

Excerpt.

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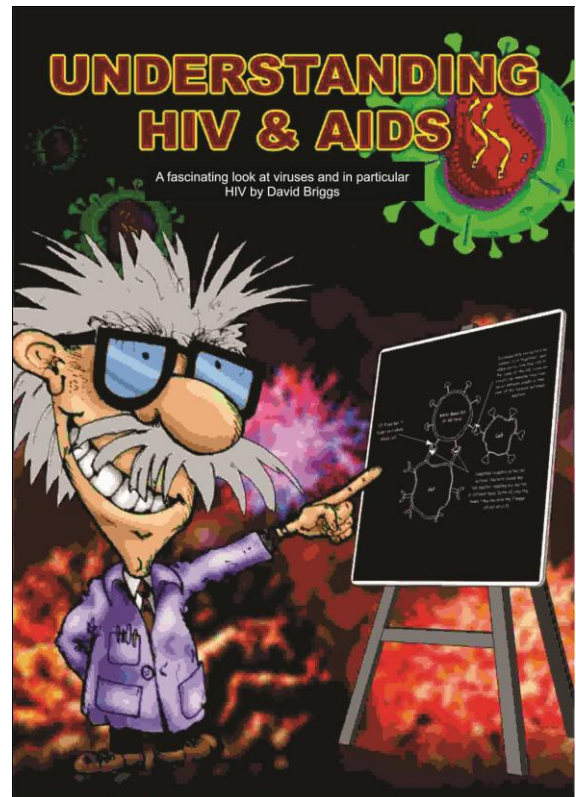
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Excerpts

INTRODUCTION

There are several good texts available on the subject of HIV/AIDS dealing with aspects of this medical and social problem but most are written for health care specialists or they deal with scientific facets of the disease. This narrative endeavors to reach out to the public and describe the biological cause of this condition known as the Acquired Immune Deficiency Syndrome (AIDS) along with the general nature of viruses and how these are used in the therapeutic treatment of the illness.

The book leads readers into the medical and scientific understanding of disease processes, termed pathology and explains concepts at a cellular level while introducing a few fundamentals. Hopefully this will stimulate curiosity to investigate other sicknesses be they infectious, malignant, genetic or degenerative. We live in an era of rapid technical discovery involving interplanetary investigations such as the exploration of Mars by the use of robotic machines interacting with earth via computers together with further scientific endeavors

including organ transplants. Adventures into gene therapy are also common day practices utilizing modification of plants or genetically produced pharmaceuticals. It is important thus that the lay person develops knowledge of these technology rooted advances, for there are many ethical and moral issues that must be based upon the acceptance of new technologies.

By the nature of the disease processes observed, the pathology; it was obvious that in all these former patients the common factor was that the immune system was dysfunctioning. A complete breakdown in this fashion was not unknown but was usually only seen as hereditary forms in babies born with non-functional immune systems. Thus this new variety was acquired later in life and all of these occurrences involved previously healthy young men in their 20's or early 30's. So the name was changed to Acquired Immune Dysfunction and was characterized by other indications of the disease. These patients because of their damaged immune system were prone to fungal infections, unexplained diarrhea and weight loss, hence the sometimes referred to term of 'slim disease'. It is occasionally also called the 'Century disease'. In fact there was a whole syndrome of symptoms and signs. Hence AIDS was born, however the next commonality turned out to be a red herring. As all identified cases in the early days occurred in gay white males it was assumed the disease was linked to the homosexual subculture and it acquired the eponym of GRID (Gay Related Immune Disease). This mistake had disastrous consequences, for at this time there was little acceptance of any behavior outside the norm.

CHAPTER 1

A short discussion about viruses

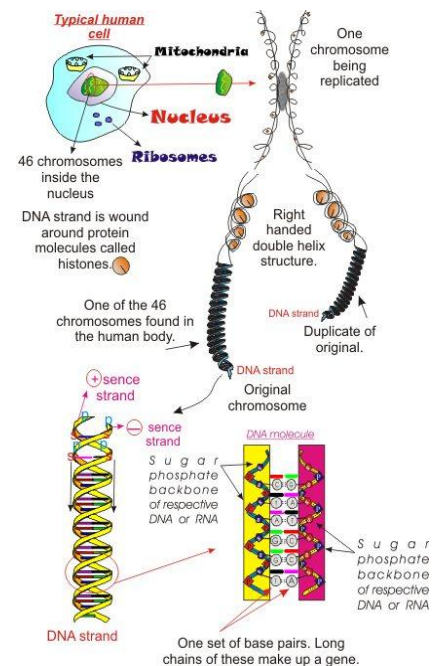
The word 'virus' may have originated from the Latin meaning 'toxin' or 'poison' and will represent different things to various people. To computer boffins it is a potential threat to their software programs, to their data and their livelihood. But to the Mother seated in the doctor's office it signifies in all probability she is being told it is difficult to pin point the baby's problem but "with a little bit of luck" it will go away. To ourselves in the context of this book we are trying to conceptualize an agent of disease threatening and laying waste vast regions of our planet. In terms of human suffering it has already caused the worst infectious pandemic since the plague, known as the Black Death that was rampant in the 14th century.

