Caribbean ICONS

in SCIENCE, TECHNOLOGY & INNOVATION

VOL. II

NIHERST
NATIONAL INSTITUTE OF HIGHER EDUCATION
RESEARCH, SCIENCE AND TECHNOLOGY
INCORPORATED BY ACT OF PARLIAMENT ACT NO 28 OF 1994

CCST
CARIBBEAN COUNCIL FOR SCIENCE AND TECHNOLOGY

Kids do you know...

...WHO is an STI Icon?

An individual who has made an extraordinary contribution to Science, Technology and Innovation (STI).

A project of the

National Institute of Higher Education, Research, Science and Technology (NIHERST)
and
Caribbean Council for Science and Technology (CCST)

2009

Contents

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Publisher: NIHERST
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Some of the photographs and material used in this publication were obtained from the Internet, other published documents, featured scientists and their institutions. The publication is NOT FOR SALE.

Funding: Ministry of Science, Technology and Tertiary Education (MSTTE), Trinidad and Tobago and the Caribbean Council for Science and Technology (CCST)

ISBN 978-976-95095-8-0

Acknowledgements

NIHERST wishes to thank the Icons, their families and all others who helped us to complete this book by providing information, as well as books, documents, photographs and other reference materials.

We acknowledge the assistance of the dedicated employees of The University of the West Indies and The National Archives of St. Kitts and Nevis. Special thanks are extended to Professor Nazeer Ahmad, Dr Eslie Alleyne, Mrs Shauna Bain Smith, Mr Gerard Besson, Mr Morgan Brown, Mr Hollis Charles, Professor Hichem Ben-El-Mechaiekh, Professor Julian Duncan, Mr Felix Gregoire, Mr Livingston Huggins, Professor Robert Lancashire, Dr James de Vera Pitt, Dr Anthony Richards, Dr Avril Siung Chang, Mr Bishnu Toolsie, and Mrs Beverly Taylor. Finally, NIHERST expresses its gratitude to the Ministry of Science, Technology and Tertiary Education in Trinidad and Tobago, and the Caribbean Council for Science and Technology (CCST) for endorsing the continuation of this important series.

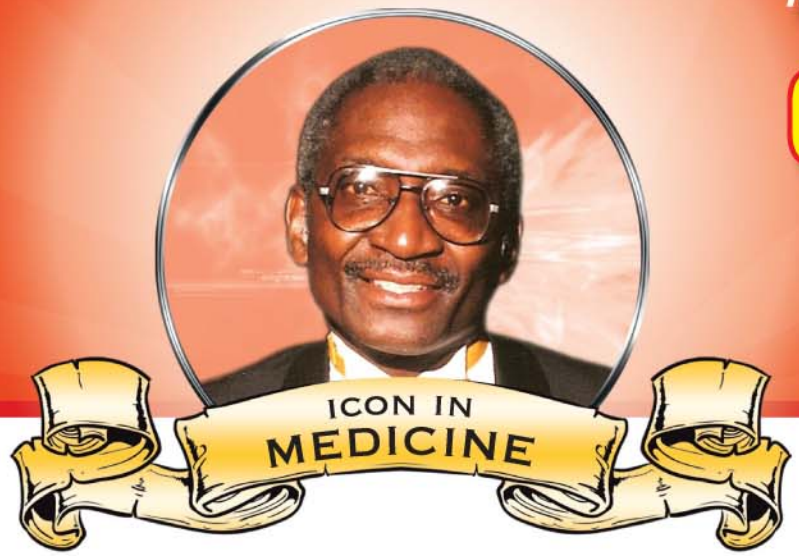
Introduction

In 2005, NIHERST and the Caribbean Council for Science and Technology (CCST) launched the first volume of *Caribbean Icons in Science, Technology and Innovation*. This book told the story of Caribbean scientists, science educators and professionals in science related fields, describing their discoveries and contributions, while showing the scientific principles underlying their life's work.

This second volume continues the series by profiling 38 outstanding individuals who have excelled in science and science related fields, from agriculture to virology. These achievers represent 11 countries in the Caribbean, and their stories span more than 150 years of Caribbean history.

Our Icons defended natural habitats, dived for interesting artefacts, managed outbreaks of disease, discovered viruses, protected the region's crops, chased hurricanes, and also braved battlefields to treat injured soldiers. They often enjoyed full, well-rounded lives, as shown by our line-up, which includes a war veteran, an Olympian, a preacher and a middle-aged marathon runner!

The lives of these individuals are a testament to the boundless potential of Caribbean people, who represent such a small fraction of the world's population. By showing how our Icons used the few opportunities they had to triumph over their obstacles, we hope to inspire our young readers to shine in their own fields, and to become the Caribbean Icons of this new century.



MEDICAL PIONEER AND MENTOR

Granville Bain

Orthopaedic Surgeon

The Bahamas

"Granville C. Bain was an exceptional physician and orthopaedic surgeon who was a great motivator and healer. He served as the inspiration for many aspiring MDs [doctors] and allied heath care professionals." Dr Anthony Rankin

Dr Granville Bain was the first specialty surgeon and first orthopaedic expert in The Bahamas. He cared deeply for his fellow Bahamians and did all he could to improve their lives. He was also a pioneer in arthroscopic surgery, which was considered a revolutionary medical technology at the time.

Granville Charles Bain was born on 27th June, 1940 in Nassau, The Bahamas and grew up in a home where there was an emphasis on schoolwork and learning. Bain attended Western Junior School and Western Senior School, completing his secondary education at St. John's College, where he showed an aptitude for both science and literature. He pursued a Bachelor of Science (BSc) in Biology at Lincoln University, Pennsylvania, USA and then studied medicine, specialising in orthopaedic surgery, at Meharry Medical College in Tennessee, USA on a full scholarship. Bain excelled academically and was a popular student.

In 1970, after completing his studies, Dr Bain returned to his homeland. He worked at the Princess Margaret Hospital and devoted himself to improving health care in The Bahamas. He was active in the Medical Association of The Bahamas and served as president of The Bahamas Doctors' Union.

