease to come before it is the scientific challenge it represents to a research community that has successfully controlled all of the plagues of the past. Hardly anyone living in the United States today can remember a time when they were concerned about typhoid or tetanus. Few children today will grow up with the threat of polio or smallpox. Improved public-health measures and potent vaccines have made these diseases the exception rather than the rule in the United States and in most of the industrialized world. In more recent memory, both toxic shock syndrome and Legionnaire’s disease emerged and were vanquished by science within a few short years.

Against this backdrop of success in the fight against infectious diseases comes HIV, a virus whose natural history is so unusual that no prior experience with any infectious agent has appropriately prepared modern science to tackle it. And yet no previous era has been better prepared to take on the challenge. Only now does science have the experimental tools to unravel
the details of the peculiar life-style of this virus. But in spite of the intense scrutiny the virus has received—more intense than any to come before it—scientists are still at a loss to say exactly how it causes AIDS.

The hallmark of AIDS is the slow but complete erosion of the immune system. Years, sometimes many years, after a person becomes infected with the virus, his or her immune system is so weakened that it is unable to fight off the bacterial and viral assaults that a strong immune system could easily defeat. For that reason people with AIDS are vulnerable to a host of diseases rarely found in the general population. These are called opportunistic infections because they take the opportunity to strike someone with depleted immune defenses. Ultimately, the patient dies from the effects of one of these diseases.

The list of opportunistic infections that most frequently affect AIDS patients reads like a catalogue of plagues. Tuberculosis, recurrent pneumonia (caused by a parasite called Pneumocystis carinii), and a rare skin cancer called Kaposi’s sarcoma are some of the most common causes of death for people with AIDS in the United States. Other AIDS-related conditions include lymphoma and other cancers, systemic yeast infections, toxoplasmosis and other degenerative disorders of the nervous system, and an unexplainable wasting syndrome. If any one of these conditions in itself is not fatal, the cumulative effect of fighting off so many infections with an increasingly damaged immune system often is.

In one sense the solution to the problem is clear. If science could find a way to lessen the immune-depleting effects of the virus, people with AIDS would not be so defenseless against opportunistic infections.

But this strategy is not as simple as it sounds. Once the virus infects an individual, the virus and immune system are locked in an intimate and paradoxical relationship. Following infection the virus becomes part of the immune system. In so doing, it undermines the very defenses that are supposed to fight it.

The ultimate goal of current AIDS research is to extricate the virus from the immune system without causing further damage. One of the questions scientists are exploring is exactly how the virus causes the disease we recognize as AIDS. To do that, scientists over the past decade have focused on the complex relationship between the virus and the cells of the immune system.

A biologist once defined a virus as “a bit of bad news wrapped in protein.” Indeed, while the experimental study of viruses can unlock a wealth of scientific information, viruses offer little else of value to human beings. Unlike the occasional bacterial species that can provide a beneficial service to humans (for example, bacteria found living in the human intestines that aid digestion), viruses are never Good Samaritans. They seem perfectly willing to take up residence in the human body without doing anything to earn their keep.

But the scientist’s comment also touched on the very simple structure of a virus. Compared with the complexity of the mammalian or bacterial cell, viruses are remarkably minimal. Most are nothing more than a shell of protein that contains a packet of genes on the inside.

Viewed externally, each HIV particle is shaped like a 20-sided soccer ball. The virus takes its form from the protein making up its outer shell, which is sometimes called the capsid. Overlying the outer capsid is a lipid membrane, derived from the host cells that the virus infects. Poking through the capsid and the membrane are proteins studded with sugars, called glycoproteins. The glycoproteins on HIV are often depicted as lollipop-shaped. The stick of the lollipop is made of a glycoprotein with a molecular weight of 41 kilodaltons, and, according to the convention of referring to proteins and glycoproteins by their molecular weights, it is named gp41. The “candy” of the lollipop is a glycoprotein of 120 kilodaltons, called gp120. Because gp41 and gp120 are initially associated in a single protein, scientists refer to this precursor form as gp160.

Contained within the outer shell is another protein capsule.
This cone-shaped capsule, called the core, is made up of many protein molecules, each with a molecular weight of 24 kilodaltons, named appropriately, p24.

Each component of the structure serves a distinct purpose. The glycoproteins gp41 and gp120 are known to be crucial in anchoring the virus to the cell it will infect, while the lipid membrane helps the virus enter that cell. The capsid protects the virus and gives it shape. And all of this protective packaging safeguards the viral core's precious cargo: the genes and few proteins that will help carry out its reproductive mission.

Because viral structure is so pared-down, many scientists have argued that viruses cannot even be considered living organisms. To be alive in the biological sense, an organism must have the capacity to feed and replicate itself. Viruses can do neither on their own. The viral genes provide the instructions for making more viruses. They are the guidelines for the manufacture of structural proteins that make up the virus's capsid and core and enzymatic proteins that reproduce the viral genes and help package them into the shell. But the actual work of manufacturing the genes and proteins needed to produce more viral particles is achieved within the infected host cell, using host cellular machinery, energy and raw materials—the chemical substrates found within the cell. The production of new viral particles often means that the host cell must turn away from its ordinary business and devote itself entirely to the assembly of new viral particles.

Viral dependence on the host cell requires that at some stage in the virus's life cycle it must enter the host cell and there fulfill its biological mission to reproduce. And so it is that newly manufactured viral particles released into the blood must find new host cells to infect, so that they too can start to reproduce. Viruses must spread from cell to cell within the infected individual and to new individuals in search of new cellular hosts that provide the facilities for them to meet their reproductive needs. For HIV, the host cells are components of the body's internal militia—the immune system.

Like any well-organized military system, the immune system is tightly coordinated. In this defense network the generals are a type of white blood cell, called a "helper" T-cell. By secreting the proper chemical signals at the appropriate time, helper T-cells can regulate the populations of other immune-cell types. Helper T-cells can boost the populations of B-cells that secrete a particular antibody, or they can increase the number of killer T-cells that recognize and eliminate virus-infected host cells. As such, helper T-cells are pivotal in plotting, coordinating and implementing the defense strategy against viruses and bacteria.

Viruses and bacteria have evolved many complex mechanisms to dodge immune detection and destruction. Pathogens have been known, for example, to use camouflage, cloaking themselves in proteins that resemble the host's own. Other pathogens use changeable disguises. As soon as the immune system learns what the invader looks like, the pathogen has changed its chemical "face," which the immune system has to learn to recognize anew and which leaves it continually trying to play "catch-up" with the pathogen. To be sure, HIV employs some of these guerrilla tactics in its strategy to avoid the immune system, too. But this virus goes beyond that. HIV, it seems, does not merely dodge the immune system; it destroys it.

An invader wishing to destroy host immune defenses can choose one of two ways to do it. The invader can kill each of the soldiers in the military or it can take hold of the command center. An immune system may have a complete set of soldiers—in this case B-cells and killer T-cells—but still remain immobile if the appropriate command never goes out to activate it. And the proper command might be impaired if something were to happen to the helper T-cells.

As it turns out, HIV has a special affinity for and may be particularly harmful to the helper T-cells. While many of the interactions between HIV and the immune system are being worked out, and scientists are still debating how each of these interactions contributes to AIDS, most researchers agree that part of the answer lies in the special relationship between HIV and the helper T-cell.
Since the mid-1980s when HIV was identified as the cause of AIDS, scientists have learned a tremendous amount about the natural history of the virus and the symptomatology of the disease. Yet putting these things together has proved more difficult than anyone would have imagined. As the virus's lifestyle is understood in greater detail, it becomes less clear exactly how it erodes the immune system and causes AIDS.

The problem is not in identifying ways in which the virus's behavior is destructive to the immune system. On the contrary, the problem is that the virus is destructive to the immune system in so many ways that it is difficult to identify the one activity, or constellation of activities, that constitutes the primary cause of the destruction. The hope in identifying the primary cause is to develop therapeutics that will block that avenue of destruction and reduce the toll the virus takes on a person with AIDS.

Technically, it would be wrong to say that the disease starts at the moment of infection. There is a sharp distinction between infection and disease. Yet it is clear that infection with HIV is a necessary precondition for later developing AIDS. It is at the moment of infection that the virus has the potential of embarking on its life cycle, multiplying and causing disease. It is also currently believed that the destruction of the immune system that ultimately leads to AIDS begins soon after infection.

But infection requires a very particular kind of contact between individuals. The virus cannot withstand exposure to air for very long because its membrane dries out and quickly deteriorates. For that reason, HIV, unlike many other viruses, cannot be passed along by touching a surface that has been touched by an infected person.

On the other hand, circumstances that protect the virus from the environment carry the potential for transmitting the virus to another person. Scientists know, for example, that the virus continues to thrive when it is inside host cells. So one mode of infection involves passing an infected cell from one individual to another. HIV particles can also be found circulating freely in the body fluids of an infected individual, so another mode of transmission involves the exchange of body fluids containing free viral particles from an infected to an uninfected person.

Infection is a two-way street and requires a recipient as well as a donor. Successful viral transmission requires that the virus be delivered to a receptive environment. The virus is known to have a special affinity for cells bearing a surface molecule known as CD4. The CD4 molecule is found on some types of white blood cells, specifically helper T-cells and macrophages, another immune-related cell, and possibly on some non-immune-related cells as well. CD4 acts as the receptor and entryway for HIV, allowing the virus to take up residence inside these cells. An environment replete with CD4-bearing cells contains the largest number of potentially infectable host cells. Given this, it becomes more clear why transmission often involves blood contact between individuals. Of all body fluids that can support either free virus particles or virally infected cells, blood is the fluid with the highest concentration of both. The blood of an infected individual provides a milieu that supports free virus and infected cells, while the blood of an uninfected individual contains many potentially infectable new cellular hosts.

Transfusion of infected blood into an uninfected recipient is the equivalent of injecting live virus into the person and is an almost certain route of infection. Needle-sharing among intravenous drug users is not much different. The virus can also be effectively spread by sexual intercourse, and viral spread can be further enhanced by sexual practices that can tear skin and expose the blood of an uninfected sexual partner to the body fluids of an infected partner. In addition to blood, semen can carry both free virus and virally infected T-helper cells and macrophages. So any sexual act that puts an uninfected partner's genital or rectal tissues in contact
with infected semen puts the uninfected partner at risk of infection. An additional factor that may explain the higher frequency of HIV infection from anal intercourse is the high density of Peyers patches—regions containing white blood cells—in the rectum.

In addition to semen, other fluids contain either free virus or virally infected cells. These include tears, ear secretions, saliva, urine, vaginal or cervical fluids, breast milk, bronchial fluid and cerebrospinal fluid (CSF), which bathes the brain and the spinal cord. Of these, the highest concentrations of free virus, virally infected cells or both are found in blood, semen and CSF. Activities involving exchange of these fluids between individuals also carry the potential for spreading HIV.

The last mode of transmission occurs when infected mothers pass the virus on to their newborns before or around the time of birth. The presence of HIV in aborted fetuses indicates that a woman can transmit the virus to her unborn child in utero, but the mechanism for prenatal transmission is not entirely known. The act of birth itself can facilitate transmission since the neonate is exposed to the mother's infected blood and amniotic fluid. HIV can also be passed on to a newborn through its mother's breast milk.

The events that follow HIV infection are fairly standard regardless of the mode of infection. The early stages of infection resemble those of almost any other viral infection. Within one or two months of becoming infected, many people feel sick and experience severe flu-like symptoms similar to those of mononucleosis, with fatigue, fever and muscle aches. Some report blinding headaches as well.

It is during this time, called the acute phase, that scientists can detect large numbers of free virus particles in the bloodstream. A month later the number of particles in the blood is on the decline. As the virus becomes less detectable in the blood, the protective components of the immune system become more evident, indicating that the immune system may be effectively keeping the virus at bay. Large amounts of antibodies and killer T-cells are specifically deployed to fight free virus and virally infected cells. In fact, these are the antibodies detected by standard blood tests that determine a person's HIV status. Individuals in whom antibodies are detected are said to be seropositive—that is, their blood serum tests positive for the presence of HIV. The absence of HIV in the blood means an individual is seronegative.

Following these initial events, the flu-like illness abates, and the seropositive individual enters a phase during which no obvious manifestations of infection or disease symptoms are evident. This period lasts, on average, from 8 to 10 years and is referred to as the asymptomatic phase. For a long time scientists believed that viral genes were not being expressed during this phase and that little or no viral replication was taking place—and to some degree that may still be true.

More recent data indicate a slow and gradual decline in the number of helper T-cells during the asymptomatic period. Currently, many researchers think that, although most virally infected cells may not be actively producing new virus, some portion of infected cells are. But at this stage an individual's immune system is still strong enough to eliminate a sufficient amount of the free virus and infected cells, so that the individual remains healthy.

The fact that most people can remain healthy for 10 years suggests that the immune system has a tremendous excess capacity, and significant numbers of T-cells can be eliminated without causing the host any severe difficulties. Eventually, however, the number of helper T-cells killed brings the HIV seropositive individual to a point where he or she can no longer handle the viral load, and symptoms of disease start to appear. Since the helper T-cells are the commanders of the immune army, killing them can potentially inactivate the entire immune defense system.
While the scenario described above seems logical, one great mystery remains unanswered. Scientists still cannot explain why so many helper T-cells are killed. They do not know whether the virus kills host cells directly or whether some indirect viral activity kills the cells. Even if they did know the mechanism for viral killing, there would be one nagging statistic to explain. Healthy individuals have 550 to 1,200 helper T-cells in each microliter (one-millionth of a liter) of blood, with the average falling around 800 cells per microlitre. Individuals are defined as having AIDS if they are HIV-seropositive and have fewer than 200 helper T-cells per microliter of blood. That means that a person with AIDS has lost 75 percent of his or her helper T-cells. Yet when scientists try to count the number of helper cells in which they can actually detect the virus, they find HIV in less than 1 percent of the cells. How can so many cells be killed when so few seem to be infected? To solve this puzzle, scientists have proposed that HIV has some indirect means of affecting healthy immune cells in such a way that they become inactive or are targeted for immune destruction.

