

"THE SCOURGE OF GOD"

ATHENAEUM SOCIETY PAPER

APRIL 2, 1987

INTRODUCTION: Athenaeum Society watchers have noted certain themes to recur as subjects for papers. Other observers have been quick to note the association between two papers presented on the same evening or in succeeding papers rendered by the same author. To dissuade both of these groups from arriving at a premature conclusion about the subject matter, my paper is not about Attila the Hun leading the Night Riders to burn down the Latham Hotel during the Civil War as prophesied by Edgar Cayce. In fact, it has nothing to do with Attila the Hun at all and hopefully little about the future of Christian County. A quote from the sacred scriptures - for literary purposes only - will suffice as a clue:

Romans 1:18, 24, 26, 27, 32.

"For the wrath of God is revealed from Heaven against all ungodliness and unrighteousness of men, who suppress the truth in unrighteousness."

"Therefore God gave them over in the lusts of their hearts to impurity, that their bodies might be dishonored among them."

"For this reason God gave them over to degrading passions; for their women exchanged natural functions for that which is unnatural, and in the same way men abandoned the natural function of the woman and burned in their desire toward one another, men with men committing indecent acts and receiving in their own persons the due penalty of their error."

By now, you have probably deduced that my subject for the evening is none other than AIDS - Acquired immunodeficiency syndrome caused by the HTLV III virus, which stands for Human T-cell lymphotropic virus type III.

HISTORY:

In the summer of 1981, the Center for Disease Control of the National Institute of Health in Chamblee, Georgia, alerted the medical community of the unprecedented occurrence of Kaposi sarcoma, pneumocystis carinii pneumonia and severe opportunistic infections in previously healthy male homosexuals in the United States. The original series consisted of 5 cases in Los Angeles and 26 in New York City, but by August 1983 had increased in number to 2,008 reported cases in 39 states and an additional 122 in 20 foreign countries. The rate had doubled each 6 months and the mortality rate was proven to be 100%. In a seminar conducted by the National Institute of Health in June 1983 under the leadership of Anthony Fauci, M.D., director of the Institute for Allergy and Infectious Diseases, and reported in the Annals of Internal Medicine, January 1984, all the signs of a medical disaster and epidemic were in the making. A demographic survey revealed that 71% of the cases involved male homosexuals, 17% were IV drug users and other significant groups included hemophiliacs and recipients of blood transfusions. Haitian immigrants were also included in the group but 4% had none of the above risk factors identified. By the end of 1985 the National Academy of Science called AIDS a major medical catastrophe and called for a 2 billion dollar research and treatment effort. At that time there had been 15,000 deaths among the 27,000 full blown cases. 74,000 new cases were predicted to appear yearly by 1991 with an estimated 179,000 deaths, or 3 times the death toll of the Viet Nam war among the same age group. In addition there are currently 300,000 cases of AIDS related complex who exhibit swollen lymph nodes, weight loss, fever, anemia, diarrhea, and wasting. At least 25% of these and perhaps more will develop into the full blown AIDS picture, leading to certain death. Even more scary is the statistic that from 1 1/2 to 3 million people harbor either an inactive form of the virus which they may transmit or which may erupt eventually into clinical AIDS. A more recent trend has been for prostitutes or "sexually liberated" females to fall prey and they now constitute 2.2% of the AIDS population, also becoming a reservoir of infection as heterosexual transmission becomes a major means of spread among the sexually promiscuous. In New York City, AIDS deaths increased from

1313 in 1985 to 2,139 in 1986. The 8,681 cases reported there represent 32% of the nation's 29,000 cases, the largest in the country. San Francisco with 2,912 cases, Los Angeles with 2,387, Houston with 938 and Miami with 857 also have the dubious distinction of being leaders. And so, in 1987, we as a nation are faced with a colossal challenge with many ramifications, some of which we will touch upon.