Dr Bain also contributed to the education and development of up-and-coming Bahamian professionals in medicine and other disciplines. He mentored many young doctors and trained both doctors and nurses. He shared office space with new doctors, gave his time and money to assist struggling medical students, and dispensed valuable advice to prospective medical students.

Dr Bain introduced a programme which allowed the hospital to provide free surgery to children who were unable to afford this service privately. He also introduced the use of computers and new technology to Bahamian medical practice. He campaigned for the improvement of the health sector and was active in politics until his move to Miami, Florida in 1981. Although living in the United States allowed him to update his surgical techniques, he became homesick and returned in 1985. He continued his private practice until his death on 29th December, 1997 at the age of 57. In April 2002, the Princess Margaret Hospital renamed its orthopaedic ward the Granville Charles Bain Orthopaedic Ward in commemoration of his innovative spirit, commitment to his fellow citizens and his invaluable contribution to healthcare in The Bahamas.

Dr Granville Bain lived by a code of excellence enshrined in the motto, "Average is not good enough." His advice to students is, "pursue your aspirations wholly and completely, wherever they lie. You can be as great as you envision yourself to be. Service to your fellow man is paramount."

KEYWORDS

ARTHROSCOPIC SURGEON: a practitioner of arthroscopic surgery, which uses a viewing instrument called an arthroscope to examine and treat the inner part of a joint (such as the knee or elbow). It relies on small, carefully made incisions and is less risky, needs less recovery time, and causes less scarring than traditional surgery.

NEUROLOGY: the branch of medicine that deals with the structure and function of the brain, spinal cord and nerves

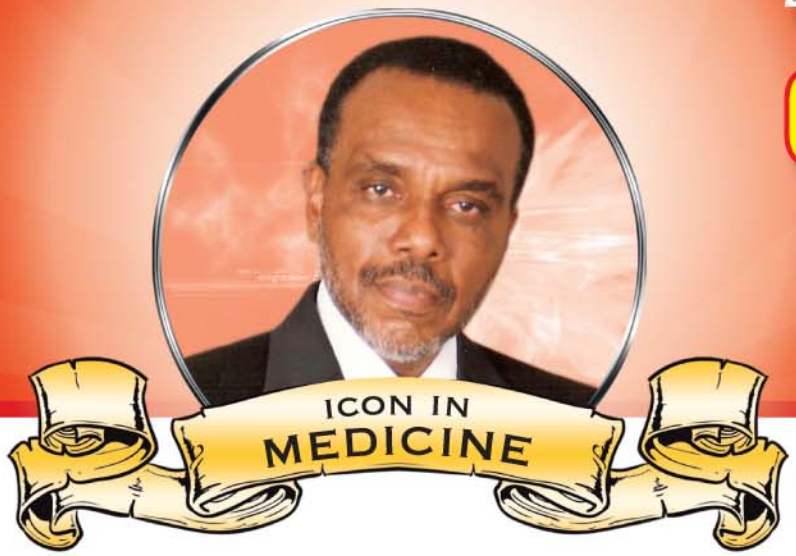
ORTHOPAEDICS: the field of medicine dealing with the study and treatment of disorders of the muscles and skeleton

INTERESTING FACT

Dr Granville Bain grew up in a close-knit neighbourhood on a hill on Meeting Street. The people from that area were called "hilltoppers." Other famous "hilltoppers" include Sir Cecil Wallace Whitfield, first leader of the Free National Movement political party and T Baswell Donaldson, former Head of the Central Bank of The Bahamas.

Photos from top to bottom:

1. *As a schoolboy*
2. *Bain, centre, with daughters Stacee (left) and Shauna (right) at Spellman College, USA (1990)*
3. *Plaque commemorating the renaming of the Orthopaedic Ward of the Princess Margaret Hospital in honour of Dr Granville Bain*



EASING THE PAIN

Glen Beneby

Anaesthesiologist

The Bahamas

"My goals were to improve the healthcare delivered to the less fortunate and underprivileged, particularly in The Bahamas, and to be in a position to influence positive change in the lives of individuals." *Dr Glen Beneby*

Dr Glen Beneby worked tirelessly to advance the practice of anaesthesiology at the Princess Margaret Hospital and to improve medicine in The Bahamas. He is a greatly respected medical professional and public speaker.

Glen Samuel Beneby was born on 18th August, 1953 in Nassau, The Bahamas. He had a happy childhood, growing up in a home where love and discipline were given equal emphasis. He attended Sands Government Primary School and Eastern Junior School before winning a government scholarship to the Bahamas Government High School where he eventually became the Head Boy. He then studied medicine at The University of the West Indies (UWI), Mona, Jamaica, graduating in 1978. He interned at the Princess Margaret Hospital for a year before joining the Department of Medicine. In 1981, he furthered his studies at the University of Sheffield, England, emerging in 1984 as the first Bahamian Fellow of the Royal College of Anaesthetists, London.

In 1985, when a UWI-associated postgraduate programme in anaesthesia was established at the Princess Margaret Hospital, Dr Beneby was appointed Associate Lecturer in Anaesthesia. He became Head of the Department of Anaesthesia at the hospital in 1986, establishing a Respiratory Maintenance Division in 1987 and a Reference Library in 1988. The Department currently runs the hospital's Intensive Care Unit.

In 1989, Dr Beneby invented an anaesthetic mouthguard to protect the upper teeth from harm arising from anaesthetic intubation during surgery. In 1990, he became a founding member of the Commonwealth of The Bahamas Academy of Medical Sciences and served the Princess Margaret Hospital as its Medical Staff Coordinator. In 1996, he helped to form Physicians Alliance Limited. This partnership brought together the knowledge of private doctors and the healthcare resources of the government, benefiting doctors and patients alike.

In 1998, Dr Beneby was appointed Chairman of the Ethics Committee for the review of the American National Institutes of Health AIDS research in The Bahamas. In 2000, he represented the Caribbean at the World Congress in Anaesthesiology in Montreal, Canada.

