

III. PHYSICS AND ASTRONOMY VIDEOTAPE LIBRARY

This is a list of the videotapes that are held in the physics and astronomy tape library in the physics lab. You may view a tape in the lab at the video carrel in the Drop-in Center or may borrow one for use overnight. Ask the technician for the tape by its request number (printed down the right hand column in this list). You must sign out the tape leaving your student card as hostage for the tape's safe return, and must return the tape within one working day. Tape counter numbers (old and probably obsolete) where given are in parenthesis [].

At the end of this list are suggestions for further reading which are referenced by tape number to titles marked by an asterisk. You may borrow these books from the lab library.

Title	Tape Request #
From the series "Dimensions in Science" (TVO) (28:50 min approx)	
1. <i>Models in the Mind</i> (1978).....	9
Models in physics and mathematics. Oscillations. Tacoma bridge disaster. Doppler Effect.	
2. <i>The Indelible Stamp</i> (1979) [2053].....	9
How the human body reflects and adapts to its environment. Genetic consequences of sickle cell anemia and assimilation of lactase.	
3. <i>The Time Machine</i> (1979) [3481].....	9
Experiment 531 at Fermilab. Bubble chambers. quarks. Weak force. Jim Prentice, a professor at U. of T., was a consultant.	
4. <i>The Big Bang</i> (1979) [4632].....	9
Early astronomy. Penzias and Wilson's detection of background radiation. black holes. radioastronomy.	
5. <i>Space, Time and Albert Einstein</i>	14
The theory of Relativity.	
6. <i>Elements of Change</i> (1975) [1100].....	14
Development and uses of Chemistry.	
7. <i>Quest into Matter</i> (1974) [3354].....	106
A look at shapes and their relation to function, featuring David Suzuki and Gerhard Herzberg.	
8. <i>Agent of Change</i> (1976) [4505].....	106
An exploration of electricity and its practical modern applications.	
<i>A Cage for the Sun</i> (UK, Quanta Production, 1983).....	10
Research into nuclear fusion. Joint European Torus, Tokamak. TFTR. The Tandem Mirror. Laser Fusion.	
<i>The Sun of Man</i> (NJN, 1988).....	36
Princeton TFTR, Livermore Lab Inertial Confinement Fusion Reactor (NOVA), tokomaks in US and USSR (T15), muon-catalytic fusion (ETRI).	
<i>Science... Fiction?</i> (Horizon/BBC, 1986) [3400].....	36
This program studies the premise that the scientific laws that we count on to make sense of our world are dependent on context and human perception; therefore they are as inconsistent as the human beings who developed them.	