The AIDS epidemic sweeping across Central Africa may make the black death of Europe in 1347-51 seem like a bad dream returning. 25% of the European population, around 20-25 million people, died of the Bubonic plague during this period of time. It changed the map of Europe, affected principalities, powers and kingdoms and probably did as much to transport Europe into the Renaissance as any other factor. There were further recurrences in the 1300's which evoked widespread fear among the population. The World Health Organization in Geneva estimates that 2-5 million Africans carry the live AIDS virus with at least 50,000 deaths so far. The African epidemic affects males and females equally and huge reservoirs exist with 20-30% of the total population affected in these countries. Sexual promiscuity is a big problem. In Nairobi, Kenya 88% of 800 prostitutes tested had a positive AIDS titer and more than half of them had other venereal disease. Since these street women had an average of 1,000 clients a year, you can see the potential for spread. The gonorrhea rate in Nairobi was 7,000/100,000 as opposed to 975 in New York City and 321 in London/100,000 population. Most victims are in the 20-40 age group and many African governments are losing those young adults in whom the government has invested time and money in terms of education and are the potential leaders. The African governments have also banned press reports fearing bad publicity might curtail tourism and foreign investments.

AIDS VIRUS: And what organism is responsible for this devastating disease? Researchers were not sure at first and it was not until 1984 that the so-called human T-cell lymphotropic virus was isolated as the etiological agent. A member of the retrovirus group, it has characteristics similar to HTLV I which causes leukemia in cats, HTLV II, implicated as a cause of leukemia in Haitians, and HTLV IV found in Central Africa - Chad, Zaire, Rwanda, Burundi and Zambia.

Retroviruses act by affecting cell-mediated immunity, provided by T lymphocytes, honing in on the so-called T-4 helper white blood cells. After invading these cells, the virus affects DNA production and effectively kills the cell after using it's own genetic factory to manufacture new viruses which affect other cells in turn. Normally, the T cells would scavenge the body and kill bacteria, fungi, protozoa, inclusion bodies, amoeba, yeasts and other invading organisms in addition to eliminating abnormal cells which, unchecked, would lead to cancer. The virus also directly invades the central nervous system and produces encephalitis. Ordinarily, the T-4 helper cells which stimulate the so-called B lymphocyte cells to produce antibodies and attack viruses are counter balanced by T-8 suppressor cells which act upon the same B lymphocytes to decrease production in the body's own homeostatic mechanism. Due to selective inhibition the T-4 cells are reduced grossly from a normal 7,000 to fewer than 400-500/ cu. mm. in blood, allowing the T 8 suppressor cells to actually cut down on the body's production of antibodies to fight the AIDS virus. Macrophages, large wandering cells, are also affected and instead of engulfing and destroying the viral particles by phagocytosis, merely serve as a means of transportation throughout the body. Because the body's normal immune system doesn't function, it is overwhelmed by so-called opportunistic infections and malignancies which ordinarily are no threat. These same conditions are commonly seen in patients who have been immunosuppressed by chemotherapeutic agents to prevent organ transplant rejection such as heart, liver, kidney and lung transplants or in treatment of other malignancies. The opportunistic organisms most commonly associated with AIDS are pneumocystis carinii pneumonia, candida albicans, Avian TB mycobacterium, cytomegalic inclusion bodies, cryptosporosis, cryptococcosis and toxoplasmosis gondii. Kaposi sarcoma, which produces brown nodules of blood vessel like tumor cells are subject to auto transmission but also may be deeply infiltrative and this is the commonest malignancy. However, malignant lymphoma, Burkitts sarcoma, carcinoma of the tongue and rectum and a hairy thrush are also commonly found. Locally malignant growths of low virulence such as basal cell skin cancer may become much more virulent and actually metastasize throughout the body.

CLINICAL COURSE:

AIDS begins with intimate exposure to a carrier through body secretions with passage of the HTLV III virus into the blood stream. In 15 days to 2 months the body's defense mechanism has begun to work and antibodies are produced. After a latent period ranging from 4 months in infants to around 30 months in blood recipients and from 2-7 years in others, the disease may appear. The first clinical stage is called LAS or lymphadenopathy syndrome, characterized by enlarged lymph nodes, weight loss, low grade fever, diarrhea, night sweats and other symptoms. Lab tests show anemia, bone marrow depression, decrease in T helper cells and elevated immune globulins, particularly IGM and IGG. 25% of these patients will progress from LAS to AIDS. Due to the low T 4 helper cell population the opportunistic infections develop and the full AIDS appears. Central nervous system is affected directly by the virus and a very uncomfortable and painful death ensues, often with dementia, psychosis, paralysis and wasting. There have been no survivors to date who exhibited the full clinical picture.

