35. **IMPLANTABLE BATTERIES**
(Dr. Curtis F. Holmes - *Wilson Greatbatch Ltd.*)

The uses of implantable batteries in pacemakers and other devices is an important advance in modern medicine.

36. **USE OF CHROMATOGRAPHY IN FORENSIC CHEMISTRY**
(Dr. Joseph Bieron - *Canisius College*)

In the police laboratory chemistry is used to disclose facts that are related to unusual events, including crimes.

37. **FROM MONOMERS TO MAGIC**
(Dr. Frank Dinan - *Canisius College*)

The chemistry of a group of organic compounds called polymers and the effects they have on our lives.

38. **BLOOD: THE RIVER OF LIFE**
(Dr. Nancy Cunningham - *American Red Cross*)

In each of us flows a river of life. Propelled by the heart, blood courses through our bodies, sweeping away waste products and bringing oxygen to the cells. The study of blood is the study of life itself.

39. **CHARTING AND MAINTAINING HARBORS AND NAVIGATION CHANNELS**
(James Brade - *U.S. Army Corps. of Engineers*)

An overview of procedures and equipment used by the U.S. Army Corps. of Engineers to examine and maintain navigation channels in the Great Lakes area including electronic survey methods.

40. **BASIC BIOMEDICAL RESEARCH AT THE MEDICAL FOUNDATION OF BUFFALO**
(Dr. Vivian Cody - *Medical Foundation of Buffalo*)

Recognition of hormones by their receptors and modification of hormones; use of 3-dimensional x-rays and computer graphics. MFB is a private institute providing research in endocrinology.

41. **CONTAMINANTS IN THE GREAT LAKES**
(H. David Greene - *Regional Extension Specialist, Sea Grant*)

One of the biggest pollution problems facing the Great Lakes today is chemical pollution which affects us all. How do the chemicals get there, what harm do they bring and what does the future hold?

42. **AIR POLLUTION CONTROL AND MONITORING**
(Arthur J. Fossa, P.E. - *Associate Air Pollution Control Engineer, NYS Dept. of Environmental Conservation*)

Air pollution and its control; acid rain, source certification, stack testing, ambient air monitoring, and control of both toxic and criteria pollutant emissions.

43. **FISHERIES MANAGEMENT IN NEW YORK STATE**
(Donald W. Einhouse - *Conservation Biologist, NYS Dept. of Environmental Conservation*)

The fisheries movement in New York State; fish propagation and stocking; sampling of fish population and habitat improvement.

44. **TOXICS IN WATER AND ACTIVE/INACTIVE WASTE DISPOSAL SITES IN THE ERIE/NIAGARA COUNTY AREA**
(Chris J. Photiadis - *Environmental Chemist, NYS Dept. of Environmental Conservation*)

The problem of toxics in our water and landfills; definitions of terms, sources of the toxics, and plans to help curb and control their effect on our environment. The Niagara River Toxics Study will also be discussed.

45. **SAFER AUTOMOBILES FROM SCIENTIFIC TESTING**
(Research Staff - *Calspan Laboratories*)

Some auto crashes on Genesee Street actually *save* lives! In the labs of Calspan new cars collide with walls intentionally; analysis of these tests lead to safer vehicles.

46. **STRAIGHT UP & STRAIGHT DOWN**
(Research Staff - *Calspan Laboratories*)

The Vertical Take-Off and Landing aircraft - land "on a dime" at zero miles per hour then off again to usual cruising altitudes.

47. **GALAPAGOS ISLANDS: LAND OF ENCHANTMENT AND EVOLUTION**
(Dr. James Haynes - *Dept. of Biology, SUC Buffalo*)

Extensions on the work of Charles Darwin; shows how species begin to separate - how evolution actually occurs; endemic species on the Galapagos Islands and the importance of the Islands as a natural habitat for the study of evolution and behavior.

48. **WORKING FOR WELLNESS - PREVENTION**
(Sarah Marie Ciccarelli - *Dept. of Medical Technology,*
Robert Cooper - *School of Pharmacy,*
Mary Katherine Harren - *School of Nursing, SUNYAB*)

Prevention and healing; new directions in the health services; opportunities for careers as health professionals.