So many things are going on between the immune cells and the virus that infects them that it is difficult to sort out even the most direct means of helper T-cell killing. Many scientists believe that the host cell is worn down from reproducing so many virus particles and releasing them to the environment. Eventually the host cell simply dies. Added to this very direct interaction is a wealth of indirect interactions between pathogen and host.

One theory that has received much attention concerns the role of the lollipop-shaped glycoprotein Gp120, the candy part of the lollipop-shaped gp160 complex, sticks out of the surface of the virus and facilitates viral binding to the CD4 receptor on host helper T-cells and macrophages. Fragments of these and other viral proteins are displayed by the host cell on its surface. The foreign-protein fragment sticking out of the infected host cell serves as a red flag to the immune system, alerting the immune cells that a host cell has been invaded by a foreign pathogen. The infected cell is now targeted for destruction by the killer T-cells.

But the killing might not stop there. Research has shown that infected cells shed gp120 molecules. These free-floating molecules can be captured by uninfected helper T-cells. In some cases the healthy helper T-cell may display the shed gp120 molecules on its surface, so now it looks to the immune system just like an infected cell. Even though the healthy cell has no virus inside it, it becomes a target for immune destruction and is eliminated by killer T-cells as though it were infected. Such a mechanism would raise the number of helper cells killed without necessarily increasing the number of cells infected.

Shielding of molecules is not the only indirect effect of HIV infection. The gp120 molecules sticking out of an infected cell may also have direct contact with other uninfected cells. Since gp120 can bind to CD4 molecules, it is possible that infected cells actually bind to and fuse with uninfected cells via the gp120-CD4 interaction. The result of this fusion is the formation of giant masses of infected and uninfected cells in what is called a syncytium. Syncytia have been observed in the test tube when infected and uninfected cells are mixed together. Some scientists believe that syncytia may form in people with AIDS as well, but no such syncytium has ever been isolated from an AIDS patient. Other scientists interpret this discrepancy to mean that syncytia are only a test-tube phenomenon, but that it might hint at some other harmful interaction between infected and uninfected cells in the HIV-seropositive individual.

Gp120 is not the only molecule that can pass from infected to uninfected cells. Several viral proteins that normally regulate viral gene expression also seem to be able to contribute to disease when they diffuse from infected to uninfected cells. Some evidence exists that one such viral protein called Tat may diffuse from cell to cell, with several potential consequences. Tat is a potent activator of viral gene expression. It is possible that Tat secretion initiates a spate of viral reproduction in infected cells that are not actively producing virus. In addition, there are some indications that Tat may directly kill uninfected cells. Alternatively, Tat may also alter the chemical signals that are sent out from a helper T-cell. According to this theory, the altered signals result in an immune response that is ineffective or inappropriate. For example, there may be too many signals stimulating antibody production and not enough stimulating killer T-cell activity, so that although there is an immune response, it is ineffectual and does not eliminate the virus.

New evidence has come to light to suggest that another regulatory protein called Nef may also
be secreted. Some scientists think that Nef may act as a so-called superantigen. Superantigens are thought not to depress immune activity but to overstimulate it. As a consequence, the immune system starts to look like a "Keystone Cops" episode where the perpetrator slips past a frenzied and disorganized immune system.

It is important to note that many of these phenomena are studied in the laboratory using viruses and immune cells that have been cultured outside the human hosts from which they were taken. The artificial circumstances of culture conditions may well alter some of the biochemistry of these entities, and scientists caution that the behavior of cells and viruses may be different in intact living systems.

So the question of whether the laboratory situation accurately reproduces real life must be addressed by scientists hoping to understand the relationship between HIV and AIDS. But even if all of these phenomena occur in a person with AIDS, scientists must also assess which mechanisms are of primary importance in helper T-cell death and which are fairly minor contributors. New evidence comes to light almost daily that makes the research community reevaluate these questions in a new way. Some scientists believe that as the virus replicates within a host, new strains emerge that are more efficient killers, more aggressive at reproducing and more effective at infecting cells than their progenitors. Those who believe this suggest that the emergence of these potent new strains accounts for the sudden and rapid decline of the immune system after 10 or more years of calm.

As research techniques improve, scientists discover aspects of the interaction they could not previously discern. For example, using higher-resolution techniques, some research groups are finding that many more than one percent of helper T-cells are actually infected with HIV. New estimates suggest that 20 to 30 percent may be infected at any one time. Some researchers think these numbers are adequate to explain the observed loss of helper cells. In that case, the indirect mechanisms of killing may add to immune destruction but may play a relatively minor role. Although not all scientists agree on the relative contributions of these various mechanisms to the development of AIDS, they are in agreement that there may be facets of HIV that remain to be uncovered. Some hope that a definitive answer might lie in these still-undiscovered interactions.

While the world looks to science to end the spread of AIDS, the best solution is also the simplest and requires absolutely no technology. Scientists stress that no one ever needs to become infected again, if only people would take care not to engage in behavior that places their tissues in contact with the body fluids of an infected person. However, if abstaining from these activities is not possible, the simple use of condoms during sexual activities would greatly reduce the number of new infections. Programs that encourage the use of clean needles by intravenous-drug users also would drastically reduce the number of new infections. In short, the solution to the world AIDS crisis is to change human behavior. Therein lies the greatest hope and greatest tragedy for eradicating the new plague, AIDS.
Unit 6 - Class One - Curriculum: AIDS

Introduction: AIDS Background

In the early 1980s in major American cities young, vigorous men began to waste away and to die from exceptionally rare (in North America) opportunistic diseases. At the outset, the mysterious disease was named “Gay Related Immune Deficiency” (GRID); but, that name soon became Acquired Immune Deficiency Syndrome (AIDS) as non-homosexuals began dying.

Prior to the 1980s, the world’s medical community had been winning, to all appearances, the ongoing war against infectious disease, especially in the ‘developed’ countries. For example, in the 1970s, smallpox had been virtually eliminated from the face of the earth. However, infectious diseases have recently been re-emerging or emerging in new, and treatment-resistant forms.

The articles “Antibiotics losing the battle” from ‘the Globe and Mail’ and “Flesh-eating bug’ strikes Canadians” from ‘the Toronto Star’ both reflect on the growing concern over current forms of infectious diseases. Chief amongst these diseases is AIDS.

What is AIDS? (Source: Ranjit Dighe et al., AIDS in Developing Countries, 1989):

"Acquired Immune Deficiency Syndrome (AIDS) is the final and fatal stage of infection by the Human Immuno-deficiency Virus (HIV). By this stage, the body's immune system has deteriorated to the point where the person with AIDS is prey to 'opportunistic infections', meaning potentially harmful micro-organisms."
AIDS facts:

- AIDS - first identified in 1981
- HIV - first identified as leading to AIDS in 1984
- AIDS - pathogenesis is not understood, though it is fatal in almost every case.

What are the ‘opportunistic infections’?:

"The type and nature of these infections vary geographically. In the U.S., AIDS deaths are commonly caused by Pneumocystis carinii pneumonia, a rare infection, and Kaposi’s sarcoma (KS) a cancer of the blood vessels, commonly categorized as skin cancer. The most common manifestation of AIDS in Africa is a condition known... as ‘slim’ disease, or clinically as enteropathic AIDS, marked by extreme and uncontrollable weight loss, chronic diarrhea, and fever."²

What are the HIV infection routes? (Source: Michelle Hoffman, "AIDS Solving the Molecular Puzzle", 1994):

- blood (primarily through transfusion, shared intravenous needles, and sexual activities)
- semen
- tears
- saliva
- breast milk
- cervical fluids
- ‘in utero’
- cerebrospinal fluid.³
How prevalent is HIV/AIDS in 1994?:

- 600,000 AIDS sufferers (medically diagnosed) globally
- one million HIV infected humans in the United States
- eleven million HIV infected humans globally.  

AIDS is often termed a ‘pandemic’ or ‘plague’ in the modern context.

**Class One: Readings and Discussion**


Antibiotics losing the battle

Tuberculosis among infectious diseases reappearing, scientist says

BY MARY GOODERHAM

San Francisco — The world has lost control of bacterial disease and is heading for a “post-antibiotic” age once portrayed only in science fiction, a leading microbiologist has warned.

Alexander Tomasz, a professor at Rockefeller University in New York, told a joint meeting of the American Association for the Advancement of Science that a powerful worldwide resurgence in microbial diseases in the 1990s could pose “nothing short of a medical disaster.”

The discovery and use of antibiotics such as penicillin earlier this century was believed to have obliterated infectious diseases that had once been the primary cause of death in humans.

Yet by the late 1970s, many of the diseases that antibiotics took care of were making a resurgence, especially antibiotic-resistant pneumococcus, which has spread especially among hospitals and is resistant to a battery of drugs.

Penicillin-resistant pneumococci have led to high levels of pneumonia in many countries; in the United States there are half a million cases and 40,000 to 50,000 deaths related to the bacteria each year, Dr. Tomasz said.

Stringent use of another bacterium, staphylococcus aureus, the most common cause of skin, wound and bloodstream infections in hospital patients, has come to resist all but one antibiotic, vancomycin. Another, Enterococcus faecium, is resistant even to vancomycin and there is no known drug available for its cure.

Dr. Tomasz urged microbiologists and doctors to study how antibiotic-resistant bacteria have jeopardized traditional treatments for a host of diseases, including pneumococci, staphylococci and tuberculosis.

“A bacterial pathogen, resistant to all chemotherapeutic agents is no longer science fiction,” he said, adding that the problem is wide-reaching.

“Like toxic industrial pollutants, resistant bacteria are not restricted by national boundaries; they can infect a wide range of people at risk, from young to old, from patients in hospitals to children attending day-care centers.”

Infectious diseases are returning to the top of the public-health agenda for the first time in half a century. Reports of new diseases and the resurgence of ones considered conquered have rocked the medical community in recent years.

Please see BACTERIAL — A2

Bacterial diseases making comeback

From Page A1

Dr. Tomasz said the two main reasons for the problem are that the bacteria themselves are acquiring genes that resist antibiotics and that a growing part of the population is immunodeficient, becoming more susceptible to the microbes because of AIDS, leukemia and chronic diseases such as emphysema, diabetes, kidney disease and heart disease.

A report by Dr. Tomasz found that in those people, “bacterial infection is almost inevitable and is often the ultimate cause of death.”

Tuberculosis is the most troubling example of resistance. Three million people a year die from TB, most of them living in impoverished areas or in developing countries, although a growing number of people in North America and Europe contract the disease, especially AIDS patients.

Strains of the disease are evolving at a rapid pace toward the point where it could become immune from existing antibiotics.

Other examples of infectious diseases include epidemic cholera, E. coli bacteria and chlamydia and gonorrhea, which can cause severe pelvic pain and sterility in women.

“Especially worrying are bacteria that resist themselves so many times that they become “multidrug resistant,” meaning that nothing has been found that works on them.”

Dr. Tomasz said that the mobility of the population in the past decade means that the health hazard posed by the microbes is “a common environmental threat throughout our entire global village.”

The medical community is believed to be partly to blame for the problem. The overuse of antibiotics has forced bacteria to respond with ever more mutations. A vicious cycle has ensued in the drug war as more and more drugs are developed to deal with each new enemy.

Drug companies are currently spending a reported $15-billion (U.S.) a year searching for new antibiotics, following a number of paths that include making the drugs stronger. Researchers hope to come up with answers through genetic engineering and as knowledge grows of how microbes work.

‘Flesh-eating bug’ strikes Canadians

Two Ontarians, Quebecker treated

FROM CANADIAN PRESS

At least three Canadians have been hit in the past two days by the same tissue-destroying bacterial strain that has killed as many as 11 people in Britain, medical experts said yesterday. The Canadians included a woman in the Ottawa area and two people north of Toronto who were treated in hospital. A Barrie-area woman is in guarded condition in hospital after the potentially fatal Group A streptococcus bacteria attacked her leg, Dr. Donald Low, chief of microbiology at Mount Sinai and Princess Margaret hospitals in Toronto, said yesterday.

“She doesn’t know where it came from but there might have been a scrape after doing some work around the house,” Low said.

An Orillia-area man is recovering well after the bacteria affected his abdomen wall, said Low. The two Ontario cases are not related, he added.

A woman from the Quebec side of the Ottawa Valley remained in guarded condition with the bacteria attacking her leg, he said.

“That one’s a bit of a mystery because there’s no history of any trauma to the leg,” said Low. “She was complaining about not feeling well in general and was admitted (to hospital Wednesday) night and only then said something about leg pain and they found blisters.”

Medical experts warn Canadians can expect other rare and harmful forms of bacterial diseases that doctors thought had been eradicated decades ago.

But they also advise against undue alarm over such headlines as “Killer Bug Ate My Face,” which appeared above a story in a British newspaper about a man who needed skin grafts after surviving the “flesh-eating” necrotizing fasciitis, a rare infection in which the strep bacteria eats living flesh, turning it gangrenous.

“These are germs we’ve known about for the last 100 years, but are more resistant to current antibiotics, and are so virulent they’re quick to kill,” Dr. Ronald St. John of the Laboratory Centres for Disease Control in Ottawa. “But (flesh-eating) cases like the current ones are extremely rare.”

However, he added researchers are concerned about the rising number of new bacteria and old ones that no longer react to traditional antibiotics.

For instance, a new form of the streptococcal A bacteria is to blame for necrotizing fasciitis.

Some 35 cases of the new strain were documented in Ontario alone in 1992-93.