Epidemiology is the study of disease transmission which in AIDS is 70% homosexually related with 18% involving IV drug users. Infants with seropositive mothers, recipients of blood and blood products and heterosexual spread are the means. Bisexual males have spread the disease from homosexual to heterosexual partners and the latter is probably the commonest means of spread in Africa. Multiple sex partners, promiscuity, is a definite risk factor. The AMA journal reported that 143 members of two sex clubs in Minneapolis were surveyed with two women members having AIDS antibodies. Each admitted having over 25 different partners. 70% of it's club membership didn't perceive themselves to be at increased risk. There are 15,000 prostitutes around our two large Naval bases in the Phillipines and this reservoir has been infected recently. It could disable the whole Pacific fleet.

A recent report in the JAMA gave data on the San Francisco men's health study using a cohort of 1,034 single males in 25-54 year old age group and recruited from the 19 census districts where the AIDS epidemic has been the most severe. This study included blood testing, physical examination and an interview as to the number of sex partners and type of sexual activity in the past two years. 66 of the group reported

only one homosexual contact and 18% were antibody positive. 195 reported over 50 contacts in the last 2 years with a 70% positive blood test while all strictly heterosexually oriented men were seronegative. 57% of the genital/anal group were positive as opposed to 24% of the oral/genital group. In Washington and New York, a group of 86 men who were seropositive were followed for 3 years and 19 developed AIDS. IV drug users, particularly those who reuse the same syringe were at a very high risk. Interestingly enough, these street people have found that Chlorox bleach spray is an effective means of disinfection between mainlines by treating the needle and syringe and apparently this is effective. A condom seems to be effective as does some spermicides in preventing spread.

Aside from the classic cases among gays, there is a growing problem involving innocent victims - which could include you and I. 34 million units of blood are transfused yearly in the United States and AIDS transmission through contaminated blood has been reported. There are currently 90 cases filing suits against blood banks for AIDS transmission. AIDS antibody testing by all blood banks has been routine since Spring of 1985 using the enzyme linked immunoassay test at a cost of \$10 each but positives are rechecked using the so-called Western blot test which takes several days and costs \$45 and is more accurate. The EIA test is 98-99% accurate but false negatives do occur and there is a 1 in 50,000 chance of acquiring AIDS from each unit of blood you might receive. The average blood transfusee who developed AIDS had 16 pints. There is also the chance of getting blood in which the AIDS virus is present but the antibody blood titer is not yet developed. Hemophiliacs, free bleeders, with a congenital absence of clotting factor VIII, must receive extracts from pooled plasma from a large number of donors and are at a greatly increased risk with many cases reported among children. Infants may be infected from a seropositive mother in utero, during birth or from nursing. Donor organ transmission has occurred and one donor with negative blood test gave AIDS to three people in different states who received his liver and kidneys. The virus has been cultured from blood, semen, saliva, tears, breast milk, urine, feces and other body fluids. Eye banks now screen routinely for AIDS since transmission of viral disease has been reported through

rabies, Jakob-krautzfield syndrome and other neuroviruses is on record.

Fortunately, casual contact, even fairly close contact with health workers or family members does not result in AIDS transmission, short of sexual contact. Among 2500 health workers caring for AIDS victims only 3 had a positive blood test and in each case there had been an accidental puncture with a contaminated needle. Meanwhile, the study goes on and in almost every medical journal, lay magazine, newspaper and TV special report list new findings and developments, including the Wall Street Journal from which I got a lot of my information. I started thinking about the paper in October, started collecting data in January but by early February reports had become a flood and undoubtedly there will be many new developments by the time I actually present the paper.

TREATMENT: As of this moment, there are no totally effective drugs which can cure AIDS, only prolong life. Prevention remains the only effective method to stem the tide of the epidemic. Antiviral drugs in general have not been nearly as effective as antibiotic and chemotherapeutic agents used to combat bacterial, fungal, protozoan and inclusion body disease. The principal avenues of approach to the problem have been directed at viracidal drugs to kill the virus or to control its replication, agents to stimulate the body's immune system hold the virus in abeyance and vaccines to develop active and passive immunity. The NIH is currently screening 200 compounds and substances at a cost in excess of 100 million dollars in 20 different university centers across the country in an effort to find an effective drug. The 1988 budget calls for an expenditure of 483 million dollars for the same goal. There is typically a 5-7 year time lag in the development of a vaccine so pharmaceutical companies are vigorously pursuing antiviral agents. Ribovirin by Viratek and Azidothymidine by Burroughs-Wellcome have been the first drugs to pass the safety tests and are being tried clinically, safety stressed after clinical trials and to be placed on the market. Foscornet by Astra of Sweden, HPA 23 by Rhone Poulenc of France - the drug Rock Hudson flew to London to try - Alpha interferon by Schering, DDC by Hoffman La Roche and AL 721 by Praxis of Germany are all under controlled studies both here and overseas at the moment.