49. **WORKING FOR WELLNESS - THERAPY**
(Catherine Gordon - *Occupational Therapy,*
Jane Matthews - *Physical Therapy*
Dr. Carolyn Thomas - *Physical Education, SUNYAB*)

Science at work in treatment and rehabilitation; recent advances in therapy; career opportunities in the health professions.

50. **MADE-IN-AMERICA ENERGY: A DOWNHILL SLIDE?**
(Dr. Robert Horvat - *Science and Environmental Education, SUC Buffalo*)

Shortages, embargoes, price increases - energy problems that won't go away; wise use of energy and alternatives for future.

51. **THE TRACK OF THE TURTLE**
(Dr. Elizabeth Baehler - *Resident Physician, Childrens Hospital*)

Off the coast of Georgia, as part of the Caretta Research project, Dr. Baehler helps guard newly-laid turtle eggs from human and animal predators; conservation of an endangered species.

52. **OPTICAL PROPERTIES OF SOLIDS**
(Dr. Om Rustgi - *Physics Dept., SUC Buffalo*)

Uncovering the secrets of solids; study of optical properties of solids in these films - absorption, transmittance and reflectance of radiation across the spectrum from visible light to soft x-rays.

53. **SNOW AND ICE ON MARS**
(Dr. DuWayne Anderson - *Dean of Natural Sciences & Mathematics, SUNYAB*)

Water is one of the most essential substances for life. In nearly all locations except the Earth and Venus, it exists in the form of snow or ice or is combined in rock minerals. Water is also a valuable fuel source since it can be split into hydrogen and oxygen gases by solar energy. Water is an important resource for future space exploration and the colonization of distant planets.

54. **BIOCHEMICAL ENGINEERING LAB TOUR**
(Dr. Michael Ryan - *Chemical Engineering, SUNYAB*)

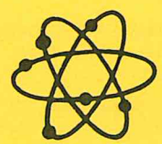
Tour will include observation of research facility for the study of the factors that affect fermentation and the coal desulfurization lab which is trying to locate "bugs that eat sulfur".

55. **BIRDS OF PREY AND RESEARCH**
(Paul Schnell - *Animal Laboratory, SUNYAB*)

Birds of prey are important to our environment, but are sometimes misunderstood by men. Banding and erecting artificial nesting cavities are thus important tools used to help this fascinating group of birds.

56. **YOU ARE WHAT YOU EAT - HOWEVER WHAT YOU EAT MAY SHORTEN THE TIME YOU ARE WHAT YOU ARE**
(Dr. Eric Randall - *Biology Department, SUC Buffalo*)

There are 1500-2000 species of native plants in Western New York of which possibly 75% are toxic in one form or another. Rather than tell you which you can eat, I will show you some that you better not eat, or if you do, I will tell your survivors what happened to you.



Science Exploration Day 1983

Turn on to Science

Wednesday
MAY 25
9:30 - 1:30

SUNY at Buffalo
Amherst Campus

Sponsored by
Niagara Frontier Science Supervisors Association

Western Section - Science Teachers Association of New York

SUNY at Buffalo

SCIENCE EXPLORATION DAY PROGRAM
MAY 25, 1983

1. **MUSEUM MAKERS**
(James Dorr - *Senior Preparator*)
(Robert Martin - *Administrator of Education, Buffalo* Museum of Science)

A demonstration of the methods of making museum exhibits (including taxidermy) and a discussion of the different kinds of exhibits used in museums.

2. **FINDING YOUR WAY AROUND THE NIGHT SKY**
(Dr. James Orgren - *Geoscience Dept., SUC Buffalo*)

Via a portable planetarium, participants will observe projections of constellations, nebulae, and galaxies and learn more about the nature of the universe.

3. **PREVENTIVE DENTAL RESEARCH: WHERE IT'S AT**
(Dr. Todd Evans - *Dept. of Oral Biology, SUNYAB*)

Preventive dentistry is the watchword of modern dental practice. Investigations at SUNY Buffalo are directed toward the two most common oral diseases: periodontal disease and tooth decay.