Unit 6 - Class Two - Curriculum: AIDS

Introduction: AIDS Transmission

Why has AIDS become a pandemic in the 1990s?

"AIDS is a modern affliction. The AIDS epidemic was fomented by changes in social mores and lifestyle that are unique to the latter part of the 20th century: urbanization in Africa, gay consciousness and liberation in the U.S., development of techniques for the preservation and shipment of blood-clotting factors for hemophiliacs, and modern air travel.... Because AIDS spreads directly from one person to another, the disease is...a universal problem. It is the one contemporary disease that is keenly felt as an urgent problem in both industrialized and less developed countries."

Harvey Fineberg, the Dean of the Harvard School of Public Health, makes a compelling case for AIDS as a 'modern plague'. Fineberg, in his essay "The Social Dimensions of AIDS", argues that "through its associations with sex, blood, drugs and death, AIDS evokes basic human fears and inhibitions." Fineberg further argues that the HIV infection "is compounded by the stigma attached to the behaviours most prominently associated" with the contagion. Throughout the world, these behaviours are promiscuity, homosexuality, and intravenous drug abuse Dr. Fineberg concludes.

Why do women 'receive' the HIV virus?

"Despite the age-old adage that women are the transmitters of venereal disease, with AIDS it seems to be the other way around. At this time in the United States for every woman who is infected with AIDS virus, there are approximately 15 infected
men.... It is...possible that the infection passes more easily from a man to a woman than from a woman to a man. We have learned from studying the homosexual transmission of AIDS that the 'receiver' of semen in anal sex is more likely to become infected than the 'emitter'...."

Helen Singer Kaplan, a doctor at the New York Hospital - Cornell Medical Center, contends in her book *The Real Truth About Women and AIDS* that women are generally AIDS 'receivers'. She writes that the disease has 'broken out' from "the highly infected gay and drug-user groups." Kaplan warns of the African example where men and women suffer from the AIDS disease with "equal frequency". Kaplan uses Aristophanes's play "Lysistrata" (411 B.C.) to demonstrate to women how they must use their 'power' to prevent the spread of AIDS:

"The AIDS virus can get out of the infected reservoir into mainstream America only through our bodies. We can close the bridge if, like Lysistrata's union of women, we do not have sex with infected men. We must form an impenetrable barrier. We must not let the virus use our sexual organs, which were meant to bring forth life, to kill our children, our families, and ultimately everyone. We must use our heads...to keep the epidemic within its present bounds until it burns itself out...."

It is clear that men are more likely to infect women than the reverse. In North America, one reads of married men bringing the disease into their marriages. Married men are caught quite frequently, for example, in public washrooms having 'gay sex' in an impersonal fashion. Many of their wives subsequently divorce, but perhaps not in time to avoid infection. Gross promiscuity among men seems to underlie the African experience of the disease AIDS. African women, controlled by marriage traditions,
must continue to sleep with promiscuous husbands regardless of the latter's health conditions. Women and girl prostitutes in every country, most forced by circumstance or even families into prostitution, have very high infection rates as promiscuous males demand their services. If a man is infected, then his sexual partner is in grave danger:

"Normally the skin provides an effective barrier against disease-carrying microorganisms such as HIV.... However, HIV can easily enter the body if infected fluids come in contact with breaks or tears in the skin. For instance, a woman could become infected through sexual intercourse if she has any sores or tears in the skin inside her vagina.... Women are often unaware of such tears and sores."\(^{12}\)

Why Does Heterosexual AIDS Transmission Vary?

"... a consensus of opinion has now formed that the great majority, and perhaps almost all, of HIV-infected persons will develop debilitating symptoms or die.... While predicting average incubation time is still somewhat speculative, several studies... (indicate) a median (AIDS) incubation time of almost eight years.... The development of symptoms indicating HIV infection tend to show up much sooner - in fact, on average about four and one-half years. Thus, this will be a tipoff both to the HIV carrier and a potential sex partner that something is wrong. The question, then, is how likely is one heterosexual to infect another before developing symptoms that will tend to negate the possibility of that transmission?

One way of measuring is to look at the possibility of infection on a per-contact basis, multiplying this by average number of sexual acts of a heterosexual couple in one year, about 100. The only such study to provide an accurate quantification of the per-contact risk was conducted by Dr. Nancy Padian, then at the Berkeley School of Public Health in California. She found that women in the study averaged about 1,000 sexual contacts with infected men before becoming infected. Thus according to this
formula, a man would...have about a 50-percent chance of infecting a woman before becoming symptomatic.

...(In) a study by Dr. Thomas Peterman of CDC (Centers for Disease Control) and Rana Stoneburner...these researchers found a couple of women who became infected after only a few contacts each, and many women...who remained uninfected after hundreds or even more than a thousand contacts.... In the Peterman-Stoneburner study, about 20 percent of the men ended up infecting their partners, while 10 percent of the women did. These numbers seem to be about par for the course.\(^{13}\)


"...the acquisition of multiple partners in Africa, either by culture or practice or, even, legally (the polygamous system),is a high-risk factor for acquisition of HIV infection. Multiple social interactions leading to casual relationships, for example, among migrant workers may be a high-risk factor and may be one of the reasons for the relatively high female involvement in Africa. Similar casual relationships occur in the developed world but females infected with HIV remain relatively fewer (<10%) even after a decade of the epidemic.... There are several cultural variables, such as polygamy, polyandry or consecutive monogamy, which make projections for AIDS...control in Africa rather difficult.

HIV transmission is bidirectional, but transmission from females to males appears to be less efficient than from males to females.... Unlike other sexually transmitted diseases which appear to affect all countries with variable frequencies, it is still very puzzling to explain why HIV-1 infections or AIDS appear in very high frequencies in some African countries and in relatively low frequencies in others."\(^{14}\)

Both Michael Fumento, an acclaimed American journalist, and A. Olufemi Williams, an African physician and scholar-in-residence at the National Institute of Health in
Bethesda, Maryland, conclude that much regarding the transmission of the AIDS disease remains mysterious. However, both acknowledge the leading part sexual interactions play in the disease's diffusion. They further note that the lack of condom use in Africa has led partly to the almost even infection rate between African males and African females. Fumento and Williams each conclude that much research is needed to better understand the disease's transmission.
Unit 6 - Class Three - Curriculum: AIDS

The Lessons of Dr. John Snow

In medical or health geography there is likely no more compelling image than that of the Broad Street Pump in Victorian London. Cholera was, and still is, a greatly feared, water-borne disease. In ‘developed’ nations clean water supplies, effective sewage systems, and generally high standards of sanitation, all public health accomplishments and triumphs, have rendered cholera all but unknown. But, in London during the 1840s and the 1850s, people lived in fear of cholera.

Dr. John Snow was a physician in Soho, London, then a poor district, during the 1854 cholera epidemic. The cholera bacterium had not then been discovered; its discovery came in the 1880s. The disease, in 1854, was a mystery: many blamed the victims for their moral sloth or lack of attention to religious devotions; many blamed the ‘miasma’ or the near cloud of ‘muck and filth’ which hunger over the inner city slums; and, a few including Dr. Snow blamed infected water supplies. Almost everyone held an opinion or had a suspicion about cholera’s cause; few had answers. Dr. Snow carefully plotted the cholera deaths in the neighbourhood of Soho on London street maps. He was able to ascertain that almost all of the persons who died from cholera lived around the Broad Street communal water pump. Dr. Snow requested that the pump’s handle be removed. His request was carried out and the cholera outbreak soon subsided. Sewage was found to be leaking into the water main.
Why was cholera not medically curable in the 1850s?:

Cholera - 'Vibris cholerae' - was not identified in the laboratory until the 1880s; effective treatment was not available until the twentieth century.

Was cholera prevention the only policy available to even a trained physician?

Traditionally, western medicine has dealt exclusively with a patient's particular and individual condition or disease-state from first symptom (sore abdomen) to diagnosis (appendicitis), from treatment (appendectomy) to cure (patient restored post-operatively with full health resource) on a case by case basis. But in the situation of a 'mystery disease' killing many people without effective treatment procedures, the so-called 'biomedical approach' has little effect. In these cases, only preventative measures will make a difference when combined with sound public health practices.

What tools were available to Dr. Snow for battling cholera?:

The tools he had were not exclusive to medical or health geography, but his ability to bring in disease research clearly put his work beyond the normal bounds of traditional medicine. First, he used death records or visited living family of cholera victims. Second, he researched the extent and the history of the outbreak. Third, he mapped out the localized cholera deaths to demonstrate a clustering around a potential disease source. This geographical research led him to prevent further deaths from cholera in this instance.

Class Two: Readings and Discussion

- Peter Jaret, "The Disease Detectives", in 'National Geographic', January 1991.
We live in muck and filth," they wrote to the London Times on July 3, 1849, in a letter signed by 54 of that city's poor. "We aint got no priviz, no dust bins, no drains, no water-spies, and no drain or suer in the hole place . . . We all of us suffur, and numbers are ill, and if the Colera comes Lord help us." Five years later, in 1854, cholera came with a vengeance.

A man waking in good health, it was said, could be dead by sundown. Within 250 yards of the intersection of Cambridge and Broad Streets, more than 500 people died in little more than a week. Carts groaned under the weight of corpses carried away for mass burial. Those who could, fled. Others locked themselves away in fear.

No one knew how or why contagions spread. Some blamed foul vapors. Others saw the work of divine retribution. Decades would pass before medical scientists accepted the idea that microbes too small to see were the cause of infection.

But a 41-year-old physician named John Snow believed he had found the source of the Broad Street contagion. On a map of London, Snow marked where victims died. Nearly all the deaths, he saw, had taken place near the Broad Street pump—one of many public water pumps in London.

But before he could be sure, Snow had to understand why ten deaths had occurred nearer another street pump. Amid the growing panic Snow visited the families of the deceased. Five of the distant victims, he learned, regularly sent for water from the pump at Broad Street, preferring its taste. Three others were children who attended a school near Broad Street's pump.

That was all he needed. On September 7, Snow appeared before the vestry of St. James's Parish, meeting in solemn consultation on the causes of the epidemic. His request astonished them. He asked that the Broad Street pump handle be removed. It was. Within days the outbreak of cholera ended.
Unit 6 - Class Four - Curriculum: AIDS

Statistical Exercise (Text)

This class, students will do the statistical analysis in the text, *World Prospects: A Contemporary Study*, by Marilyn Mackenzie and John Molyneux. This case study will allow them to see an example of a cartographic and statistical approach to disease in operation. Most diseases have quite specific patterns or spatialities. These give researchers outside the medical field a starting point in the battle against a particular disease. The statistical analysis from the text is excerpted on pages 10, 11 and 12 of this project. The material would be available to all students in their texts. The complete assignment would be submitted for evaluation.
Class 6 - Class Five - Curriculum: AIDS

AIDS: Competing Theories I, II & III

There are many competing theories that attempt to explain the origins of AIDS and the initial diffusion from the suspected original source. These theories are both intriguing and revealing. They warrant exploration in class, even though some are partial or fragmentary. One can see them as pieces belonging to a puzzle they may or may not fit. Yet, no matter how small, they may eventually provide the important piece in explaining the AIDS mystery. These theories are presented in the course of two classes. Time is allowed for readings and discussion. The theories are presented in order of completeness, from most complete to least complete. Their names are composites.

Theory I - The Simian Immunodeficiency Virus (SIV) Theory: (West Africa focus)


There are some apparent similarities between HIV and a virus carried by African green monkeys. The suspicion is: "the virus jumped the species barrier to HIV-2 from a related simian immuno-deficiency virus coded SIVagm, found in green monkeys. The virus then mutated to the highly pathogenic strain, HIV-1, most commonly found in man."

It is perhaps possible that SIV was transmitted to humans be become, first, HIV-2, and, then, HIV-1. This probably came about through certain tribal practices. The sexual practices of the Idjwi tribe were observed in 1973 by a French reporter:

"To stimulate a man or a woman and induce in them intense sexual activity, monkey blood...was directly inoculated in the pubic areas and also the thighs and backs."  

The SIV virus has no adverse effect on green monkeys. However, when injected into other monkey species, the SIV virus causes simian AIDS.


This theory suggests that it was the vaccination program to eradicate smallpox which triggered HIV, then dormant in Africans around Lake Victoria. It is theorized that this infection spread with the Haitians who lived temporarily in the area. The Haitians were in Africa forming the post-colonial bureaucracy for many African states. From there, the disease came to infect North Americans: "A number of Haitians covered by the (smallpox vaccination) campaign returned home at a time when Haiti was becoming a 'playground' for San Franciscan homosexuals." The Haitians had been in central African countries like Zaire (formerly the Belgian Congo) acting as
administrators, trainers, military consultants and civil servants after the white colonial officials departed in the 1960s.

Theory III - Voodoo Cult Theory: (Haitian focus)


The impoverished island nation of Haiti in the Caribbean provides fertile terrain for a great deal of AIDS theorizing and speculation. Though the French-speaking population is nominally Roman Catholic, a great number (some say the majority) participate in Voodooism to some extent. This cult has evolved from West African tribal custom. Voodooism includes ritual activities which may have led to the spread of AIDS. Many voodoo acts potentially “involve the spread of HIV or its predecessor to human hosts in Haiti, as well as in equatorial Africa, through regular ingestion of uncooked animal blood sacrificed in spirit possession ceremonies.”

“In Haiti, the spirits of the gods are summoned by the blood sacrifice of bulls, goats, pigs, pigeons, and most commonly chickens.... The priests ingest the blood directly.... Also, in healing ceremonies, the blood from the sacrificed animal may be rubbed on or into a patient’s afflicted part. Certainly the practice provides frequent opportunity for exposure to animal blood which may contain a precursor to the HIV virus....”