All have side effects, undetermined dosages and a short track record. Finding an appropriate experimental animal has been a problem especially since there is a shortage of chimpanzees. More than compassion is involved since a truly effective anti-AIDS medicine could command a cool \$8 million by the year 1990. Recently ICN Drug companies division of Viritek which makes Ribavirin has been investigated by the Securities and Exchange Commission because they used press releases of the drug to greatly increase the price of their stock and increase their line of credit from \$13 million up to \$800 million.

AZT, trade name Retrovir, came out in the 1960's as a chemotherapeutic agent against cancer but never really proved successful. An 18 months study on anti-AIDS activity was terminated prematurely when its effectiveness became apparent. Approximately ³⁰⁰⁰~~300,000~~ patients were tested in various projects. In one patient trial of population of 145, only one of the AZT group but 19 of the placebo group died in double blind studies. After the medication was stopped, 8 of the AZT group and 32 of the controlled group subsequently died of AIDS. In another study, 4 or 5 patients with advanced CNS disease improved significantly while on AZT. Brain and CNS involvement leads to psychosis, memory loss, paralysis, weakness and dementia. Undesirable side effects from AZT were considerable and 1/2 of those treated required multiple blood transfusions to combat the severe anemia secondary to bone marrow depression. The cost is also high - \$5000-\$7000 yearly per patient to help offset the \$80 million development cost. Another recent study has found that by combining AZT with Acyclovir, a potent antiviral agent effective against shingles, has a much greater effectiveness and there may be other drug combinations which will behave synergistically much in the matter of chemotherapeutic agents against cancer. The synergism means that the combination of drugs works more effectively than either drug separately. Hoffman La Roche has just been licensed to manufacture DDC, Dideoxycytidine, synthesized in the 1960's also as an antineoplastic agent but found to be ineffective for its original use. It lay on the shelf until rediscovered by scientists at the National Cancer Institute, ^{who} found that it had invitro activity against AIDS. It works as a pseudo DNA which is incorporated in the viral structure and halts replication. It has two major advantages over AZT, a related compound. First, it has less toxicity and secondly it passes

the blood brain barrier more handily, making it more effective against the CNS form of the disease. LaRoche competed with other companies for the right to produce ~~DDC~~ and will negotiate the amount of royalties to be paid to the U.S. Government for the privilege but again undoubtedly passed on to the consumer.

Ribovirin, trade name Virazole, produced by Viratek division of ICN of California was tested on 163 patients with LAS and at high risk to develop AIDS. Of 52 patients on high dosage, none went on to AIDS. Of 55 on a lower dosage schedule, 6 went on to AIDS while 10 of the placebo group developed the full disease during the test period. Ribovirin affects virus protein without interfering with host protein, a distinct advantage. Immune system stimulents such as Isoprinosine, Immunex and Interleucin II stimulate the body's own defenses against the virus while Ampligen works both as an immunostimulant and antiviral. Vaccines are at least 5 years away although there are two trials underway at present, one in Zaire with French collaboration and one at Harvard Medical School. The cost, safety, high legal liability and shortage of animals will allow for only a few to be tested. Molecular engineering techniques using recombinant live viruses, genetically engrammed proteins, synthetic polypeptides and anti-idiotypic antibodies will be tried rather than the classical method of using attenuated live virus. Two approaches would be to produce a polyvalent vaccine based on the retrovirus envelope glycoprotein or on the peptide viral core. Treatment of the complicating infections and malignancies is directed toward the specific condition or conditions present.