So what is a virus?

Viruses including HIV are submicroscopic agents of disease which cannot exist in their environment as free living organisms and are under constant threat from a person's immune system. In fact they do not even need food; they simply 'exist' in a state of 'dormancy' until finding a suitable host. They thus are unable to sustain themselves sufficiently to perform even that most essential element of survival, namely to reproduce. Microscopic infectious agents may be classified in several ways but at this stage parasites such as malaria or bacteria that initiate a wide range of ailments from tuberculosis to the common boil, most of which can be treated successfully with antibiotics won't be considered. We will however, rather confine ourselves to viruses as this is where our focus lies. Most of us have visited our physician at some time in our lives feeling "like death warmed up" only to leave the consulting room with the not comforting diagnosis of "you typically have a virus" and in a

week or so in all probability you do get better. Whatever was bugging you may have caused fever, chills, headaches even perhaps a rash but your body usually deals sufficiently with it without medical interference. Generally that was a viral infection. At other times as with the Corona virus, assistance in the form of cortisone (to reduce inflammation), anti-viral medication (to interrupt replication) and even serum containing antibodies from previously recovered patients have been utilized. Viruses nonetheless, can sometimes have disastrous consequences. Rabies for instance - you more than likely will die should you not have been inoculated. Poliomyelitis (Polio) may cripple one for life. Even worse you visit the Congo and contract Ebola causing all your internal organs to liquefy along with a host of hemorrhagic fevers triggering uncontrolled bleeding. Unlike bacteria which often respond to an appropriate antibiotic or cocktail of antibiotics, viruses are never cured by these.

Viruses also contain double stranded DNA such as the herpes group (e.g. herpes simplex 1 and 2, glandular fever, chicken pox) and small pox (now extinct). There may be single stranded RNA ones such as the influenza viruses, hepatitis C, zika, dengue fever, rabies and mumps or double stranded RNA arrangements such as a collection called the rotaviruses responsible for gastroenteritis in children. There is even a herpes variety that infects frogs and a virus that targets bacteria plankton, the latter impinging whale's feeding patterns and hence their migrations. Almost everything has or is susceptible to viruses with one ml (a drop) of sea water believed to contain 10 million viruses. A few decades ago diphtheria (a bacterium infecting cattle and humans) was a major killer of young children causing a throat infection which intermittently was lethal. It became incredibly virulent or pathogenic when infected with a specific virus.



We as humans, in common with all other creatures have customary driving factors such as the instinct to survive. More than this we are impelled to reproduce and having produced our progeny we protect them. Viruses achieve these objectives too. They have the simplest of structures and their only objective in life (similar to some people I have come across!) is to replicate and subsequently disseminate their 'offspring' as fast as possible. HIV consists of a few genes, the smallest amount required for its purpose which are wrapped together with a few enzymes in a single layer of protein shaped like a cone. This structure is then encased in a spherical "envelope" derived from the membrane of the host's CD4 cell in which the virus was spawned.

Someone that is HIV positive does not necessarily have AIDS but someone that has AIDS is always HIV positive.

QUIZZ 1

1. During the early stages of AIDS discovery all the patients had one indication in common. This was
 - A) They all had a new disease call 'Congo fever'
 - B) They all were medical students.

C) They all had compromised (Not functioning properly) immune systems.

2. HIV stands for :

- A) Human immunodeficiency vacillus
- B) Human immunodysfunctioning virus
- C) Human immunodeficiency virus

3. Can one acquire the virus from someone that looks healthy and normal?

- A) Yes
- B) NO
- C) Maybe

4. The time from infection (acquiring the virus) to becoming sick with full blow AIDS could be anywhere up to

- A) One week
- B) Six months
- C) Ten years
- D) Ten months

5. Every human being begins life as a

- A) Number of cells
- B) Single cell
- C) Egg cell from the father and mother

6. Can viruses reproduce on their own?

- A) Sometimes
- B) NO
- C) Yes

7. Explain your answer above.

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