In 2003, he headed the team responsible for developing tele-medicine in The Bahamas and, in 2004, he led the team that reported on damage caused to the nation's health services by Hurricane Frances. In 2006, he helped found the UWI Medical School Research Committee based in The Bahamas.

In the epilogue of his 1995 book, *A Model for Developing Anaesthesia Services in Developing Countries*, Dr Beneby reminds his readers of their potential, writing, "You are gifted, you are unique… , your talent is unique, only you can make your contribution to your profession. Be positive… focused and make the difference."

KEYWORDS

ANAESTHESIA: the loss of physical feeling brought about by drugs called anaesthetics, which cause unconsciousness or remove pain

ANAESTHETIC INTUBATION: the use of a tube inserted into the nose or throat to deliver anaesthetic drugs into the body

ANAESTHESIOLOGY: the medical specialty which monitors a patient's vital signs during surgery and uses special equipment and drugs to keep the patient from feeling pain

ETHICS: the formal study of how people should or should not behave or think

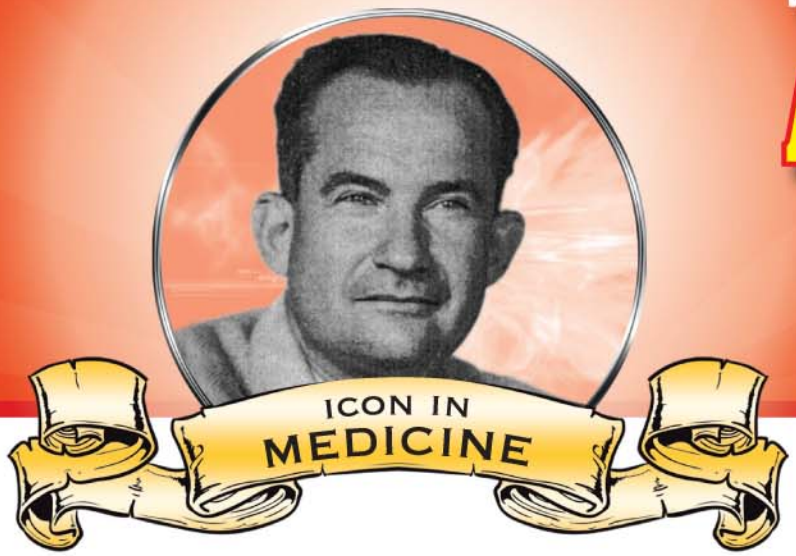
TELE-MEDICINE: the use of communications technology in medicine, usually for consultation

INTERESTING FACT

As a youth, Glen Beneby was an excellent athlete. He only applied himself to his studies after an injury removed him from competition for three years. When he returned to the field, he had mastered both the track and the classroom. This was a turning point in his life.

Photos from top to bottom:

1. *Studying anaesthesia at the University of Sheffield, England*
2. *Beneby (right) with Dame Ivy Leona Dumont, first female Governor-General of The Bahamas*
3. *Addressing physicians as Chief of Staff of the Public Hospitals Authority, The Bahamas*



WORLD EXPERT ON RADIATION

André Cipriani

Biophysicist

Trinidad and Tobago

"He [was] the leading authority in Canada on the biological and medical aspects of atomic energy… a scientist of international reputation in this field of research." Professor David Keys

Dr André Joseph Cipriani, Trinidad and Tobago's first major biophysicist, was best known for his pioneering work in cancer treatment. He was one of the first scientists in the world with great practical expertise in the medical applications of radiation.

Born on 2nd April, 1908 in Port-of-Spain, Trinidad, Cipriani excelled from an early age, completing primary school and entering St. Mary's College at 10 years old. He studied sciences and excelled in school under his father's encouragement, winning the Stollmeyer's Silver Medal for Science in 1925 and the Island Scholarship for Science in 1927. He enrolled at McGill University, Canada, as an electrical engineering student but his aptitude for mathematics and physics led to a change in major to those disciplines. After graduating in 1932, he completed a medical degree and specialised in obstetrics and gynaecology.

During World War II, Dr Cipriani was a medical officer in the Canadian Army. He did research on various medical problems such as motion sickness and night blindness, and discovered the chemical compound from which the medicine known as Gravol was derived. He later joined the Atomic Energy of Canada Ltd where he became the Director of Biology and Radiation Hazards. At the Chalk River Nuclear Laboratories (CRNL), he and W V Mayneord discovered that cobalt-60 was the most promising isotope that could be used to treat cancer, pioneering its production in 1951. With further studies, he and his team at CRNL isolated the first highly active sources of cobalt-60, using methods which were later used in developing the earliest cobalt therapy machines.

Dr Cipriani was a member of the Royal Society of Canada as well as numerous Canadian and international committees. His work gained him great recognition around the world. He was a member of several committees on atomic radiation and the Canadian representative on the first United Nations Scientific Committee on the Effects of Atomic Radiation. He assisted in the organisation and training of the Canadian army radiation

detection unit. His extensive work resulted in scientific papers that were published in international journals such as the *Journal of Neurophysiology* and the *Journal of Radiological Protection* and presented at major international meetings such as the Geneva Conference on Peaceful Uses of Atomic Energy.

Dr André Cipriani continued to contribute to the understanding of the safe use of radiation until his death from a cerebral haemorrhage, following a stroke, on 23rd February 1956, at the age of 48. The BBC described him as the most knowledgeable expert on radiation hazards in the world. The National Research Universal Reactor at Chalk River, Ontario remains the world's biggest single supplier of cobalt-60, which continues to be used in cancer treatment.

KEYWORDS

CEREBRAL HAEMORRHAGE: bleeding within the brain, caused either by physical damage from a head injury or a stroke

ISOTOPE: an atom, which varies in mass from other atoms of the same element. For example cobalt-59 and cobalt-60 are isotopes of the element cobalt. A cobalt-59 atom has a mass of 59 unified atomic mass units (u). A cobalt-60 atom has a mass of 60 u. Heavier isotopes are often radioactive.