From the series "Understanding the Earth" (TVO, 1976) narrated by Dr. David Pearson, professor of Geology at Laur-entian University.	
Unit 13. <i>Earth in Perspective</i>	11
Some elements of astronomy from a geologist's point of view. Includes "The Cosmic Connection" from the series "The Planet of Man" (1975).	
Unit 14. <i>The Moon and Sudbury</i> [3575].....	11
Origin of the moon. Talk by Dr. Harold Urey.	
Productions of Audio-Visual, University of Toronto	
1. <i>How Do You Use a Caliper?</i>	12
2. <i>How Do You Use an Oscilloscope?</i>	12
Hosted by Dr. David Harrison, Senior Lecturer in the Physics Dept., U. of T.	
Productions of the National Film Board of Canada	
<i>Herzberg</i> (1979) (18:15).....	15
Herzberg in his lab at NRC. Molecular spectroscopy. Free radicals. His philosophy of life.	
From the series "The Ascent of Man" (1979) with Dr. Jacob Bronowski. (each 1 hr approx.)	
1. <i>World Within World</i>	13
Crystals. Niels Bohr. Spectra. Chadwick and the neutron. Elements in the sun. Plasma physics.	
2. <i>The Majestic Clockwork</i>	13
Survey of science from Newton to Einstein.	
<i>The Creation of the Universe</i>	15
Hosted by Timothy Ferris (1984) (90 min)	
From the series "The Nature of Things" (CBC)	
<i>The Vision of Galileo</i> (1979) (25 min).....	16
with David Suzuki. Biography of Galileo. Pendulum and projectile motion. The telescope and microscope. Moon. Jupiter.	
<i>Radar Visions from Space</i> (1987).....	24
<i>Nuclear Power: the Hot Debate</i> [1925].....	24
<i>Jellyfish of the Sky</i> [4160].....	24
The science of balloons.	
From the Series "The Science Edition" (1988) [4800]	
<i>John Polanyi, nobel Lauriate in Chemistry 1986</i>	24
Ontario Hydro Productions (1982).....	17
<i>Reactor Safety; Handled with Care; Energy for the Future.</i> The CANDU system, fuel bundles, waste disposal, safety, etc. from Hydro's point of view.	
From the series "Senior Physics" (TVO, 1984-86)	
<i>Wave-Particle Duality</i> (9 min segments).....	18
<i>Structure of the Atom</i> (9 min segments).....	19
<i>Nuclear Physics</i> (9 min segments).....	20
<i>Electricity</i> (9 min segments).....	21
From the series "Eureka!" (TVO, 1980, 1981).....	21
Five min. segments in HS physics: atoms to radiation.	
From the series "Eureka!" (TVO, 1980).....	22
Five min. segments in HS physics: kinematics to heat.	
A NASA Film narrated by Al Hibbs, Jet Propulsion Laboratory	
<i>Uranus "I Will See Such Things"</i>	31
The Voyager flyby of Uranus.	

VIDEOTAPE LIBRARY (Continued)

“Project Universe: An Introduction to Astronomy”
(produced 1978) A series of 30 half-hour programs hosted by
Edwin Krupp, director of the Kitt Peak National Observatory

1. <i>The Astronomer's Universe</i>	1
2. <i>Historical Perspectives</i>	1
3. <i>Lunar Aspects</i>	1
4. <i>Electromagnetic Radiation</i>	1
5. <i>Astronomical Observation</i>	2
6. <i>Earth: The Water Planet</i>	2
7. <i>Lunar Geology</i>	2
8. <i>Mercury and Venus</i>	2
9. <i>Mars</i>	3
10. <i>Jupiter</i>	3
11. <i>Saturn</i>	3
12. <i>Uranus, Neptune, and Pluto</i>	3
13. <i>Solar System Debris</i>	4
14. <i>The Solar Image</i>	4
15. <i>The Solar Interior</i>	4
16. <i>Surveying the Stars</i>	4
17. <i>The Message of Starlight</i>	5
18. <i>Binary Stars</i>	5
19. <i>The Milky Way - Discovered</i>	5
20. <i>The Milky Way - Structure</i>	5
21. <i>Extraterrestrial Communication</i>	6
22. <i>Relativity</i>	6
23. <i>Stars - the Nuclear Furnace</i>	6
24. <i>White Dwarfs and Red Giants</i>	6
25. <i>Supernovae and Pulsars</i>	7
26. <i>Black Holes</i>	7
27. <i>Galaxies</i>	7
28. <i>Quasars</i>	7
29. <i>The Expanding Universe</i>	8
30. <i>The Big Bang</i>	8

“Talking Points” (U. of Guelph media services 1986).....25
taped at the AAPT-Ontario conference 1986

1. Invited lecture by Greg Herken author of “Thick Smoke and Rubber Mirrors: The Origins of SDI”
2. Panel discussion on SDI (Star Wars).

From the series “Man Alive” (CBC) (27:23 approx.)
Stephen Hawking's Universe.....23

The series “The Ring of Truth” with Philip Morrison
(PBS, 1987) (Each 60 min. approx.)*

1. *Looking*.....26
The instruments of Science.
2. *Change* [3432].....26
Mass and Energy.
3. *Mapping*.....27
4. *Clues* [3370].....27
5. *Atoms*.....28
6. *Doubt* [3424].....28

All about hydrogen.