It transpires that many of the voodoo ‘priests’ are very active homosexuals, some of whom mixed freely with American homosexuals vacationing in Port-au-Prince:

“The high level of sexual activity among the latter (homosexual American men) during a period of the so-called gay liberation
movement. More specifically, in the 1970s, Port-au-Prince
developed as a popular resort area for homosexual men from the
United States. Given the documented high-incidence of multiple
sexual partners among some homosexual men, it is hypothesized
that the infection could have spread very rapidly...."\textsuperscript{20}
AIDS: Competing Theories IV, V, VI, VII

Theory IV - The "Gay Related Immune Deficiency" (GRID) Theory: (San Franciscan focus)


In the early 1980s, it appeared as though only homosexual males were being infected with AIDS. The principal, and, perhaps, exclusive mode of transmission at the time (the first half of the 1980s) was the "traumatic sexual practice" of many highly promiscuous, young, vigorous, homosexual males. During the 1970s, the bathhouse was a prominent feature in the San Franciscan, 'alternative' lifestyle. Journalist Gene Antonio portrays the 'bathhouse culture' in his book AIDS: Rage & Reality published in 1992:

"In a study of homosexual males who contracted AIDS, 50% admitted attending homosexual bathhouses. The major function of these so-called bathhouses is to provide an inexpensive place where homosexual males can engage in frequent anonymous homosexual activities without fear of social or legal reprisal. The average patron may engage in homosexual acts with nearly a dozen or more participants."

As the national moral climate of disapproval and condemnation was gathering strength, certain other groups began to develop AIDS. First were the intravenous drug users and addicts, then the Haitian refugees and immigrants. Then came the cases of the haemophiliacs and the post-operative patients who, during surgical operations, received
blood transfusions from HIV-tainted blood supplies. Finally, cases of AIDS began to appear among the general population. GRID had quickly become AIDS.

Theory V - The Cassava Pests Theory: (East African focus)


This theory rests on the fact that in Africa, men and women are, apparently, infected at the same rate. The ratio is one to one (as compared with fifteen or twenty men to one woman in North America). In addition, HIV infections are being found among rural Africans with little exposure to the usual routes of infection. Williams, an African doctor and researcher, writes:

"the recent emergence of HIV infection in relatively risk free groups necessitates a search for alternative or additional routes or sources of infection responsible for nonsexual transmission of the virus in rural areas where 75 to 80% of Africans live."

In the early 1970s, two cassava pests were accidentally introduced to East Africa from South America. These were the "mealybug" and the "green spider mite". These two pests carry "plant retroviruses" not unlike HIV. Cassava is the staple food for approximately 200 million Africans. Both the timing and the pattern of diffusion for HIV infections and for the two cassava pests throughout Eastern Africa appear quite similar.
Theory VI - Air Travel Network Theory: (Kinshasha, Zaire focus)


Those who track diseases now follow virulent infectious diseases from city to city along air traffic routes. In the 1980s, researchers developed a model using a "structure of the air network connecting 51 of the world's cities (to successfully) model the spread of virulent, and readily identifiable strains of influenza from Hong Kong." This model was later used to trace the diffusion of HIV infection. The model strongly suggested that HIV infections originated in Kinshasha, Zaire. This led many to theorize that Kinshasha was the African point of origin for HIV. This conclusion was based on the pattern of disease spread.

Theory VII - "Patient Zero" Theory: (American focus, principal cities)


The groundwork for this theory was done by Randy Shilts, a journalist dying from AIDS, in his book And the Band Played On (1987). Shilts identified Canadian airline steward Gaetan Dugas, who has since died of AIDS, as the first North American AIDS sufferer. This highly speculative allegation has led to a "patient zero" theory. The claim is that a young, promiscuous, male airline steward introduced the HIV infection to the North American homosexual community at various stopovers: "Patient Zero thought he had had an average of about 250 different male partners each
year during the previous three years...eight out of the sample of 40 were infected by him."^{27}

Class Six: Reading and Discussion

Catholics in Ivory Coast are divided over the use of condoms.

Henri Tincq reports

I VORY Coast is one of the five African countries that have been hardest hit by the Aids epidemic. About 12 million of its population of 120 million were HIV-infected in 1993, and that figure is set to rise to one million by the year 2000. 15 per cent of people over 15 are already affected.

The first two Aids cases in ivory Coast were recorded only in 1985, today 50 per cent of hospital beds are occupied by Aids sufferers. When symptoms appear, victims are rushed to one of the big hospitals in Abidjan, Treichville, Conacry or Yopougon.

But sufferers are soon sent home to make way for the next batch of patients. "Try visiting the Aids wing in Treichville," says Father Louis Alibe, a French priest. "Two days later, you'll see a different set of faces."

Young people have been the hardest hit. Hundreds of children hang around at night under the two bridges of Abidjan's cliff road, where drugs and sexual favours are haggled over. On the Cocody University campus, young male students boast of having nine or ten partners at the same time.

The government points to a wide range of possible reasons for this disastrous state of affairs. Among the worsening economic situation after the sharp fall in coffee and cocoa prices, the collapse of the infrastructure and public utilities, immigration from neighbouring countries like Burkina Faso.

The National Committee to Fight Aids has stepped up its information and prevention campaign in schools and on radio and television. The local brand of condom, Prudence, is cheap (the equivalent of 12f) and widely available. The real problem lies elsewhere: ingrained, rigid attitudes are common; sexual relations take place at an early age; people have many partners; men prefer to be observed, having their wife (or wives) to have sex even when 40-00:00 (the normal period) is respected; they regard sex without a condom as virile.

A case report is still carried out secretly. The luckier patients are treated in local infirmaries or hospitals, but then only at special times of day and by young interns in need of a bit of extra cash. The consequences of bungled operations can be seen every morning in the pages of France-Matin, Abidjan's main paper — the death notices of teenage girls or young women who have died "after a brief illness", as the accepted euphemism has it.

The efforts of the Christian and Islamic churches to make ivory Coast "more responsible" in their sexual behaviour are widely recognised. Parishes, Catholic schools, boy scout groups, Catholic and Muslim student associations, and mosques have all become centres of communication and prevention.

The message and assistance centres have even been opened by communities of nuns in Abidjan, Goury, by a Protestant hospital in Daloa, and by a Baptist congregation in Ferkessédougou, in the north of the country.

The main message put across by the various churches is the need for high moral standards and absolute faithfulness between partners. Priests often mention Aids quite openly in their Sunday sermons. "First I ask them not to have sex before marriage — 80 per cent of young offenders in prison were raped by single mothers," says one priest. "Then I advise them to have only one partner. In the last resort, if they feel they can't refrain from sex or be faithful, I tell them to use Prudence condoms."

But the religious communities have strong reservations about prevention campaigns that advocate the use of condoms. Dr Emmanuél Guazon, head of the National Committee to Fight Aids, says: "It's the job of the churches to urge a return to certain moral values. And it's a job they do well. But they can't at the same time ban condoms. There's no incitement to depravity involved. All we're saying is that a barrier must be used to prevent transmission, and for the moment the only barrier is the condom."

IT IS the Catholic church that has the greatest misgivings about such arguments. Bishops and representatives of Caritas, the Ivory Coast health authorities and various NGOs met at a seminar in Yopougon in May 1993 aimed at "mobilising the church in the fight against Aids."

In his opening address Monsignor Agyew, Catholic bishop of Yamoussoukro, stressed that every possible channel — verbal, written and audiovisual — should be used to put across precise information and make young people take responsibility for themselves.

He went on: "Claims that young people are so weak and depraved they reject self-discipline have often come from adults who are immersed in the permissive society, and who project on to the young their own frustration and their own frustration."

This marked the beginning of a campaign by the anti-condom brigade, which argued that accidents happen with condoms, that they do not guarantee 100 per cent protection against infection by HIV, that they encourage promiscuity, and that the rich countries, while casting themselves in the role of savours, are interested only in opening up new markets for pharmaceuticals.

But such arguments are disapproved by everyone in the Catholic church. An Italian priest has organised Aids-prevention teams of young laypeople and nurses in Port-Haut, a working-class district near Abidjan airport. He is not afraid to advertise the use of condoms: "One philosophy is to stick to principles, and the other is to look at the facts in the face. When I see these young people constantly infecting themselves, I say to myself there's no other way of fighting the disease."

Professor Elias Ochel and the Medical Institute of Wurzburg in Germany have just completed a very extensive study of Aids in Ivory Coast. Their report strongly criticises the Catholic church's attitude, which it sees as too non-committal.

It claims that the church encourages an atmosphere of "disimulation" and "stigmatisation" where Aids is concealed, gives priority to the "charitable assistance of the sick and the dying", is "marginalised against condoms", and forces priests and nuns who are actually fighting Aids on the ground to do so "clandestinely."

But can the Catholic church change its spot? The first synod of African bishops is due to be held in Rome in a few weeks time. The bully preparatory document that has been drawn up for the meeting devotes precisely one line to the disease that is cutting cruel swathes through the population of Africa.

(February 16)
Unit 6 - Class Seven - Curriculum: AIDS

AIDS: In the Canadian Context

In Canada AIDS has been most heavily concentrated amongst homosexual males. These men have comprised about seventy to seventy-five percent of the AIDS cases to date. The AIDS ‘epidemic’ has been somewhat overstated in Canada. AIDS deaths are frequently well-publicized as the deaths of well-known artists receive great attention in the media. But the actual figures are not entirely consistent with the media driven “AIDS terror”. The statistics from a variety of sources indicate that Canada's AIDS experience is similar to that of many European nations. Health and Welfare Canada statistics indicate there were 2,095 AIDS cases in Canada up to October, 1988; eighty percent of those afflicted were practising homosexuals or bisexuals.  

In an article written in 1993 by Journalist Celeste McGovern titled “The Exaggerated Menace of AIDS”, the author presents statistics on causes of death in order to put AIDS deaths into some perspective:

1992 Canadian deaths

Cardiovascular diseases - 75,000
Cancer - 58,000
AIDS - 909.  

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There are, however, two points to keep in mind. First, AIDS generally kills at younger ages. The loss of 'potential years' is a meaningful statistic and this is not included. Second, the numbers of AIDS deaths will undoubtedly climb with the absence of an effective treatment for either the HIV infection or AIDS.

McGovern also makes the comparison with breast cancer. She notes that since 1979, 60,000 Canadian women have died of breast cancer; to date 252 Canadian women have died of AIDS. She further notes that during the 1990s, federal government funding has been $4 million per year for breast cancer research while $17.8 million per years has been spent on AIDS research under the 'National AIDS Strategy'.

McGovern concludes, amongst many other things, that the media is distorting the prevalence of AIDS:

"The sheer volume of media covering AIDS gets is enough to leave people...impressed about the disease's impact. A recent 'Globe and Mail' science column noted that in two years the paper ran more than 600 pieces about AIDS - nearly one a day."

The Canadian Journal of Public Health, Volume 84 - supplement 8, January/February 1993, updates the AIDS watch in Canada with a dedicated issue, "AIDS and Health promotion". This journal estimates that in 1992 about 30,000 Canadians were infected with HIV and that there had been approximately 4,000 Canadian AIDS deaths through 1991. The disease has, however, quite distinct and disturbing concentrations. For example, in the City of Toronto during 1989, AIDS (at
40% was the leading cause of death in persons aged 25-34 years; and, the HIV infection rate amongst Canadian, male homosexuals was about 100 per 1,000 in 1992 approximately (compared to a general, adult infection rate in the population as a whole of 1.5 per 1,000).34

Class Seven: Readings and Discussion


- Bruce DeMara, "AIDS risk from transfusions once called 'extremely low'", in 'the Toronto Star', March 9 1994.

- Mark Zwolinski, "HIV cases a puzzle in Newfoundland", in 'the Toronto Star', June 16 1994.
The applicant is a mature health professional who could reasonably be expected to know the potential consequences of engaging in unprotected sex. She did know to ask for a condom to be worn on the first occasion of sexual intercourse and she did ask [Ssenyonga] if he had any disease. Furthermore, once she became infected she insisted that he use a condom. Yet in the interim she engaged in unprotected sexual intercourse with him.

The board does not consider it reasonable to entrust one’s life to an almost complete stranger on such a brief acquaintance. Given the dangers of unprotected sexual activities, a reasonable person would require a much longer period of trust building. Furthermore, the board does not consider it sufficient to simply ask a sexual partner for an HIV status. The board does not condone the behavior of the alleged offender, but in the HIV world in which we all find ourselves living today, it is the view of the board [that] each person must accept some responsibility for the consequences of unprotected sexual intercourse...

The applicant’s behavior in engaging in unprotected sexual intercourse was behavior which contributed to the injury she sustained. ... However, the board also considers it relevant to recognize that the consequences have been overwhelming; that the applicant is suffering with full-blown AIDS and has a very limited life expectancy. The board will therefore order payment of $15,000 for pain and suffering.... Under the provisions of [the Compensation for Victims of Crime Act], the board is prepared to consider a variation of this order to cover up to $3,500 for funeral expenses.

1984 guide termed nation’s blood system ‘safe’ as possible

BY BRUCE DEMARA

The province’s first publication in 1984 to educate health workers about AIDS described the nation’s blood system as “safe as humanly possible” and suggested the risk from blood transfusions was “extremely low.”

The March, 1984, publication aimed at doctors, dentists, hospitals and laboratories also urged hemophiliacs to continue using blood clotting products, which later caused many to be infected with the virus that causes AIDS.

The publication was produced by the Provincial Advisory Committee on AIDS, whose first chairperson, Dr. Mary Fanning, testified before the federal inquiry on the blood supply, headed by Mr. Justice Horace Krever.

The inquiry is looking at how more than 2,000 Canadians were infected with the virus through blood transfusions and blood products between 1978 and 1985.