Traditional public health methods for controlling epidemics have been to identify sources and carriers, locate and treat individuals infected and to isolate and quaranteen them to prevent further spread among the healthy general population. Since homosexual men have been the largest reservoir, two large obstacles toward implementing this policy have arisen, one practical and one legal. Many gays have had so many anonymous contacts that it is almost impossible to track them all down. There may well be 1 1/2 million people who have unwittingly had sexual contact with AIDS carrier and many of them carry the virus. These people need to be identified, tested and warned before further

spreading the epidemic. Homosexual political activity groups such as the National Gay and Lesbian task force and groups like the ACLU are much more worried about the privacy, job security and insurance coverage of current AIDS victims than they are about preventing the spread of this lethal disease and have done their utmost to resist efforts to identify carriers and people who have been exposed. Heterosexual contacts might be easier to track since it has long been a standard procedure in combatting venereal disease such as syphilis, gonorrhea, lymphopathium venereum and others. All tracing programs to date are on the state level and involve voluntary disclosure but the "duty to warn" has already spawned litigation.

And speaking of litigation, the legal aspects have rapidly proliferated. Several states have enacted laws requiring mandatory reporting of positive blood tests but this has been opposed on the basis of confidentiality by the homosexual pressure groups. Health authorities have used the broad police powers to close or restrict facilities that promote anonymous homosexual activity and New York passed a public health resolution to permit closing bath houses on the grounds of high risk activity constituting a public nuisance. San Francisco, Los Angeles, Atlanta and Indianapolis soon followed. The Secretary of Health and Human Services has the power to enact regulations to prevent the spread of disease across state and federal borders including quarantine under the Immigration and Nationality Acts for dangerous contagious diseases as defined by the public health service. AIDS was added to TB, leprosy and the five main sexually transmitted diseases in a public health services advisory of April 1986 but has been delayed and has not yet been acted upon. Public health actions concerning school attendance of infected children have engendered much smoke and fire on both sides of the picture. The Civil Rights aspects, protection of handicapped children and confidentiality of reporting facets have all clouded the picture further. Developing trends in AIDS transmission and liability litigation are frightening. Blood supplies, hospitals, physicians and even the city of Laconia, New Hampshire have been sued and there are nearly 90 suits pending against blood banks at the moment. Most state jurisdictions have taken the position that "blood is a service not a product" so that the plaintiff cannot recover under the traditional product liability

theory of strict liability.

The Rock Hudson estate case in which an individual brought a personal injury lawsuit alleging that he was not informed of his sex partner's AIDS has brought up the issue of informed consent although bedroom conversations would be hard to document. More peripheral parties may be pulled in as in the case in which a homeowner's insurer had to pay damages awarded the plaintiff when she contracted genital herpes from the defendant in his bed at home. Third parties may also be included in failure to warn of possible risk. A Pennsylvania family is suing a Pittsburgh hospital, several doctors, a blood bank and 6 pharmaceutical companies for \$44 million alleging failure to warn in a situation where a blood transfusion infected the wife who gave birth to a child who developed perinatal AIDS. Anti-discrimination laws have been invoked against alleged housing, employment, treatment rights under insurance policies, and other situations. Segregation of the prison population, denial of admission into the Army are other situations which have provoked comment. Given the emotionally charged aspects of the disease it is not likely that all the pending legal issues will be resolved in the immediate future.

Having briefly explored the history, virology, clinical course, treatment, epidemiology and legal aspects of the epidemic, we are brought full cycle to the moral issues and examine other means of control. Though the spread of AIDS much be checked, mandatory testing, strict laws and quarantine are likely at best to be impractical and ineffective. The best means of control would have to be at the individual level since legislation of morality, sexual behavior and self inflicted suffering have a long history of failure.

The Surgeon General's report released in November 1986 perhaps sums up the challenge best. He writes "Adolescents and pre-adolescents are those whose behavior we wish to especially influence because of their vulnerability when they are exploring their own sexuality and perhaps experimenting with drugs. Teenagers often consider themselves immortal and these young people may be putting themselves at great risk. Education about AIDS should start in early elementary school and at home so the children can grow up knowing the behavior to avoid to protect themselves from exposure to the AIDS virus. The threat of

AIDS can provide an opportunity for parents to instill in their children their own moral and ethical standards. Those of us who are parents, educators, community leaders, indeed all adults cannot disregard this responsibility to educate our young. The need is critical and the price of neglect is high. The lives of our young people depend on our fulfilling our responsibility."

Since the risk of acquiring this disease depends largely on what you do with whom, it is hard to overlook application of the paraphrase Biblical principle - "One man - one woman, for life", not only for conscience sake but also for wrath's sake.