4. **SURVIVAL IN EXTREME ENVIRONMENTS**
(Dr. Albert F. Steegman, Jr. - *Anthropology, SUNYAB*)

A discussion of research on human survival in the Artic, including biological and social adaptation.

5. **LABORATORY STUDIES IN CLINICAL MEDICINE**
(Irving Mink - *Roswell Park Memorial Institute*)

A survey of the various types of procedures and technologies used in research and in the care of patients.

6. **FEEDING A HUNGRY WORLD - MISSION IMPOSSIBLE**
(Dr. Thomas Kinsey - *Interdisciplinary Science, SUC Buffalo*)

Thomas Malthus, in the 1700's, predicted that the world population would grow faster than food production. In this age of high technology in food production, can his dire prediction come true? YES!

7. **FLATWORMS AND ALCOHOL**
(Dr. Hadar Isseroff - *Roswell Park Memorial Institute*)

Like alcohol abuse, nitrogen metabolism in flatworms causes excess production of collagenous tissue in the liver leading to cirrhosis. Research with flatworm may hold the key to controlling deterioration of the liver.

8. **QUARKS, LEPTONS AND THE GRAND UNIFICATION HYPOTHESIS**
(Prof. Richard J. Gonsalves - *Physics Department, SUNYAB*)

The four fundamental forces - gravity, electromagnetic, weak and strong - lead to the "grand unification" hypothesis with the prediction that the proton is unstable and will decay.

9. **EXPLORING THE SUBSURFACE FOR ENERGY**
(Prof. Dennis S. Hodge - *Dept. of Geological Sciences, SUNYAB*)

The exploration for energy resources - coal, oil, gas, geothermal energy; seismic waves are tuned to detect the reservoirs directly and then used to sound the subsurface.

10. **HOW DRUGS WORK AND HOW NEW DRUGS ARE DEVELOPED**
(Dr. Wayne K. Anderson - *Dept. of Medicinal Chemistry, SUNYAB*)

The study of how drugs work has led to very fundamental information about body functions and the design of more sophisticated drugs.

11. **DESIGN OF NEW DRUGS FOR THE TREATMENT OF CANCER**
(Dr. Wayne K. Anderson - *Dept. of Medicinal Chemistry, SUNYAB*)

Proposed new cancer drugs are based on biochemical information about the disease process as well as chemical and toxicological information about current drugs.

12. **LAKE ERIE: MISBEHAVIOR STIMULATES EXPLORATION**
(Prof. R.R. Rumer - *Civil Engineering Dept., SUNYAB*)

A summary of evidence to indicate how humans have affected Lake Erie and vice-versa.

13. **POLAR ICE CORE STUDIES**
(Dr. C.C. Langway, Jr. - *Dept. of Geology, SUNYAB*)

Studies made in the ice core laboratory will show variations in the physical, chemical and mechanical properties of ice layers which provide data on the past environment of our earth.

14. **LISTENING TO THE NERVOUS SYSTEM**
(Dr. Charles Fourtner - *Biology Dept., SUNYAB*)

A demonstration of modern techniques that are used to record and to listen to the activity which occurs in the nervous systems of animals.

15. **DESIGNING AND TESTING AIRPLANES**
(Charles Berthe - *Senior Test Pilot, Calspan Research Center*)

Current research and development efforts at Calspan, especially the X-22, the vertical lift-off aircraft currently being tested in Buffalo.

16. **CURRENT STATUS OF THE DEBATE ON CREATIONISM VS. EVOLUTION**
(Dr. Clyde Herried - *Biology Dept., SUNYAB*)

A stimulating discussion of the evidence surrounding this controversial scientific topic including historical and social dimensions.

17. **ENVIRONMENTAL PHYSIOLOGY**
(Dr. David R. Pendergast - *Physiology Dept., SUNYAB*)

Hyperbaric vessel, human certrifuge, the immersion tank - facilities used to study how humans adapt to different environments.

18. **FROM HEIMLICH TO CPR**
(Dr. Darrell Young - *Geosciences Dept., SUC Buffalo*)

What brings Resusci-Annie (and sick and injured people) back to life - a demonstration of cardiopulmonary resuscitation.