Among other statements included in the publication:

■ “The risks associated with refusing a blood transfusion when medically necessary far outweigh the minuscule risk of contracting AIDS.”
■ Of 10 million blood transfusions in the United States in the previous three years, only 15 people had contracted AIDS, making the chance of developing the disease through a blood transfusion there about 1.5 in a million.
■ “In Canada, no cases of AIDS have been linked to blood transfusions.”
■ (In fact, previous testimony at the inquiry has shown that blood transfusions have the highest efficacy of any method for transmitting AIDS — about 90 per cent.)

Fanning, who chaired the committee from June, 1983, to September, 1984, defended the publication as the best possible with information evolving so rapidly at the time.

“We were trying to present an accurate picture and get out accurate information (and) this is the information that’s presented. Hindsight can sometimes color what was being done at the time,” Fanning said.

Fanning suggested the committee, like the medical community, was facing “a lot of confusion.” At one point, she suggested the committee was “guessing” about issues like the incubation period of the disease. “If you look at the language (of the publication), it was ‘may’ and ‘probably’,” she said.

Part of the problem, Fanning said, was that in early 1983, the United States had about 800 reported AIDS cases while Canada only had 21, far lower than expected.

“The fact there was such a small number of cases compared to a large number in the United States made people think, in fact, this would pass us by,” Fanning said.

“(AIDS) was, we thought at the time, a small problem. The consequences of potentially viewing it as a larger problem than it was might cause more problems than it (would) solve,” Fanning said.

“For example, if people who needed blood transfusions for life-threatening illness declined them on the concern that they didn’t want to develop AIDS, we might be balancing someone dying ... versus what seemed to be a small risk of developing (AIDS),” she said.

“There was absolutely no way anybody could have looked forward in a crystal ball. There’s a lot of contention about whether (AIDS) would be (a problem in Canada) or not,” Fanning said.

Fanning said the belief was even widespread in the medical and scientific community.

“I was frequently under enormous criticism from friends and colleagues who felt that an inordinate amount of attention and money was being spent on (AIDS). And these types of responses came at me from everywhere,” Fanning said.

At one point, Fanning suggested she wished her committee had included a broader range of representation from community groups involved in HIV and AIDS.

“In retrospect, many of us involved in this disease regret many things,” she added.
HIV cases a puzzle in Newfoundland

Officials wonder if virus linked to Ugandan strain

By Mark Zwolinski
Stap Reporter

Doctors in Ottawa and Newfoundland are trying to unravel a medical mystery that centres on a rash of HIV-positive cases in the Conception Bay North area.

Figures compiled by Dr. Sam Rutman, director of the Provincial Public Health Laboratory in Newfoundland, show the virus that leads to AIDS appearing in pregnant women in the region at a rate of 26.6 per 10,000, compared to 8 per 10,000 for the rest of the province.

The area includes the Bonavista, Burin, and eastern rural Avalon peninsulas just northwest of St. John's.

Dr. Catherine Donovan, medical officer of health in Holyrood, said six women and six men in the region have been diagnosed with HIV, "and there's the likelihood of a lot more based on the (partial figure)."

Now doctors are trying to determine whether the figures, released last Dec. 1 on International AIDS Day, are the first North American link to radical strains discovered in Thailand and Uganda.

The spread of the virus mirrors Thai and Ugandan cases, in which the strains show a predilection for transmission among heterosexuals, Rutman told a Toronto conference last week.

But he and other doctors studying the spread of the virus stressed there is nothing conclusive about the Newfoundland virus, which has appeared in abnormal proportions over the past two years.

"The study of the virus associated with this cluster (of victims) is very different than what exists in other areas of the province or the country," Donovan said.

"Based on the definition, I think you can call it an epidemic," she said.

"The theory is that the viral strain ... is similar to Thailand and Uganda because of the ease of transmission among heterosexuals ... it's more akin to what's happening in Thailand and Uganda than in North American among homosexuals and drug users," Rutman said.

But Dr. Don Sutherland of the Centre for Disease Control in Ottawa said doctors studying the Newfoundland virus cannot be definitive about its current prevalence.

"What's needed for HIV to spread is a combination of behavior and the virus," Sutherland said.

"Studies indicate nothing unusual about the behavior in the area ... it's a small area ... it's just unlucky HIV got into the area and spread."

Blood samples from HIV-positive patients are now being processed, but results are not expected for up to a year, doctors report.

HIV transmission in major Canadian cities like Vancouver and Toronto occurs up to 80 percent of the time in homosexuals and drug users sharing needles, said Gerard Yetman, executive director of the Newfoundland/Labrador AIDS Committee.

But up to 24 women from the region have been identified as having come forward for HIV testing, he added.

"In Newfoundland we are hitting close to a 50-50 ratio between homosexual and heterosexuals, Yetman added.

The provincial government set up a one-year community program in April, called Community HIV Prevention Project, aimed at testing 7,000 people for HIV.

But so far, only 40 people have come forward for testing and all have tested negative.

Last June, a 29-year-old man from Upper Island Cove, in the area affected by the high rates of infection, received an 11-year sentence for intentionally infecting six women.

Newfoundland newspapers have reported two women have died of AIDS-related illnesses as a result of their infection.

AIDS: in the American context

The issue of AIDS in America has proven highly controversial and divisive for a number of reasons. The disease first appeared amongst homosexual males in large metropolitan areas. In the book *AIDS: Deadly Threat* (1986), American medical writers Virginia and Alvin Silverstein note that initially, "the victims were (all) gay men, about half from New York City and most of the rest from California. They had typically been promiscuous, averaging more than a thousand sex partners each.... Medical researchers, speculating on the causes of the new 'gay plague', produced a flood of theories...."25 This ostracized group was soon joined by Haitian refugees and drug addicts. The American public entered into a noisy debate divided between compassion and sanctimonious condemnation. Although the disease has now spread into the American mainstream it remains, according to journalist D. Keith Mano, the "gay men...(who) stand to AIDS as the Broad Street Pump stood to cholera."36

In his 1990 book *The Myth of Heterosexual AIDS*, American journalist Michael Fumento writes that, in America through August 1989, an analysis of the 106,000 AIDS cases reported to the Centers for Disease Control (CDC) in Atlanta showed the following patterns:

**Infection Routes**
61% homosexual/bisexual males
21% intravenous drug abusers
7% both of the above
5% heterosexuals
3% unknown
2% blood transfusion recipients
1% haemophiliacs

Many similar sets of statistics appear to indicate significant HIV infection resulting from the male homosexual practice of 'anal penetration' which frequently leads to 'rectal trauma' and considerable bleeding. Condoms, when used in this activity, are prone to tear at a nearly twenty-five percent rate due to the lack of naturally-occurring lubrication in this region. "A study published in the April 1987 'American Journal of Public Health' (AJPH) found that, of 240 men in the test group who became infected over the course of the study, all but 4 had engaged in receptive anal sex."38

The American homosexual community has been terrified by AIDS and enraged by what it sees as government inactivity. During the Republican presidencies of the 1980s, the homosexual community demanded action. The most vocal and militant group, the AIDS Coalition To Unleash Power (ACT-UP), began a high profile media and publicity campaign in 1987 with their "Silence-Death" campaign. The "Silence=Death" posters, as found in the book by American writers Douglas Crimp
and Adam Rolsten *AIDS Demographics* (1990), feature pink triangles (used first by Nazis to denote 'homosexual' in various concentration camps) pointed up on solid, black grounds (historically and universally symbolic of death, disease and plague). ACT-UP members have stormed news stations during broadcasts, issued manifestos, disrupted religious ordinations, staged sit-ins, and blocked traffic. Their campaign has been an unmitigated success. In his inaugural address, President Clinton referred to AIDS as the new "epidemic". Further, the President has appointed an American 'AIDS Czar(ess)'. This senior bureaucrat oversees 'the war on AIDS'. In addition, AIDS research in the United States of America is now receiving high levels of funding. In fact, funding per AIDS death amounts to twenty times that made available for cancer research per cancer death.39

The AIDS epidemic has deeply affected American society. The sexual liberalism and permissiveness, which began in the 1960s, with the availability of the 'pill' and effective antibiotics, have changed with the advent of AIDS. In the last decade the trend in sexual 'mores' has been back toward a more considered sexuality. 'Homosexual' bathhouses have been boarded up in many localities by public health officials. Condoms are widely used though questions persist as to their overall effectiveness against viruses. 'Safe sex' is a popular slogan. Abstinence is a word
SILENCE = DEATH

Why is Reagan silent about AIDS? What is really going on at the Center for Disease Control, the Federal Drug Administration, and the Vatican?
Gays and lesbians are not expendable... Use your power... Vote... Boycott... Defend yourselves... Turn anger, fear, grief into action.

Cumulative AIDS Cases

heard more often. The American evangelical groups and the Roman Catholic 'right' have had a great deal to say. The outspoken Republican Senator for North Carolina, Mr. Jesse Helms stated in the United States Senate that, "(AIDS requires) this country to slam the door on the wayward, warped sexual revolution that has ravaged this Nation." Nonetheless, for some Americans the attitude of sexual 'laissez-faire' seems to continue. As Peter Gould notes in his book The Slow Plague (1993): "In many parts of the United States, 70 percent of the teenage population have experienced sexual intercourse before leaving high school, and half of them use no contraception whatsoever." 

Class Eight: Readings and Discussion

A Sorrowful Homecoming

Verlyn Klinkenborg

MY OWN COUNTRY
A Doctor's Story of a Town and Its People in the Age of AIDS

by Abraham Verghese
Simon & Schuster, 447 pp. $23

Late in my own country, Abraham Verghese, an internist working in Johnson City, Tenn., makes two maps based on information elicited from his AIDS patients. One shows their current residences. The other map is called "Acquisition," and on it Verghese plots the places where his patients contracted AIDS. "The dots on the larger map, the 'Acquisition map,'" Verghese writes, "were no longer confined to the rectangle of Tennessee and its neighboring states as they had been on the 'Domicile' map. Instead they seemed to circle the periphery of the United States, they seemed to wink at me like lights ringing a roadside sign."

This was a simple, if dramatic, exercise in medical geography. In Verghese's experience, as the lives of HIV-positive men from Eastern Tennessee and the surrounding states began to collapse in their adopted cities, they often returned to the small towns and crossroads settlements and Appalachian hollows where they had been raised, some to confront their families for the first time with their homosexuality. It is, in the beginning, the affectations of these men that had caused this dispersion to the coast. The end, it was their afflictions, as much as their affections, that brought them home again.

My Own Country is a book about the effect of the AIDS epidemic in a deeply traditional, non-urban, "country" setting. But it is also a book about the identity that place brings with it and the way an epidemic as culturally insidious as AIDS affects that sense of local identity.

With only a handful of exceptions, Verghese's 80-some HIV-positive patients had been marked out all their lives by their difference from the prevalent culture of rural Tennessee. It was one of Verghese's ambitions in moving to Johnson City (where he had done his internship and residency before taking a fellowship in Boston) to find for himself a place of identity if not of origin. He is the son of Indian parents, members of the Marthomite Christian sect -- south Indian Brahmins -- "that trace their religion back to the apostle Thomas."

Verghese was born in Ethiopia and attended medical school in India, and he came to the United States as part of an influx of equatorial physicians and their families. "I was amazed," Verghese writes, "by the number and variety of foreign interns and residents I met in these hospitals. I overheard snatches of Urdu, Tagalog, Hindi, Tamil, Spanish, Portuguese, Farsi and Arabic."

And so, in Verghese's office, it often happened that a young man who had fled a cinder-block shack in a Tennessee valley, only to contract AIDS in San Francisco or Baltimore or Manhattan, found himself consulting with an Indian internist who was raised in Adulis, Ababa but who hoped to make Johnson City his own country. Each was foreign, and to that foreignness the spectre of AIDS added its own peculiar alienation.

"Gay may have been what he did," says the sister of one of Verghese's patients, "but it wasn't who he was." In terms of his practice, Verghese might have put this thought a different way: AIDS is what his patients had, but it wasn't who they were. One of the mutated dramatic threads running through this book is the way Verghese's efforts to understand his patients conflict with nearly everyone around him, including the hospital administration, which wondered why so many AIDS patients came to Johnson City, and his wife, who feared her husband's contact with his patients. To her credit, Verghese does not portray himself as a hero, merely as a doctor who is trying to meddle through his own ignorance. He is almost always caught in the middle between the ability to diagnose AIDS and the inability to treat it, between the straight world and the gay world, and, at times, between sympathy and horror. As so often happens in narratives of this kind, Verghese discovers deep veins of sympathy in a city that at first appears indifferent, even bigoted. In even the remotest Tennessee hollows, places marked by backwoods xenophobia, Verghese finds a level of understanding and compassion for the victims of AIDS that will surprise many urban readers, but which will perhaps be less surprising to readers from the countryside.

Perhaps it is the intimacy of the hollows that allows fear and shock to be replaced by compassion, for in almost every case the response of city people -- who have, they imagine, the luxury of disowning the ill -- is more callous. And still there is a portrait of a community that has been reordered by a disease.

are exceptions. Here is one of Verghese's friends, a Johnson City gas station owner, talking about AIDS: "One day, about ten years from now, I'd say this town is going to be just like San Francisco. People won't pay no mind to gay or AIDS or nothing, people just won't think too much about it. It'll be like diabetes or cancer, do you reckon?"

And here is another of Verghese's friends, a Johnson City motorcycle mechanic. "My baby brother . . . I come to find out he is homosexual. I loved him and protected him when he was young. But when I realized what he was, I hated him. But, see, I couldn't keep hating him because I had loved him for so many years before that. And I realized he couldn't help it. . . . So I just more or less one day told him I still loved him."

The voices of Verghese's patients have a different kind of resonance, because they have a harder task before them than acceptance. This is Norman Sanger, a hemophiliac dying from AIDS: "All my life, that's all I've had, that's the currency I built up. Courage and dignity with this difficult disease. . . . Other kids had blazing speed, or the height for basketball, or looks, or wealth. But what I had was those mental qualities -- useless to other people but critical to me. . . . And last night for the first time since I was a little boy, I wondered whether I could keep it up, whether this disease would make me lose it all?"