The Series “The Space Experience” (TVO, 1987)
with Marc Garneau, of shuttle flight 41-G

1. *Flying on Fire*.....29
How rockets work.
2. *Staying Alive* [1988].....29
The technology of life support systems.
3. *Astroworkers* [3359].....29
Working in a space environment.
4. *Space Inc.* [4472].....29
Industry in space ventures. The risk.

5. *Exploring the edge*.....30
The view from space.

6. *Outward Bound* [1988].....30

Mission to Mars (Channel 4, 1987).....34
From Apollo to the Stars
(WorthWhile Productions, 1989) [3193].....34

The Other Side of the Moon (Worthwhile Prod. 1989).....37
Eight astronauts who went into space: their experiences then
and since. Al Warden, Jim Irwin, Charles “Pete” Conrad Jr.,
Buzz Aldrin, Alan Bean, Rusty Schweikart, Stuart Roosa and
Edgar Mitchell.

NOVA Productions (PBS/BBC 1987)

1. *Countdown to the Invisible Universe*.....100
After 10 years of development, the IRAS satellite was finally
launched in January, 1983. Capable of “seeing” the infra-red
spectrum, which is invisible to the human eye, the satellite and
the revolutionary pictures it gathers will forever change the
way we think about our universe.
2. *The Hole in the Sky* [3350].....100
Studies of ozone depletion over the poles caused by the use of
chlorofluorocarbons.

NOVA Productions (PBS/BBC 1986-87)

1. *The Planet that got Knocked on its Side*.....101
The Voyager flyby of Uranus in January, 1986.
2. *Rocky Road to Jupiter* [3325].....101
The trouble plagued history of the Galileo space probe and the
uncertain future of its scheduled launch by shuttle.

From the series “Frontline” (PBS/BBC 1987)

The Nazi Connection.....102
Evidence incriminates many of the U.S. rocket scientists of
German origin as former nazis.

NOVA Production (PBS, 1983)

Confessions of a Weaponeer [3465].....102
Harvard chemist George Kistiakowski was an antiBolshevik
soldier in 1919 Russia, an atomic-bomb scientist in Los Ala-
mos, a presidential advisor in the Eisenhower White House,
and an arms-control activist. He recounts his eventful career to
interviewer and fellow scientist Carl Sagan.

NOVA Productions (1987)

1. *Is Anybody Out There?*.....103
with Lily Tomlin
The Search for extra-terrestrial intelligence.
2. *Stephen Jay Gould: This View of Life* [3386].....103
Reflections on life by the noted biologist and popularizer of
science.

NOVA Productions (PBS, 1985, 1987)

1. *Edgerton and his Incredible Seeing Machines*.....104
The inventor of the stroboscope.
2. *Death of a Star* [3335].....104
Observation of the supernova by Ian Shelton of the U. of T.
and its meaning.

NOVA Productions (PBS, 1989)

1. *Race for the Superconductor*.....105
The race to find materials that will transmit electricity at room
temperature with zero resistance.
2. *What Einstein Never Knew*.....105
Physicists seek a theory of unification to encompass four

major forces of the universe.

NOVA Production (BBC, 1985)
A Mathematical Mystery Tour 106
 Fermat's Last Theorem, The Goldbach Conjecture.

NOVA Production (1987)
Japan's American Genius..... 107
 Stanford Ovshinsky, inventor and entrepreneur in photo-voltaic devices.
 From the Series HORIZON (BBC, 1984)
Colourful Notions [3369]..... 107
 Dr. Edwin Land re-creates some of the experiments that led to his theory of how we see color.

NOVA Productions (PBS 1989)
 1. *The Strange New Science of Chaos*..... 108
 with Jerry Gollub, Harry Swinney, Ralph Abraham, Edward Lorenz, Robert Shaw, Philip Marcus.
 2. *Hot Enough For You?* [3360]..... 108
 The effects of CO₂ in the atmosphere.