19. **PASSIVE SOLAR ARCHITECTURE**
(Prof. Dennis Andrejko - *Dept. of Architecture & Environmental Design, SUNYAB*)

"Logic and Beauty" in designing or redesigning a home using passive solar energy rather than active solar energy.

20. **LIQUID CRYSTALS: FROM LAB CURIOSITY TO COMMERCIAL REALIZATION**
(Prof. John T. Ho - *Physics Dept., SUNYAB*)

The variety of liquid crystals, their physical properties, and the principles of different optical devices will be discussed.

21. **SCIENCE AND SPACE**
(Charles Fassel - *Niagara Frontier - L-5 Society*)

Space colonization; discussion of the scientific experimentation in the unique environment of space and the various technological applications; working in a man-made orbiting space station.

22. **BIOFEEDBACK: FACTS AND FANTASIES**
(Mr. Robert Pollard - *Dept. of Psychology - SUNYAB*)

See a demonstration of modern biofeedback equipment and learn how it is used to teach people self-control of body functions.

23. **LASERS: LAB TOUR**
(Prof. Gilbert Brink - *Physics Dept., SUNYAB*)

The nature of laser light as well as the basic physical principles of laser light generation will be presented. Light production in a laser will be compared with conventional light sources.

24. **THE QUEST FOR ABSOLUTE ZERO**
(Prof. Francis M. Gasparini - *Physics Dept., SUNYAB*)

The methods of achieving low temperatures, the behavior of materials and some of the new phenomena which are observed - a lecture demonstration.

25. **MUSCULAR DYSTROPHY IN THE CHICKEN: A MODEL FOR DRUG THERAPY STUDIES**
(Dr. Michael Hudecki - *Dept. of Biological Science, SUNYAB*)

The gentically dystrophied chicken shows many symptoms of muscular disease which are similar to the common human disease. The systems are used as a criteria for determining the theraputic effect of classes of drugs.

26. **FOSSILS AND WHAT THEY TELL US**
(Claire L. DeBus - *Buffalo Museum of Science*)

A description of how fossils are formed, how they are identified and how they help us interpret past environments.

27. **ARCHEOLOGY**
(Victoria Best - *Buffalo Museum of Science*)

A demonstration of archeological methods using a scale model of a North Africa site including artifacts.

28. **FINDING THE NEEDLE IN THE HAYSTACK**
(Dan Thielen - *Research Chemist, Occidental Chemical*)

A brief review of the analytical techniques and instrumental tools that a chemist uses in his work; detection of chemicals at very low concentrations.

29. **TOUR OF THE MECHANICAL AND AEROSPACE ENGINEERING RESEARCH LABS**
(Dr. Andres Soom - *Dept. of Mechanical and Aerospace Engineering, SUNYAB*)

Tour of laboratory facilities to demonstrate optical flow measurement, combustion, vibration analysis and fracture testing.

30. **DIVING FOR RESEARCH AND EXPLORATION**
(Dr. J.F. Storr - *Biology Dept., SUNYAB*)

The use of various diving techniques as a tool for underwater research, exploration and photography, including slides, film and drawings.

31. **THE QUEST FOR THE BLACK HOLE**
(Dr. Jack Mack - *Geosciences, SUC Buffalo*)

Evidence for the existence and characteristics of black holes in outer space - proof of their existence.

32. **EARTH DETECTIVES DIG UP THE PAST**
(Prof. Charles C. Cazeau - *Geology Dept., SUNYAB*)

A summary of ideas, principles and technology that have been used and stated to illuminate the recent geological history of the earth and the activities of man upon it.

33. **PRIMATES - PAST, PRESENT AND FUTURE**
(Dr. Joyce Sirianni - *Anthropology Dept., SUNYAB*)

A discussion of the evolution of monkeys, apes and human beings; how they adapt to diverse environments, their use in biomedical research, and preservation of primates in their natural environment.

34. **PETROLEUM EXPLORATION IN NEW YORK & PENNSYLVANIA**
(Jerold C. Bastedo - *Geologist, National Fuel Gas Supply Corp.*)

Illustrated presentation of oil and gas exploration activities and gas storage development in the area. Geologic history of region, formation of petroleum, locating drilling sites, using geological information and seismic surveys, drilling operations and environmental concerns.