RADIATION: energy and particles released from the breakdown of a nucleus. At high doses, some of these rays and particles are able to cause cancers or radiation poisoning in people directly exposed to them.

RADIATION POISONING: an illness caused by overexposure to certain types of radiation, with symptoms ranging from vomiting, headache and diarrhoea to internal bleeding and death. Unlike regular poisons, radioactive substances do not have to be eaten or drunk since radiation can penetrate skin, flesh and organs, causing damage to any of these.

INTERESTING FACT

Dr Cipriani was quite aware of the dangers of radiation poisoning from the improper use of radiation. Because he was so careful, his co-workers nicknamed him "Dr No". No employee under his supervision at the Chalk River plant ever suffered from radiation poisoning.

Photos from top to bottom:

1. *Cipriani (left) and colleague in Ontario, Canada*
2. *One of the best-selling remedies for nausea and dizziness*
3. *Cobalt is also used for making heat-resistant alloys*

PIONEER IN THE MANAGEMENT OF HIV/AIDS

Farley Cleghorn

Physician and HIV/AIDS expert

Trinidad and Tobago

"The practice of health, which is broader than medicine, allows one to do good for others, to see the world, [and] to sharpen the mind." *Dr Farley Cleghorn*

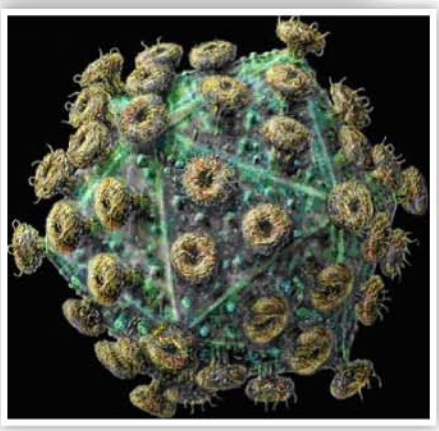
Dr Farley Cleghorn is an international expert on HIV/AIDS and infectious diseases. His work has focused on the origin, incidence and distribution of HIV/AIDS, clinical vaccine trials, antiretroviral treatment, the examination of the HIV virus structure, and how HIV infection progresses into AIDS. He has made many original contributions to the field of human retrovirology in the area of HIV-1 and was an early pioneer in the management of HIV/AIDS patients in the Caribbean.

Farley Richard Cleghorn was born on 15th July, 1959 in San Fernando, Trinidad. He attended Grant Memorial School and then Presentation College, San Fernando. He taught for a year at the San Fernando Technical Institute and, despite his love for literature and the arts, he applied to study medicine at the Faculty of Medicine of The University of the West Indies (UWI), Mona, Jamaica, and graduated in 1982.

He had an early interest in retroviruses and was instrumental in opening, in 1986, Trinidad's first clinic for HIV/AIDS, in partnership with Professor Courtenay Bartholomew. This work eventually led to a fellowship at the National Cancer Institute in the United States and, in 1992, a Master of Public Health in epidemiology and biostatistics at the School of Hygiene and Public Health, Johns Hopkins University in Maryland, USA.

Dr Cleghorn held several positions at the University of Maryland including Assistant Professor, Deputy Director, and Senior Scientist in the university's Institute of Human Virology, directed by Dr Robert Gallo, one of the world's leading biomedical researchers and the co-discoverer of HIV. During his tenure from 1995 to 2004, he built the Division of Epidemiology and Prevention and its research programme became one of recognised excellence.

Currently, he is the Senior Vice President and Chief Technical Officer of the Futures Group International LLC, Washington, DC. Futures Group International, formerly known as Constella Futures, has over 30 country offices worldwide and has a strong presence in India, Africa, Asia, Latin



America and the Caribbean, supporting HIV/AIDS research, public health and social programmes. He is also working with the Institute of Human Virology, the Medical Research Foundation of Trinidad and Tobago, and UWI on joint HIV/AIDS research in the region. In addition, he is involved in providing training to health professionals in the US, Caribbean, Brazil and Nigeria who are working in the area of HIV/AIDS.

Among the awards he has received are the Institute of Caribbean Studies' first award in Medicine in 1993, and the Charles C Shepard Award in 1998 for outstanding contribution to HIV/AIDS research from the Centers for Disease Control and Prevention. In 2004, Dr Cleghorn was honoured by the HIV Vaccine Trials Network for "vaccine research and innovative and creative contributions."

Dr Farley Cleghorn lives by the words of Thomas Paine, "Independence is my happiness, and I view things as they are, without regard to place or person; my country is the world, and my religion is to do good."

KEYWORDS

AIDS (Acquired Immune Deficiency Syndrome): a collection of symptoms and infections resulting from damage to the immune system - the body's defence against disease. AIDS is caused by the human immunodeficiency virus (HIV).

BIOSTATISTICS: the use of statistical methods to collect, analyse and interpret biological data. In a public health context, biostatistical studies are used to understand the overall health and well being of the population.

EPIDEMIOLOGY: the study of the factors that affect the health and illness of populations

HIV (human immunodeficiency virus): a retrovirus spread between sexual partners, by infected needles, and from pregnant mothers to their unborn children. It breaks down the body's defences and later causes AIDS. There are various strains of HIV, for example HIV-1, which is more easily transmitted than HIV-2.