What emerges from this very long book (it is at least 120 pages too long) is a portrait of a community that has been reordered by a disease. Verghese's clinic came to have "strong resemblances to a secret society with me at its head and the various novitiates and initiates dispersed among the townfolk, disguised as bakers, shoe repairmen, housewives, priests, waiters, blacksmiths, and publicans."

At the end of his time in Johnson City, burned out by long hours and incessant emotional demands, Verghese writes, "I have come to believe that human life is fast and fleeting, that our moments of true safety are rare." This book reminds the reader that most of what is honorable and charitable in the way humans bear toward each other arises from the absence of safety, and not from its presence.

Verlyn Klinkenborg is the author of "The Last Fine Tar," a book about working-class lives in Buffalo, N.Y.

Unit 6 - Class Nine - Curriculum: AIDS

AIDS Film: "Philadelphia" (1994)

This class (and also one independent study period) will be used to present the recent American film "Philadelphia". This film released in 1994 deals with a young American lawyer (Mr. Tom Hanks) who is unjustly edged out of his employment when sores (KS) on his face make it obvious that he suffers from AIDS. A film like this helps to infuse the course's stark topics with colour, life, and character. This film offers a rather careful and sanitized perspective on AIDS. However, it is the best that is available at present. The film clearly demonstrates the fear of AIDS, the associated climate of condemnation, and the tremendous waste of youthful potential. "Philadelphia" will help students to develop a more compassionate understanding of AIDS sufferers. The film allows students the opportunity to see the ravages of AIDS as a talented, young lawyer dies.

Class Nine: Readings and Discussion


With extreme prejudice


It looks very much as if Demme, one of America's best and most liberal directors, has had two crosses to bear. The first and most obvious is the negative gay reaction to The Silence Of The Lambs, his Oscar-winning film; the second, the worries of the studio itself who expected the film barely to make its money back owing to its subject matter and kept on telling him to be careful.

He has been just that. The film develops into a courtroom drama and weepie as it progresses, with Jason Robards, the acion of the lawyer's highly respectable firm, painted as a dreadful mugwump who really wouldn't be seen dead playing golf with a queer, let alone employing one who's HIV-positive.

Easily the most interesting and valuable part of the film is the fraught but burgeoning relationship between Hanks and his lawyer (Denzel Washington) who is uneasy with gays, but decides to work for a homosexual client almost to exorcise his own fear and loathing.

How this man learns respect and conquers prejudice is really the chief lesson of the film, and Washington's performance is at least as good as that of Hanks. Hanks, though, sustains his part with considerable skill. It is not an easy task and if he wins his Oscar it will be a decent award. He may not be in the same league as Anthony Hopkins or Daniel Day-Lewis, but he is a palpable star with some range as an actor too.

Don't expect too much from Philadelphia. It is certainly not Demme's best film: it's too glossy and fundamentally obvious for that. But it's there, it's doing well, and Hollywood may never be quite the same again because of it.
RETICENCE about a terrible disease is nothing new. When Barbara Tuchman set out to write a history of the Black Death she was frustrated by the sparsity of references to that plague in medieval documents. Accounts of other matters, from crusades to religious wars, were fuller, so in "A Distant Mirror" she wrote about life in the 14th century instead.

Even so it is surprising that "Philadelphia" is the first film from a big studio to tackle AIDS. It has gathered box-office receipts of more than $70m in America, and Tom Hanks has won an Oscar for his performance as a homosexual lawyer unfairly dismissed for contracting the disease. If this shows awareness in Hollywood of the disease, it is about time. Nearly 100,000 people have died of AIDS in America since the symptoms of the disease were observed among homosexuals 13 years ago. Yet only a handful of films in which AIDS is a theme have been made throughout the world.

Nearly all fall into the trap that hinders a responsible approach to AIDS. By focusing mainly on the impact of the disease on homosexuals, they reinforce the misconception that AIDS strikes down only gay men. A film such as "Philadelphia" means well. It goes through the liberal motions of having Tom Hanks defended by a black lawyer (Denzel Washington), whose homophobia is overridden by his sympathy for persecuted minorities. But in one way the film might have been more telling had the lawyer played by Mr Hanks not been gay; if he had acquired the disease in another way but been victimised all the same.

When AIDS was too new to have a name it was identified provisionally by the acronym GRID (gay related immune deficiency) because it seemed then to be an affliction specially confined to homosexuals. This error has long been corrected in medical circles, but no film has paid more than lip service to the fact that the disease can be acquired in other ways. As far as film makers are concerned, AIDS remains in a homosexual ghetto.

One of the most honest films about AIDS is the least sophisticated. "And the Band Played On", directed by Roger Spottiswoode from the book by Randy Shilts, is a movie made for television. For all its galaxy of stars (Richard Gere, Steve Martin, Alan Alda, Anjelica Huston, Lily Tomlin, Phil Collins), it is a rough-and-ready affair with no great artistic pretensions. But it does communicate, tracking the discovery of the disease, the isolation of the virus that causes it, the waned interest that at first conspired to delay preventive measures and the indifference of political leaders.

So far the American independent sector has responded disappointingly. Those films that have reflected AIDS have essentially been gay romances, with the disease hovering in the background as it used to do in 19th-century operas such as "La Traviata" and "La Bohème". "Longtime Companion" and "Parting Glances" are no more than weepies in which the girls happen to be gay.

Greg Araki’s "The Living End" is about two homosexuals, one already HIV positive, who blame society for their doom and pursue a career of theft and murder, robbing banks and infecting those with whom they have sex. Underlying this story is the notion that, since they have a limited future, these men are free of conventional, "straight" morality.

Among those film makers who have died of AIDS, Britain’s Derek Jarman and France’s Cyril Collard made AIDS-related films that, in a sense, can be read as testimonies. Derek Jarman’s "Blue", in which he comments with courage, grace and surprising good humour on the progress of his disease, has been well received.

Cyril Collard’s "Savage Nights" was his first and only film. He died last year three days before the film won the French equivalent of the Oscar. In it he appears as a bisexual of charm who cruises the gay bars of Paris and for a time conceals his affliction from the girl with whom he makes love. Because he is in love, the viewer is asked to believe, he thinks that nothing can happen to her. "Savage Nights" has considerable merits, particularly in its script and acting, but its attitude to AIDS is cavalier as Greg Araki’s "The Living End".

The French film industry has been as coy as Hollywood in addressing the disease. The only film other than Collard’s to feature AIDS is "The Lie" by François Margolin. It centres on Nathalie Baye as a monogamous wife, pregnant by her globe-circling journalist husband, and who learns that she is HIV positive. It ends with the wife forgiving the husband and the couple resolving to stand united against an uncertain future—all to the sentimental accompaniment of an old Marvin Gaye song, "Sexual Healing". This is simply low-grade magazine fiction, with the cliché of the "other woman" replaced by the "other man".

AIDS in Africa: The Ugandan Experience

The situation in Uganda offers an example of the experience of AIDS in Africa. In many parts of Africa AIDS strikes men and women evenly. As noted in North America, a twenty to one ratio of male to female AIDS sufferers is usual. In Africa, a ratio of one male to one female is quite typical. This variation is extraordinary and cannot be fully explained. This offers fertile ground for geographic research, in addition to environment and health studies.

In Slim (1990), American writer Ed Hooper discusses the experiences of an American doctor in Uganda:

"Dr. Rich Goodgame...stated that there were no high-risk groups for the disease except 'being Ugandan'. Unlike Europe and America, where active male homosexuals and intravenous drug users were...the most vulnerable groups, the main route of transmission in Uganda was apparently through heterosexual contact. Goodgame claimed that 10 percent of sexually mature Ugandans (adults) were already infected with the AIDS virus.... A Ugandan doctor from the same hospital, said that this figure could go as high as 30 percent...or 4.2 million Ugandans."42

Despite the variation, the leading route of AIDS transmission again appear to be sexual activities. Dr. Goodgame an AIDS specialist from Baylor College of Medicine (Houston, Texas), is quoted as follows: "There is profound promiscuity in Uganda, and a virus which takes advantage of it. The average Ugandan has sex with great frequency and with a great number of different partners."33
A. Olufemi Williams writes in *AIDS: An African Perspective* (1991), that the risks of AIDS increase because of the "cultural milieu of...sexual indulgence and permissiveness..." in this poorest continent where 85% of HIV infections are through heterosexual contact.34

Peter Gould, in his book *The Slow Plague* (1993), estimates there are 1.3 million HIV infected Ugandans; many appear to approach the AIDS threat fatalistically - "for many young Ugandans...the acronym AIDS stands for 'Acha Iniue Dogedego Siachi', meaning in Swahili 'Let it kill me because I will never abandon the young ladies'"35 Gould notes that many people there find promiscuity acceptable and feel that condoms are intolerable.

The virus has already killed many people in Africa. With rapid urbanization and the associated growth in numbers of migrant workers, workers who leave their families on the land, the situation gets worse. In the cities, prostitution is rife and the infection rates are high. Infection rates are also high along the many African truck routes. For example, "the truck route from Malawi is now known as the Highway of Death" because of eighty percent rates of HIV infection amongst truck drivers and prostitutes.46 The disease has been spread throughout sub-Saharan Africa along the truck routes.

For Ugandan women, the situation can be nightmarish. Most women have little access to health care. Wives must continue to sleep with promiscuous husbands because of cultural controls and traditions. Without even the dubious benefit of a
condom, many Ugandan women cannot avoid infection. As the parents waste away from 'slim', thousands of Ugandan children are left as orphans. The impoverished government can do little to ease their plight.

A Ghanaian physician, Dr. Peter Lamptey, stated the following at a 1991 conference on AIDS in Senegal. "With no vaccine or cure in sight, we must focus on how to change human sexual behaviour so people can protect themselves from getting the disease now."37

Class Ten: Readings and Discussion


- "The Karate Kid", National Film Board (NFB) Canada.
ONCE KNOWN as "the pearl of Africa," Uganda has been ravaged by genocidal warfare costing perhaps 800,000 lives and is stalked now by an AIDS crisis that alarms world health officials. Jane Nakarima, right, is a victim of the disease, as is her year-and-a-half-old son. Yet fertile soil and good climate keep starvation at bay, while the nation searches for the first steps on the long and difficult road back.

JANE NAMIRIMU was 22 years old. When I went to visit her, she was lying on the floor of her parents’ house near the town of Kyotera, her thin frail body cushioned from the cold concrete by only a torn piece of old foam rubber. A rash covered her body, she had chronic diarrhea, and she vomited when she tried to eat. Her breathing was shallow and short. There was no ointment to soothe her skin, or even aspirin to cool the fevers that gripped her. She was too weak to walk, and spent her days staring out the open door at children playing in the yard.

Jane was pregnant with her first child. She was the tenth victim of AIDS I had visited that day in Kyotera, a town of about 2,000 near Lake Victoria (map, pages 474-5).

“Jane has been sick for about six months,” her father told me. “We took her to the hospital, and to a traditional healer. She did get better for a time. But then it started again. And what can we do? I do not have more money, and everyone just dies with this slim.”

“Slim” is the word Ugandans use for AIDS because of the skeletal appearance of victims in the last stages of the disease. AIDS has reached epidemic proportions in this strife-torn country in which perhaps 800,000 people have been slaughtered in 20 years of intermittent civil war.

The government officially reports 2,369 cases of AIDS, but the real number is undoubtedly far higher. Nobody knows. The breakdown of communications and health-care systems makes it impossible to compile reliable numbers, but informed sources estimate that one in every five sexually active adults in Kampala, the capital, may be infected. When a Ugandan dies on a remote homestead, the cause of death goes undiagnosed. Like Uganda’s ongoing civil wars, AIDS claims primarily those between 18 and 40 years old.

In the countryside near Kyotera I stopped at almost every house I came to, and in every one the scene was the same: Someone had recently died, or was dying, of AIDS. Hospitals are few in Uganda and cannot cope with the numbers of patients; most are cared for by their families. In house after house I saw mothers and grandmothers keeping vigil over loved ones who were slowly wasting away. I went to funerals almost every day—sometimes several in the same day. I often saw scores of mourners winding their way through the fields, on their way from one funeral to the next.

IN THE GRIP of an unseen killer, Jane Namirimu was 22 and pregnant when she became ill with AIDS, which spreads in Africa mainly through heterosexual intercourse and affects men and women equally. When author-photographer Bob Caputo first saw her last May, Jane needed help from her mother to walk (facing page); when he returned three months later, she and her baby were buried in the fields behind the family’s Kyotera home.
The underlying numbers are staggering: About half of the adult medical patients examined at a Masaka hospital tested positive for the human immunodeficiency virus (HIV) that causes AIDS, as did 40 percent in Kampala’s Mulago Hospital, which admits five new AIDS patients a day. A survey of truck stops showed about 70 percent of the prostitutes and 33 percent of the truck drivers to be infected. In a 1986 survey at another Kampala hospital, seven out of every 50 pregnant women tested positive for HIV antibodies, and the same was true for adult male blood donors. A more complete picture of the extent of the disease awaits results of a national blood survey just begun.

"It is already a disaster," one foreign doctor working in Uganda told me. "and it's going to get worse. We don't know enough about the disease to make firm predictions—there are many possible scenarios. It could be that hundreds of thousands of people are going to die. They may already be infected."

"I don't know what to do," said Jane Namirimu softly while I sat with her. "I want to have a family, and a farm, and a home like this one. But I feel I am haunted by ghosts that will not leave me. I can just pray that things will be the way they should be."