From the series "VISTA" (TVO, 1988)
The Greenhouse Effect..... 109
 NOVA Production (PBS, 1986/Horizon Prod. 1985)
Goddess of the Earth [3545]..... 109
 The Gaia Hypothesis described by James Lovelock.

Dive to the Edge of Creation (Nat. Geog. 1979)..... 112
 Robert Ballard's discovery of life on the sea floor.
God, Darwin and Dinosaurs (NOVA, 1989) [3410]..... 112
 The debate over teaching creationism in schools

Chaos (World Edge Films, 1988).....35
 The new science of chaos (see also tape #108).
The Living Clock (WQED, 1990) [3168].....35
 The effect of time on living organisms.

More Than Meets the Eye (VISTA, 1986).....38

NOVA Production (PBS, 1988)
Do Scientists Cheat? 111
 Cases of cheating on biomedical research papers.

Biographical/Historical

From the series "Vista" (BBC, 1983)
Dr. Priestley and the Breath of Life.....32
 Biography. Isolation of oxygen.

Sparks That Shook the World (CBC, 1982).....33
 Guglielmo Marconi, inventor of radio.
Current Breakthrough: Superconductivity33
 An update on superconductivity research ca. 1989.

Empire of the Air: The Men Who Made Radio39
 Biographies of Lee de Forest, Edwin Howard Armstrong and David Sarnoff.
The Last Journey of a Genius (NOVA, 1989) 110
 A profile of Nobel Prize-winning physicist Richard Feynman examines his interest in the Asian republic of Tannu Tuva.
Echoes of War (NOVA, 1989) [3377]..... 110
 The story of MIT's Radiation Lab in the development of radar.

VIDEOTAPE LIBRARY (Continued)

Computers

The Machine That Changed The World (WGBH Boston & BBC, 1992). A series of 5 programs dealing with the early history of computers, the development of IBM and Apple and research into artificial intelligence and robotics.

1. *Giant Brains* 40
 2. *Inventing the Future*..... 40
 3. *The Paperback Computer* 41
 4. *The Thinking Machine* 41
 5. *The World at Your Fingertips* 42

MacAcademy. The Video Training Series
Canvas Basics: Video #1 43
Excel: Latest Version Tape #1 44

Bomb Lit

Media Services, University of Toronto
 Dr. Helen Caldicott *Stop Star Wars* 200
 (Lecture at Convocation Hall, U. of T. April, 1985)
Threads by Barry Hines (BBC, 1984) 201
The Atomic Café (The Archives Project, 1982) 202
The Hydrogen Bomb (GoodTimes Video, 1986)..... 203
 from a telecast of Edward R. Murrow.
The Final Chapter, narrated by Chris. Plummer..... 204

Amateur Radio

Getting Started in... (CQ Communications, 1992). Four tapes dealing with various aspects of amateur radio.

1. *Getting Started in Ham Radio*..... 300
 2. *Getting Started in DXing*..... 301
 3. *Getting Started in Packet Radio* 302
 4. *Getting Started in Amateur Satellites* 303

Suggestions for further reading (keyed to tape request numbers):

13 Jacob Bronowski, *The Ascent of Man* (BBC, 1973)
 23 S. Hawking, *A Brief History of Time* (Bantam, 1988); J. Boslough, *Stephen Hawking's Universe* (Avon Books, 1985).
 26 Philip and Phylis Morrison, *The Ring of Truth* (Random House, 1987)
 39 Tom Lewis, *Empire of the Air: The Men Who Made Radio* (Burlingame Books, 1991)
 103 Carl Sagan, *Contact* (Pocket Books, 1986). Carl Sagan, *Cosmos* (Random House, 1980)
 108 James Gleik, *Chaos Making a New Science* (Penguin, 1987)
 111 Beth Savan, *Science Under Siege* (CBC, 1988)