RETROVIROLOGY: the study of retroviruses and the diseases they cause

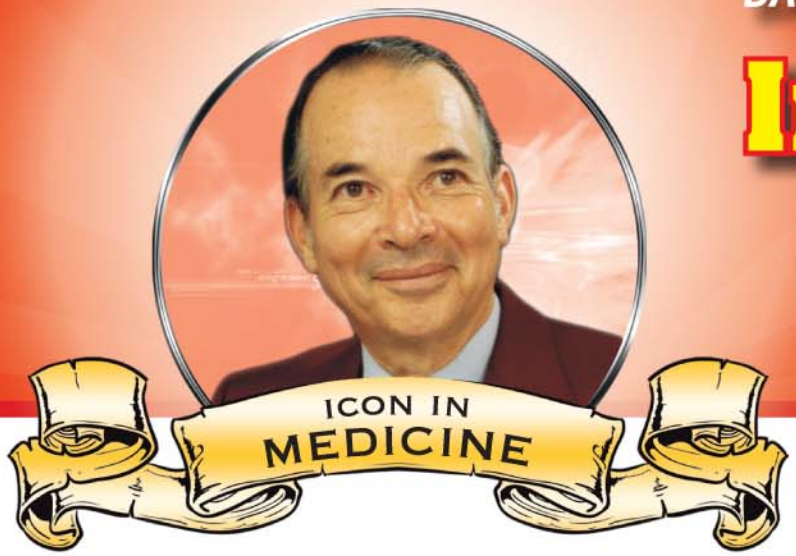
RETROVIRUS: a virus that contains RNA as its genetic code, instead of DNA. Many retroviruses produce tumours and HIV, the virus that causes AIDS, is one as well.

INTERESTING FACT

Dr Cleghorn enjoys cooking and has won prizes for his culinary creations.

Photos from top to bottom:

1. *Receiving awards from the HIV Vaccine Trials Network (2004)*
2. *Cleghorn as a medical student at UWI, Mona, Jamaica in 1979*
3. *The HIV virus which scientists discovered in 1983*



BAHAMIAN LEGEND IN MEDICINE

Ira Earle Farrington

General Surgeon

The Bahamas

"He went into medicine with a real desire to help others, not with a view to get rich."
Roy E Barnes

Dr Ira Earle Farrington is the first certified Bahamian General Surgeon and Consultant Surgeon to the Princess Margaret Hospital. During his illustrious career, he made a great contribution to healthcare in The Bahamas, playing a fundamental role in the introduction of modern medical and surgical techniques. As Head of Surgery at the Princess Margaret Hospital for over 20 years, Dr Farrington performed over 30,000 surgeries in every surgical discipline. He is also known for his commitment to the poor and underprivileged.

Born on 10th March, 1927 in Nassau, The Bahamas, Farrington attended Eastern Primary School and Eastern Senior School. He later attended the prestigious Government High School where he received many prizes and served as Head Boy. After graduating, he worked as a clerk for a few years until he was awarded the first government scholarship in 1947.

Farrington wanted to study medicine to help people after becoming inspired by the doctors and nurses at a local hospital while receiving medical care for a broken arm. Driven by this desire, he used his scholarship to fund his studies at the University of Glasgow where he graduated with a Bachelor of Medicine, Bachelor of Surgery (MBChB) in 1953, receiving the Hunterian Medal in Anatomy for outstanding academic achievement. After several years' experience in surgery, he became a Fellow of the Royal College of Physicians and Surgeons of Glasgow (FRCPSG) in 1962.

The following year, he returned to The Bahamas where he joined the Princess Margaret Hospital as the first Bahamian Consultant Surgeon. As Head of the Department of Surgery, he devoted his time and knowledge to improving health standards in the country, as well as to training competent surgeons. He also served as the first chairman of the Health Professions Council in The Bahamas.

Photos from top to bottom:

1. *Farrington (left) after receiving his MBE*
2. *Giving a lecture*
3. *Enjoying a day of fishing*

Dr Farrington received many awards for his outstanding contribution to the field of Medicine and Surgery including the Order of the British Empire, Member Class (MBE) and the Gold Medal for Medicine from the Government of The Bahamas. He was inducted as an Honorary Fellow of the Commonwealth of The Bahamas Academy of Medical Sciences. He received the humanitarian Lady Sassoon Golden Heart Award and was saluted as "the father of modern surgery and a modern day good Samaritan."

For over 50 years, Dr Farrington served the people of The Bahamas by performing operations even on patients who could not afford them. In 2007, MedDent Company Health Center in Nassau named a surgical suite in his honour. He was also very active in community service as a member of the Police Services Commission, the St. Michael's Methodist Church and the Gym Tennis Club. A modest man, he is highly respected as a role model to the youth of The Bahamas who aim to pursue a career in medicine.

KEYWORDS

ANATOMY: the study of the structure of the human body

INTERESTING FACT

Dr Earle Farrington not only had a passion for medicine, he also enjoyed tennis, classical music, literature, the fine arts and community service.

FIGHTING HIV/AIDS ON ALL FRONTS

Perry Gomez

Public Health Practitioner

The Bahamas

"What has endeared him to so many... are his outstanding qualities as a selfless, compassionate and generous human being." *Rosa Mae Bain*

Dr Michael Gomez, better known as Perry, led the public health response to infectious diseases in The Bahamas for over three decades, and helped to position that country as a world leader in HIV/AIDS management. His groundbreaking use of AZT treatments dramatically reduced mother-to-child transmission of HIV in pregnant women. He initiated a partnership between governmental and non-governmental organisations for purchasing medication, a strategy that was adopted by other countries.

Michael Perry Gomez was born on 18th January, 1947 in Family Island, The Bahamas. His supportive parents passed on their love for books, science and service to their son. He attended Western Junior School and the Government High School in Nassau, and completed his Bachelor of Medicine, Bachelor of Surgery (MBBS) at The University of the West Indies in Mona, Jamaica. He continued his studies at the Princess Margaret Hospital in The Bahamas and completed them at Wayne State University in Detroit, Michigan. There, he finished a research fellowship in infectious diseases in 1975.

In 1977, Dr Gomez returned to The Bahamas and became the Infectious Diseases Consultant at the Princess Margaret Hospital, a job that required him to manage and prevent outbreaks of contagious diseases. After the country's first case of HIV/AIDS was confirmed in 1985, the government chose him as the National Director of the HIV/AIDS Programme. Knowing that HIV/AIDS could impact all Bahamians, he asked for help from every ministry and international organisation that would assist him, and combined their aid into an effective response. Through this programme, which was emulated throughout the Caribbean, many health professionals, teachers and workers were trained to help limit the spread of the disease and to provide care and support for AIDS patients.