NOTHING is the way it should be in Uganda. As independence from Britain approached in 1962, it seemed that Uganda, "the pearl of Africa," was well on its way to a long and happy life as a modern state.
The fertile south, populated by the Baganda and other Bantu-speaking peoples, was highly developed. Kampala swelled on a tide of economic activity based on agricultural riches: Cotton, coffee, and tea exports earned foreign exchange that repaid the farmers with roads, schools, hospitals, and manufactured goods. Southerners made good livings as businessmen, bureaucrats, and professionals.

In the north, where the land is poorer, development was slower. To make up for this, and to take advantage of the Nilotic tradition of warriorhood, the British recruited northerners into the army and police. Thus both groups had avenues for advancement.

But the dream of independence became a nightmare of insecurity, brutality, and economic collapse. Milton Obote, of the northern Langi people, was elected prime minister. He
soon ousted President Sir Edward Mutesa, the hereditary Baganda king, and made himself president. Obote’s corrupt regime was overthrown in 1971 by another northerner, Idi Amin, who embarked on an orgy of bloodshed in which an estimated 300,000 Ugandans were shot, tortured, and battered to death.

In 1979 Amin was driven out by the army of neighboring Tanzania and the Uganda National Liberation Army (UNLA), and Obote returned. But the UNLA did not liberate Ugandans from savagery. Things got worse.

In 1981 the UNLA sought revenge on Amin’s Kakwa people and other groups living in Nile Province. Obote’s soldiers laid waste the land, slaughtered untold thousands of people, and drove almost 450,000 more into Sudan and Zaire as refugees.

In 1982 the UNLA was drawn into the Baganda heartland in force by southerners fighting to overthrow Obote’s regime. In what must rank with the worst atrocities in human history, men of the UNLA ravaged the countryside and slaughtered between 200,000 and 500,000 people before they were defeated by the National Resistance Army (NRA), whose leader, Yoweri Museveni, is now president.

The scene of this carnage was the Luwero triangle, a wedge of rich farmland that points at Kampala, a few miles to the south. It is hard to imagine that the massacres went on there, a 30-minute drive from the foreign diplomatic missions, for more than two years before the outside world knew about them or would believe they were occurring. But the evidence is there for all to see, as I discovered when I visited the town of Nakaseke.

Joseph Kariango, an old Baganda farmer, crouched to stare at something in his field that was not visible from where I stood. I went nearer. Lying in the dirt was a small pile of bones. Joseph looked up at me.

“It is my wife,” he said.

Joseph pointed to a pair of rusty shock absorbers lying next to the skeleton. “The soldiers killed her. The men of Obote beat her with those things.”

Joseph motioned me to follow him to the edge of the field. He pushed aside some of the tall elephant grass with his hoe. There was another skeleton.

“This is my daughter. They shot her when she tried to run. And my son was killed when the soldiers caught him in my shop. I myself

UGANDA

The verdant hills around Lake Victoria were “darkest Africa” to Europeans in 1862, when British explorer John Speke came seeking the source of the Nile. Here lived linguistically and culturally distinct peoples, often at war with one another. These were gathered into uneasy alliance by the British in 1894 as the Uganda Protectorate.

When independence came in October 1962, Uganda was filled with promise—raising cotton, coffee, tea, and sugar for export—and an optimistic, if culturally divided, populace. Euphoria was short-lived as tribal hatreds were rekindled in the give-and-take of national politics.

By 1966 Prime Minister Milton Obote of the Langi had driven into exile President Edward Mutesa of the Baganda.

Gen. Idi Amin, of the Kakwa, seized power in a 1971 military coup and unleashed his thugs on all who opposed him. By 1979, when invading Tanzanians and Ugandans forced him into exile, Amin had slaughtered some 300,000.

Obote regained power in 1980 and sought to exterminate guerrillas led by Yoweri Museveni. The Luwero triangle became an unimaginable killing ground as the army slaughtered hundreds of thousands.

Obote was overthrown in July 1985, and six months later Museveni’s forces took control. Although President Museveni seeks tribal reconciliation, his once disciplined army now appears out of control in the fight against rebels in the north. The area has been closed at times to foreigners, including the International Committee of the Red Cross, and reports in the capital indicate widespread atrocities.

Since 1988 more than a million Ugandans have fled their homes, seeking refuge from tribal violence and outright genocide. Of the 450,000 who crossed Uganda's borders, roughly half have returned since the 1985 ouster of Obote.

More than 40 distinct ethnic groups inhabit Uganda. The historically powerful southern tribes speak Bantu, the language family of southern Africa, while the northern tribes speak Nilotic and Sudanic languages related to neighbors to the north.

Uganda has reported 3,369 cases of AIDS, but actual numbers may be at least ten times higher. The looming epidemic finds Uganda with only one doctor per 22,000 people. Hospitals and public services have been stripped bare by 20 years of civil strife.

ETHNOLINGUISTIC GROUPS

BANTU
WESTERN NILOTIC
EASTERN & SOUTHERN NILOTIC
CENTRAL SUDANIC

■ Refugee camps (November 1987)
▲ Areas of displaced persons (November 1987)
□ Refugee reception center
ran fast into the bush, and I was very lucky to get away from them. Everybody that the soldiers did catch they would kill. Everybody! In all this Luwero area there was nobody—everybody was killed, or they ran away. I want to bury my family, but you see, we fear to bury just bones like that. Unless the body is whole, we cannot bury it."

The Nakaseke Hotel, a brown, three-story structure, served as UNLA headquarters in Nakaseke. Bullet holes pockmarked its walls and those of nearby houses, mostly abandoned. Only 50 people had returned to a town where more than 300 formerly lived. Above the doorway to an abandoned shop next to the hotel, some UNLA soldier had written the theme of their occupation: "A good Muganda is a dead one."

I went into the hotel. The walls were covered with graffiti: boasts of prowess in battle or love, drawings depicting torture methods—dripping molten plastic from a jerry can onto a victim’s face, or the "three-point," in which the victim’s elbows were tied together behind his back so that he could not breathe.

From the roof I could see Joseph’s fields and the reach of ruined shops along the road. They, the idle power lines, and derelict gas station indicated what used to be.

A companion, Fred Wamala, pointed to the grassy field below: "Those soldiers, they used to bring people here. Especially they would catch young girls. girls of 12, 14. They tied their arms with wire. Then they raped them, and when they were finished, they threw them off this roof."

The evidence was clearly visible: skulls, small piles of human bones, bits of rotting clothes, the twisted wire that had bound the victims’ wrists.
CROSS-FIRE CAPITAL of Kampala, once among the most beautiful of African cities, became a war zone during the years of anarchy that began after Idi Amin's takeover in 1971. Rampaging soldiers—often intoxicated—looted stores, turned local hotels into torture chambers, killed at will, and set up roadblocks to extract "soldiers' pay" at gunpoint from motorists. At this writing, Kampala's streets are quiet again. But with few funds for repairs the capital is filled with telltale signs of Uganda's long ordeal, such as bullet-riddled government offices.
Commuter's nightmare occurs daily in central Kampala (above), when rush hour brings a mad scramble for seats on one of the city's matatus, or privately owned small buses. Many commute to work from countryside farms; crops supplement typically meager salaries. Large city buses, upper right, aren't the only things in disrepair after nearly 20 years of civil war. Electric power is unpredictable, visitors are advised to drink only boiled water, and once paved boulevards, now filled with potholes, present an obstacle course for the well-dressed pedestrian.
In Luwero, the story is everywhere the same. This is beautiful country: swamps of papyrus and reeds nestle between gently rolling hills of dark brown earth and luxuriant green foliage. Anywhere else in Africa such fertile land would be crowded with people. Luwero’s eerie emptiness is evidence of the multitude of the dead.

Small stands, originally built to display tomatoes, bananas, and other produce, exhibited human skulls gathered from the killing fields. At Kigoogwa, only 18 miles from Kampala, I stopped to photograph one of the racks of skulls and bones.

“Yes, yes, yes,” said a man who introduced himself as Katende Sserunjogi, a local official. “You make your photos. You take your photos back to America and show your people what that man Obote did. There are no soldiers there,” he said, pointing to the rows of skulls. “No soldiers, just people.”

Remnants of the UNLA fight on in the north, and the ongoing guerrilla war eats up as much as 40 percent of the country’s budget and diverts energy and manpower from the pressing needs of reconstruction. President Yoweri Museveni’s government, which took power in January 1986 after driving the UNLA out of the south, is determined to pursue a military solution. “We have to kill them all,” one high-ranking official told me.

Ugandan and international groups allege that Museveni’s government is torturing prisoners, that thousands of political opponents and suspected rebels are being held indefinitely without charge. The army is accused of destroying houses and crops, of raping and massacring civilians in the north and east.

It is difficult to know what the situation really is. Despite Museveni’s personal promise to arrange a trip for me, I was unable to visit the north and east—only reporters from the government newspaper were allowed. Even the International Committee of the Red Cross had been barred, presumably because the regime does not want witnesses.

“These people in the north are defeated really, thoroughly,” President Museveni assured me. But the war rages on. The NRA claims overwhelming victories; northerners recently arrived in Kampala speak of government defeats and NRA atrocities. Somewhere in between, perhaps, is the truth.
HEART OF DARKNESS for Ugandans is the Luwero triangle, a farming region just north of Kampala. Roadside vegetable stands bear the bones of families slaughtered when Milton Obote’s mostly northern army declared war on humanity—especially members of the rival Baganda tribe living in Luwero. Raping and looting for their “salary,” Obote’s forces murdered perhaps 500,000 people in their search for anti-Obote activists from 1980 to 1985. Many victims were tortured, as depicted on a prison wall (left), then clubbed to death.

Joseph Kariango (above) narrowly escaped the soldiers who murdered his wife, son, and daughter. When he returned home recently, he found the bones of his wife in the bean field behind his house. Near her skeleton lie the rusty shock absorbers that soldiers used to beat her to death.
ORPHANS, WIDOWS, WIDowers: The exact death toll is impossible to determine. Now AIDS adds its numbers of dead and dying. As one Ugandan put it: “It is as if we have been cursed for all the terrible things we have done to each other.”

Though it is probably no harder hit than other countries in central and eastern Africa—Rwanda, Burundi, Tanzania, Zaire, and Zambia—Uganda’s willingness to allow foreign journalists to cover the AIDS epidemic is unique. A National Committee for the Prevention of AIDS is in place, as is a program coordinated by the World Health Organization (WHO), to which donor nations have pledged 7.5 million dollars for education, medical equipment, and supplies. Public meetings are held to discuss AIDS, and a curriculum incorporating AIDS education is being prepared for the schools. Warning leaflets have been printed in ten languages. Slogans of the campaign are “Love Carefully” and “Zero Grazing,” an agricultural metaphor.

“To not be open about AIDS is just ignorant,” President Museveni told me. “This is an epidemic. You can only stop it by talking about it—loudly, so that everybody is aware and scared, and they stop the type of behavior that encourages the spread of this disease.”

In Uganda, AIDS affects both sexes equally. The ratio of male to female AIDS patients is one to one. “There is every indication,” a foreign doctor working in Uganda told me, “that AIDS is a heterosexual disease spread primarily through genital-to-genital contact.”

The second largest category, about 10 percent of reported AIDS cases, is the transmission of the disease from mother to infant. There are some cases of AIDS infection through blood transfusions and unsterilized needles, but Ugandans’ access to health care has been so disrupted that these play a marginal role.

AIDS was first noted in Uganda in the early 1980s by people in small fishing and smuggling villages along Lake Victoria. Smuggling was a major economic activity, and these ramshackle mud-hut villages, where the odor of drying fish hangs in the air, throbbed with commerce. Boats traveled between Uganda, Tanzania, and Kenya, and lorries traveled along the roads between Uganda, Zaire, and Rwanda. Bars and hotels sprang up, local breweries went into production—and prostitutes by the hundreds descended on the lake, attracted by the free-spending, hard-drinking traders.
EVERYTHING WAS DEAD OR GONE when widows Gladys Narubum and Abusaga Mukuma returned to the large home near Nakaseke where they had lived with their family. The husband they had shared and their children were dead, the house looted and burned. “The soldiers took everything,” says Gladys, left. “Even the photo of my husband. And it was so quiet—not even a bird sang when we first came. I had to cry when I first saw our home.”
According to this theory, the traders returned to their homes carrying the organism with them, as did truck drivers from as far away as Mombasa, on the Indian Ocean. These men infected their wives, lovers, or other prostitutes, who passed the organism on to other partners. The lines of AIDS concentration in central and eastern Africa follow very closely those of commerce.

But AIDS is not limited to the high-risk group of prostitutes and truck drivers. It has been reported in every district in Uganda, and it strikes farmers and townspeople alike. One of the hardest hit areas lies west of Lake Victoria in the Rakai District, a poor, rather isolated area of gently rolling land where the first case in Uganda was diagnosed in 1984. Most people eke out meager livings on small farms scattered across the countryside. Barefoot, they carry their matoke (cooking bananas) and beans to market in the district’s main town, Kyotera, which was bustling in the smuggling days but is now rather somber.

“Really, it is not possible to know how many people have died from this slim around here,” Badru Rashid, the local government official, told me. “In the last week ten people that I know of died. I myself have lost two brothers and a sister. And our town, it used to be so busy. But a lot of the traders died, and others left here because they were afraid. Can you see all the empty shops? So many orphans have come into town, but there is nothing for them, and they start to steal to get food.”

As I wandered through the streets, I was
continually approached by young men. They see few foreigners in Kyotera and assumed that my visit must have something to do with AIDS. They seemed desperate for reassurance: “You must find some medicine for this. It is a real curse. We are all going to die—we are always burying people!”

Many people asked me about condoms, which are new to them, as is any information about AIDS. The question I was asked most frequently was, “Is it true that slim is gotten through sex?”