Dr Perry Gomez has published articles in medical journals and lectured at several universities. He has been consulted by the Joint United Nations Programme on HIV/AIDS (UNAIDS), the World Health Organization (WHO) and the Caribbean Epidemiology Centre (CAREC).

During a three-year period, the number of HIV patients receiving anti-retroviral drugs tripled, and both the number of people dying from AIDS and the number of pregnant women with the HIV virus were reduced by half.

Dr Gomez's compassion has kept him directly involved in the battle against HIV/AIDS. He counsels new patients and treats many of them himself. He makes sure that his co-workers and the doctors under his training can reach him at any time. He also hosts conferences and workshops to train other Caribbean doctors and encourages other Caribbean countries to help each other in the fight against AIDS. Because of his reputation and skills, he is a popular speaker and consultant in the field.

He advises young people to have big dreams, set goals, stay focused, love life, be cautious, work hard and pursue excellence.

KEYWORDS

AIDS (Acquired Immune Deficiency Syndrome): a collection of symptoms and infections resulting from damage to the immune system - the body's defence against disease. AIDS is caused by the human immuno-deficiency virus (HIV).

AZT: the first approved treatment for HIV, which limits the virus, preventing it from multiplying

HIV (human immunodeficiency virus): a retrovirus spread between sexual partners, by infected needles, and from pregnant mothers to their unborn children. It breaks down the body's defences and later causes AIDS. There are various strains of HIV, for example HIV-1, which is more easily transmitted than HIV-2.

INFECTIOUS DISEASE: a disease that can be spread from one person to another, directly or indirectly

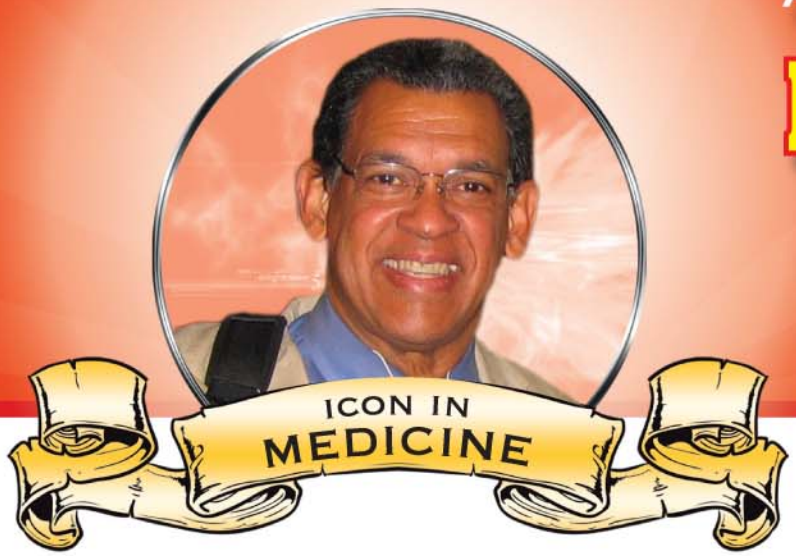
RETROVIRUS: a virus that contains RNA as its genetic code, instead of DNA. Many retroviruses produce tumours and HIV, the virus that causes AIDS, is one as well.

INTERESTING FACT

In 2005, UN Secretary–General, Kofi Anan recognised The Bahamas as one of the few countries that had "turned the tide against AIDS."

Photos from top to bottom:

1. *Gomez (centre) received The Bahama Journal's "Person of the Year" Award 2005.*
2. *Gomez (front row, second from right) with the 2004 Commission on National Health Insurance, presenting their report to Prime Minister Perry Christie (centre)*
3. *Gomez greeting former US President Bill Clinton (left) during a 2005 visit to the Princess Margaret Hospital*



A LEADING LIGHT IN NEUROSURGERY

Renn Holness

Neurosurgeon

Jamaica

"I have always wanted to be more in touch with my 'roots.' That is why I returned frequently to all campuses of UWI, to do surgery and teach medical and postgraduate students…" *Dr Renn Holness*

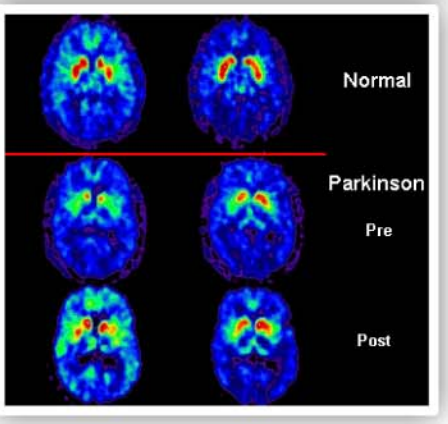
Dr Renn Holness is known for his selfless efforts to improve Caribbean healthcare and instruct healthcare professionals. Through his students, Dr Holness is determined to prove that Caribbean doctors can be numbered among the best in the world.

Renn Holness was born on 30th May, 1943 in Kingston, Jamaica. He attended Blake Preparatory School and Jamaica College, where he excelled. He began studying medicine at The University of the West Indies (UWI), Mona on a scholarship and then left for Guy's Hospital in England where he completed his Bachelor of Science (BSc) in Anatomy in 1964. He finished his Bachelor of Medicine, Bachelor of Surgery (MBBS) at UWI, Mona graduating at the top of his class in 1968.

After graduating, Holness interned at the Port-of-Spain General Hospital in Trinidad from 1968 to 1969. He then spent a year undertaking his general surgery residency at the University of Michigan, USA, completing it in 1972. He went on to do his neurosurgery residency in Canada at Dalhousie University and the University of Toronto, finishing in 1976. Dr Holness began his neurosurgery practice in Halifax, Nova Scotia in 1977.

Over the next 10 years, he became Professor of Neurosurgery and Head of Neurosurgery at Dalhousie Medical School and Queen Elizabeth II Health Sciences Centre. In 1992, he became the first person in Canada to perform foetal tissue transplants to rebuild brain cells and treat Parkinson's disease. During the 1990s, he was a key player on the committee that devised incentives for First Nation and black students to attend Dalhousie University's medical school.

Dr Holness has given back to the Caribbean, often dedicating many of his periods of leave to this purpose. He lectured as a visiting professor at UWI campuses and played the role of mentor in the lives of his students. He arranges for Caribbean students to pursue electives in Canada,



sometimes at personal expense, and lends his expertise to governments and hospitals in the region. In 1993, he did a three-month sabbatical at the UWI medical school in Barbados and in 2000, he served as Acting Director of the Clinical Program at the UWI School of Medicine in Nassau for six months, until a permanent director was hired. He arranged the transfer of surplus medical equipment from the Queen Elizabeth II Health Sciences Centre to Caribbean hospitals, and directed the Bahamian government to recruit a neurosurgeon, whom he mentored personally, thus bolstering the country's capability in neurosurgery.

Dr Holness was chair of the examining board in neurosurgery for the Royal College of Physicians and Surgeons of Canada. He was also President of the Canadian Neurological Society during the 1990s.

For youngsters considering medicine, he advises that, "Success in medical school is not purely related to marks... but also having a genuine interest in human beings."

KEYWORDS

FIRST NATION: the native peoples of Canada

FOETAL TISSUE TRANSPLANT: surgery that uses cells from foetuses (unborn children) to reconstruct organs. These transplants can cure many disorders that cannot be cured otherwise.

NEUROSURGERY: surgery that treats disorders of the brain, nerves and spinal cord

PARKINSON'S DISEASE: a disorder found in the elderly caused by the breakdown of certain brain cells. Patients display slow speech, reduced judgement, movement problems and later on, memory loss and personality changes. The disease is fatal.

INTERESTING FACT

Renn Holness was a top athlete at Jamaica College. He won the 100, 200 and 440 yard sprints at his school's Track and Field Championships in 1960 and 1961, and was the opening bowler for the cricket team.

Photos from top to bottom:

1. *As a child, with his sister Beverly*
2. *Holness (second from right in front row) with colleagues in Neurosurgery at the Queen Elizabeth II Health Sciences Centre*
3. *Tomography scans showing the onset of Parkinson's disease by demonstrating the presence (red) or its absence (blue)*

CHAMPION HIV DOCTOR FOR CHILDREN

Susan King

Paediatrician

St. Lucia

"Susan King put Canadian paediatric HIV research on the map."
Dr Ron Gold

Professor Susan King lectured at the University of Toronto in the Department of Paediatrics of the Hospital for Sick Children. Her work centred on a combination of patient care, research, and teaching in hospital, university, and community settings. She gained recognition for her research among children that showed that HIV infection was possible through blood transfusion. As a result, the HIV testing of all recipients of blood transfusions was initiated in Canada.

Susan Margaret King was born on 5th April, 1954 in Edinburgh, Scotland where her father, a St. Lucian surgeon, was studying. She received her primary and secondary schooling in several Caribbean islands. At the age of 16, she was awarded a St. Lucia Island Scholarship and proceeded to the University of Oxford, England.

After completing bachelor's and master's degrees in chemistry at Oxford, she earned a medical degree from McGill University in Canada in 1979. Subsequently, she specialised in paediatrics at the University of Toronto, and became a Fellow of the Royal College of Physicians and Surgeons of Canada in 1985. She then joined the Hospital for Sick Children and the Faculty of Medicine of the University of Toronto, and completed another master's degree in epidemiology and biostatistics at McMaster University in 1989.

She was a founding member, in 1988, of the ID-2 team of the Infectious Diseases Division of the hospital, which introduced more sensitive, holistic care to children with HIV/AIDS. In the era before effective drugs for treating HIV/AIDS, these children would have had little relief from their illness.

In 2000, Dr King was awarded a Fulbright Fellowship and started work at the Centers for Disease Control and Prevention in Atlanta, Georgia, where she researched ways to reduce mother-to-infant transmission of HIV. Three years later, she was appointed Professor of Paediatrics at the University of Toronto and the Hospital for Sick Children.

Professor King was extensively involved in the community aspects of HIV/AIDS care. She was a founding member of the Teresa Group, Canada's oldest community-based charitable organisation serving children affected by HIV/AIDS and their families.

She participated in many workshops teaching healthcare workers about paediatric HIV and the prevention of its transmission to babies.

Susan King received many awards including the Claus Wirsig Humanitarian Award from the Hospital for Sick Children and the Order of St. Lucia Gold Medal of Merit in 2006. Additionally, the Ontario HIV Treatment Network established a permanent lecture series in her honour.

Professor King withdrew from clinical practice after being diagnosed with Amyotrophic Lateral Sclerosis (ALS) in 2002. To her great joy, her colleagues continued the projects she initiated. She passed away on 15th February, 2009.

Susan King advised that, "Many girls are intimidated and do not pursue careers in the sciences. If you like science, whether male or female, you can enjoy a career in the sciences. There is a great variety of careers, even within medicine. Some are technical and some require sociability."

KEYWORDS

AIDS (Acquired Immune Deficiency Syndrome): a collection of symptoms and infections resulting from damage to the immune system - the body's defence against disease. AIDS is caused by the human immuno-deficiency virus (HIV).

AMYOTROPHIC LATERAL SCLEROSIS (ALS): Also known as Lou Gehrig's Disease, this disease affects the muscles attached to the skeleton. People with ALS are afflicted by muscular weakness and over time, suffer from paralysis, loss of speech, loss of swallowing and respiratory failure, though they can still think and feel. ALS is always fatal.

BIOSTATISTICS: the use of statistical methods to collect, analyse and interpret biological data. In a public health context, biostatistical studies are used to understand the overall health and well-being of the population.

EPIDEMIOLOGY: the study of the causes, distribution, and control of disease in populations

HIV (human immunodeficiency virus): a retrovirus spread between sexual partners, by infected needles, and from pregnant mothers to their unborn children. It breaks down the body's defences and later causes AIDS. There are various strains of HIV, for example HIV-1, which is more easily transmitted than HIV-2.