“When the local people first noticed this new disease,” Badru Rashid explained to me, “they thought it was witchcraft. They believed that Tanzanians were cursing people who had cheated them. Even now, a lot of people still think it must be witchcraft because one

**Signs of Life** are slow to reappear in Nakaseke, a once thriving Luwero triangle town where soldiers were stationed during the worst Obote years. Most of Nakaseke’s citizens were murdered—many thrown alive from the roof of the local hotel—but shopkeeper Christine Bulungi and her children and mother were among those who escaped. Recently they returned to her ruined store (above right) and began trading bananas, fish, and staples trucked in from Kampala. In Uganda’s inflated, barter-driven economy, a stalk of her bananas might cost the teacher in nearby Kigoogwa a year’s salary—or provide a meal for orphans at his ravaged school (left). Thanks to fertile soil and plentiful rainfall, Uganda has never been threatened with mass starvation despite years of turmoil.
person in a house gets sick and dies, and then others. Like a curse on the family."

The health of people in Rakai is generally poor—nutrition is inadequate, malaria is endemic, and so are a host of debilitating parasitic diseases. There is no hospital in the district, and the single clinic seldom has drugs. People’s immune systems are constantly under assault, making them susceptible to new infections.

Sexually transmitted diseases are widespread, and mostly go untreated. Many of the doctors with whom I spoke speculate that the open lesions caused by untreated sexually transmitted diseases such as syphilis may increase the risk of transmitting AIDS. Even though people in Rakai have begun to learn that AIDS is spread through sexual contact, they are reluctant to change their behavior.

“You see,” Badru explained to me, “a man has a wife, and a woman has a husband. But they also have many, many good friends.”

Most of the people in Rakai spend all the daylight hours digging in their fields and doing the chores-fetching water and firewood, cooking—that enable them to survive. It is a hard existence with few rewards.

“We cannot live without sex,” one man put it. “What else is there, where is the enjoyment? We might as well be dead.”

These words were spoken during a conversation one evening in the bar of the Milano South View Inn, where I had a room. I was drinking beer with some of the men from town. A dim bare bulb cast a ghostly light on the bar. Girls leaned forlornly on the counter. Disco music blared from poor speakers, its tempo varying with the fluctuations of the power supply.

The manager of the bar had committed suicide because he thought he had AIDS. In
TENDING AN OASIS of agriculture near the Ruwenzori Mountains, workers at the Kahuna tea estate have reclaimed fields overgrown during years of war. Reopened by a British firm in partnership with Uganda, Kahuna is one of many foreign-owned plantations confiscated by Idi Amin in 1972.

Tea, coffee, and cotton all grow well in Uganda. Economists venture that unlike famine-stricken African countries, Uganda has the resources to rebuild its economy, given a few years of peace.
Uganda the infection is often marked by weight loss, chronic diarrhea, fever, and skin rash. Some other diseases, which are treatable, may have similar symptoms. But because so many people have been dying of AIDS, a tendency has developed to assume that anyone who gets sick has that disease.

"You see," Badru explained, "people get sick with something like tuberculosis—something that has the same symptoms as slim. They think they have that disease, and so they do not try to get treatment because they know slim cannot be cured. They just stay home and they die. But they did not have to die."

The conversation—about condoms, sexual practices, whether people should be told the results of their tests—was punctuated by long and deep silences. When one of the men remarked that last year there were many more bar girls, one of those present looked up from idly drawing rings on the wet countertop. "It is doomsday," she said.

The entire time that I was in Uganda, where the cars are in poor condition, the roads are abysmal, and people drive like demons, I was frightened by the prospect of getting into an automobile accident and needing a blood transfusion. In some parts of the country I was worried about the general lawlessness and large number of guns.

In Kyotera, despite my understanding of the ways AIDS is spread, I was afraid of mosquitoes in my room, of the sheets and blanket on the bed, and, most of all, of the unspeakable toilet at the end of the hall. But these fears, I had been assured, were unfounded.

Much more difficult to overcome were the periods of depression and the part of me that wanted to withdraw from the people I spent all day with. I was in Kyotera for two weeks, and every day I went to funerals or to the homes of people who were dead or dying of AIDS. The population of Rakai was scared and confused.

Though death is no stranger to Ugandans, they did not understand this disease that struck down people in their prime. But I have never met people who were kinder or more generous to one who was intruding on their most intimate and sorrowful moments.

The patients gave me some of the precious little time they had left. The families allowed me to sit with them at wakes, while they cried and wailed over the loss of a son or daughter raised with years of care and love. They let me
The road back to a normal life crosses the border from Sudan, as Ugandans who fled for their lives during the Obote years return to their homes in Nile Province. The United Nations High Commissioner for Refugees operates frequent truck convoys and reception centers like the one at Yumbe where returning refugees are given food, blankets, and farm tools to help them rebuild their lives.

Relief officials estimate that more than a million Ugandans were displaced between 1980 and 1985, as Obote's forces exacted revenge on Idi Amin's home territory within Nile Province before focusing their attention on the Luwero triangle.
go with them when they carried the bodies, shrouded in bark cloth, to their graves.

I felt helpless. Famines or wars have solutions, however elusive. The situation in Rakai was hopeless. There was nothing to be done for the people who were dying of a disease for which there is no cure, and they knew it. I remember especially sitting on the floor with Jane, holding her hand, listening to her soft fading voice, her eyes lit with a strange inner light, like a candle flame swollen by the wind in the moment before it goes out.

I made a second trip to Kyotera, three months after I had first stayed there. All but one of the patients I had visited earlier were dead, and by the time of this writing he too had died. Jane had given birth to a baby who lived for only a few days, and then she herself had died. Her mother took me out into the matooke field behind the house. There were two new graves: Jane’s, and beside it the smaller one of her infant child.

“I have nothing to do,” Jane’s mother said. “This life is not good since my daughter died. Every time the memory of her comes to me, I have to cry.”
DEATH ON WHEELS is a common sight in Nakaseke, where another body shrouded in bark cloth is moved to its final resting-place in the fields outside town. Ugandans struggle to find signs of hope in a land where visions of apocalypse have become commonplace.
Unit 6 - Class Eleven - Curriculum: AIDS

AIDS in Thailand - Unit Closure

(Source: Peter Gould, The Slow Plague, 1993)

The pattern of spread of AIDS in Thailand is generally representative of the experience of ‘developing’ Asian nations. In Thailand the disease has been, to a large extent, imported with ‘sex tourists’ from Europe, North America, and Japan. The first AIDS death occurred in 1984 amidst a population of nearly one million prostitutes out of a national population of fifty-seven million Thais. In Thailand, there is a continual, barely disguised search for ‘fresh’ ‘Commercial Sex Workers’ (CSWs) to meet the insatiable sexual appetites of the predominantly male tourists from rich western countries:

"A network of sexual agents and brokers scours the region, visiting villages and farms, looking for young girls from 12 years old and up, offering and average of $500...with a T.V. set or refrigerator thrown in as a bonus. In the Mai Sai District, 65 percent of the girls who finish primary school never go on to the secondary level, and of these 55 percent are sold as CSWs.... One teacher of the sixth grade... said, "The classroom is like a showroom for the brokers.""

In addition to the millions of tourists, an estimated 450,000 Thai men use a brothel daily. This allows the infection to seep into the Thai population. At present, about 300,000 people have become infected. Again, condoms are not popular in this culture. In his book AIDS: Rage & Reality (1992), Gene Antonio records:

"Noy, a 23-year-old Thai prostitute who says she has spoken in international AIDS conferences on the problem of combatting
AIDS among prostitutes, says that while insisting clients use prophylactics might help prevent transmission of AIDS it interferes with business.

'If I tell a customer to use a condom and he refuses, I lose money. We bar girls need money and it is very difficult to say no. Too difficult'. A typical prostitute in Bangkok earns 80 cents (US$) per customer and needs to sell her body to at least 10 men an evening to make a living.\textsuperscript{52}

Class Eleven: Readings and Discussion

THE Aids epidemic is spreading across the globe but scientists are losing hope that an effective vaccine will be developed in the foreseeable future, the World Health Organisation warned this week.

In cities in some African countries, one in three of the population has the HIV virus, and voluntary blood donations can be accepted only from schoolchildren.

Dr Peter Piot, director of the WHO's Aids Research Division, said that 45 million people could be HIV positive within six years. There were signs in Europe and America that the disease was spreading, albeit slowly, especially among the poor.

Dr Piot said at an Aids research conference in Florence: "I see signs of discouragement amongst those working on vaccine development. The science is not there yet and the politics are complicated. But there is a true feeling of emergency in those countries heavily affected by the Aids epidemic.

"HIV vaccine development today is truly at a crossroads. It is my feeling that a much greater effort is needed if we are ever to have a vaccine."

There are around 15 candidate vaccines under development using parts of the virus’s outer proteins, although it is not clear that these can sufficiently stimulate the body’s defences to repel the real virus.

Dr Piot said small-scale safety trials of a number of vaccines are about to start in Brazil, Thailand and Uganda. However, because of the virus’s tremendous variability, it would be difficult to find a vaccine that could protect against most or all of the strains.

Dr Piot said that everywhere in the world the virus was spreading, though many people sought to deny it was doing so in Europe. At the end of December, nearly one million Aids cases worldwide had been formally reported to the WHO. However, it was estimated the true figure was more than three times this, with two thirds of all cases in sub-Saharan Africa. The WHO estimated that over 14 million adults and a further one million infants have been infected, and that this figure could triple by 2000.

"In some cities in central and southern Africa, one out of three adults is now infected... In a city such as Kampala [in Uganda], 10 per cent of 18-year-olds are now HIV positive and voluntary blood donors are recruited only from boys of secondary school age."

Aids, he said, was accounting for between 30 and 70 per cent of all hospital cases in some parts of Africa. There would soon be massive demographic repercussions, with at least five million children aged under 10 left as orphans. In Asia the spread of the virus was explosive. "Just five years ago fewer than 200 people in Thailand were known to be HIV infected. By 1990 the number had risen to 50,000 and by late 1993 to more than 500,000. In India around 1.5 million people are already infected."

The distance that science has to go to find a response to Aids was starkly exposed last week by findings that the anti-viral drug AZT has little or no effect in delaying the onset of the disease, David Brindle adds.

Though widely expected, the results appear finally to crush hopes that AZT would prove a breakthrough in stopping HIV, the Aids virus, developing into the full-blown disease.

Nick Partridge, chief executive of the Terrence Higgins Trust, the leading UK Aids charity, said: "For everyone living with HIV, these are very disappointing results."

The findings come in the final report on the Anglo-French Concorde trial, the biggest test of AZT’s potential. The trial, which ran from 1988 to 1991, compared the progress of 877 HIV patients given the drug and 872 given a placebo.

Preliminary results caused shock a year ago when they indicated that the drug did not have the hoped-for effect, and shares in Wellcome, the pharmaceuticals group which manufactures AZT as Retrovir, plummeted.

The final findings are published in the Lancet, the medical journal, and confirm the verdict that "the results of Concorde do not encourage the early use of zidovudine [AZT] in symptom-free HIV-infected adults".

Closure

There is a great deal about AIDS which is not yet known. Medical science has no ready cure for people with this deadly retrovirus. The most viable method of avoiding the AIDS disease is through prevention. As Michelle Hoffman suggests, this is possible only by altering or modifying sexual behaviours. This is, however, easier said than done. In many situations, thoughts of potential life-threatening consequences ten years hence are far from a person’s mind. Thus, for the present, geographic enquiries into the patterns of the disease are as relevant as anything else that is going on in the battle against AIDS. Most of the questions about the disease are as yet unformed. Answers may come from anywhere. Each person can be potentially part of the AIDS solution, in his or her small way. In addition, in an affluent country such as Canada, Canadians must be measured based on their compassion for society’s ‘weakest’ members. People suffering from AIDS are entitled to all this country can offer in terms of health care. Individuals must offer their compassion and understanding.

Assignment

In a short essay (ten pages) support one of the seven theories presented above that have been put forward to explain the widely varying, geographically differentiated, infection rates for AIDS. Provide maps, statistics, and tables as appropriate.
Notes

Chapter One - Educational Considerations


3 The Ministry of Education (Part F), op. cit., passim.

4 Ibid., p. 15.

5 Ibid.


7 Ibid., p. 10.

8 Ibid.


Chapter Two - AIDS: Geographic Considerations

1Frederick F. Cartwright, Disease and History (Dorset Press, 1991), p. 46.


11Peter Gould, op.cit., p. xiii.

12Ibid., pp. xii,xiii.

13Ibid., p. xiii.


16 Michael Warren and Huw Francis (eds.), *Recalling the Medical Officer of Health: Writings by Sidney Chave* (King Edward's Hospital (London) Fund, 1987), pp. 61, 62.


18 Ibid.

19 Ibid.


23 Ibid., p. 30.


25 Richard P. Beazley et al., op.cit., p. 2.
Chapter Three - Curriculum


2 Ibid., p. 19.


4 Ibid., p. 171.


6 Ibid., p. 111.

7 Ibid.


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11 Ibid., p. 145.


17 A.D. Cliff et al., op.cit., p. 177.

18 Rashid L. Bashur et al., op.cit., p. 40.

19 Ibid., p. 41.

20 Ibid., p. 41,43.

21 Ibid., p. 45.


23 A. Olufemi Williams, op.cit., p. 74.

24 Ibid., p. 76.

25 Ibid.


27 Ibid., pp.38,39.


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32 Ibid., p. 29.

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41Ibid., p.36.

42Ed Hooper, Slim (Bodley Head, 1990), p. 20.

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44A. Olufemi Williams, op.cit., pp. 1,30.

45Peter Gould, op.cit., p. 78.

46Ibid., p. 81.


48Peter Gould, op.cit, pp.92,94.

49Ibid., p.97.

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52Gene Antonio, op.cit., p. 59.
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