PAEDIATRICIAN: a physician who specialises in the medical care of children

INTERESTING FACT

A long-time enthusiastic runner, while on sabbatical leave in Atlanta, Susan King took up marathon running at age 47!

Photos from top to bottom:

1. *King at age 12, presenting a bouquet to the Queen Mother in St. Lucia*
2. *Susan King, with Rev. Cheryl Palmer, chaplain to the HIV team at the Hospital for Sick Kids*
3. *Running in the 2002 Chicago Marathon*

OBESITY EXPERT

Gaston Pawan

Biochemist

Trinidad and Tobago

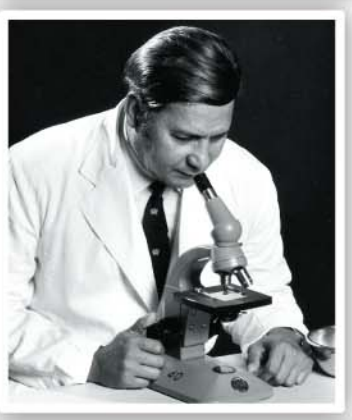
"A brilliant researcher!"
Dr Robert Atkins

An expert on nutrition and metabolism and an outstanding educator, Dr Gaston Pawan was the first to show the biological activity of the hormone aldosterone and study the metabolic response of a patient treated with aldosterone in 1954. He was also first to isolate the Fat Mobilising Substance (FMS) and to show its activity in humans. He studied the first obese human subjects to receive a course of treatment with FMS in 1968. This work was used by Dr Robert Atkins to develop the popular but controversial Atkins Diet.

Gaston Lennox Pawan was born on 2nd January 1921 in Port-of-Spain, Trinidad. The only son of Dr Joseph Lennox Pawan, he was educated at St. Mary's College. He excelled academically and was inspired by his science teacher, Father Leonard Graf. A well-rounded student, he was involved in cricket, boxing and weightlifting. In 1939, he joined the colonial service as a trainee, assisting in food and drugs analysis.

From 1942 to 1944, he saw active war service in the Atlantic convoys. After his ship was torpedoed, he was taken to Liverpool, England, where he pursued higher education. He joined Middlesex Hospital, London in 1948, working as a research assistant while studying part-time at the Middlesex Hospital Medical School and the University of Cambridge. He obtained his Bachelor of Medicine, Bachelor of Surgery (MBBChir) in 1949, and his Bachelor of Science (BSc) in Chemistry, Physiology and Anatomy from the University of London in 1951. His research focused on the investigation of patients with metabolic and nutritional disorders.

In the early 1950s, Pawan became involved in the emerging National Health Service (NHS). For him, this was a time of opportunity, enthusiasm and team building. He was appointed Lecturer and Research Biochemist in the Middlesex Department of Medicine in 1951. The Middlesex Hospital was a centre of excellence in clinical biochemistry and he became a founding member of the Association of Clinical Biochemists in 1953. In 1955, he obtained a Bachelor of Science (BSc) in Special Physiology, and in 1957, was awarded a Doctor of Philosophy (PhD) in Medicine for his thesis Metabolic Studies in Obesity.



Photos from top to bottom:

1. *At Middlesex Hospital*
2. *Pawan at work*
3. *Enjoying a meal with his wife Anne*

Dr Pawan's research explored many aspects of nutrition and metabolism. He has published widely in medical and scientific journals and lectured worldwide. His work is widely used by researchers in the field.

In 1968, he was awarded a Doctor of Science (DSc) from the University of London for his work in the field of human and experimental metabolism. At the university, he was recognised for his teaching in medicine and nutrition. A Chartered Chemist, he was also a fellow of many learned societies and professional institutions.

Dr Gaston Lenox Pawan retired in 1983 but continued to work as an independent consultant until his death on 7th February 2003.

KEYWORDS

ALDOSTERONE: a hormone which regulates chemical processes in the kidneys to retain sodium and water in the body

ATKINS DIET: a low carbohydrate diet involving the consumption of large quantities of protein to cause weight loss

FAT MOBILISING SUBSTANCE (FMS): a substance which, when released in the body, breaks down fat during times of food deprivation or starvation

HORMONE: a chemical substance secreted by the body which acts on a particular organ or type of cell

METABOLISM: the breakdown of complex organic molecules which provides the energy and nutrients needed to sustain life

PHYSIOLOGY: a branch of biology that deals with the study of the physical and biochemical functions and processes of plant and animal life

INTERESTING FACT

While returning home from England during World War II, Pawan's ship was attacked in the Atlantic Ocean and he was one of only three from the crew of 80 to survive.

Theodosius Poon-King

Medical Researcher

Trinidad and Tobago

"In his approach to research, the quality of his work, his thinking and his brilliant communication skills, he was a Caribbean role model." *Professor Henry Fraser*

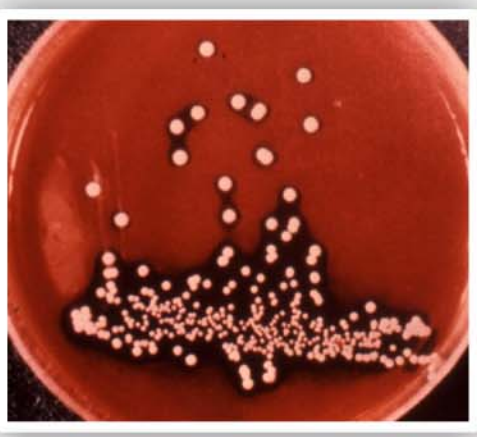
Dr Theodosius Poon-King is credited for his groundbreaking work on diabetes, the eradication of acute nephritis and the reduction of the high incidence of rheumatic fever in Trinidad. He received several honours for his world-famous research, including Trinidad and Tobago's Chaconia Medal (Gold) in 1975.

Theodosius Poon-King was born on 4th January, 1928 in Biche, Trinidad. He attended Biche Canadian Mission School and Arouca Boys' RC School, and then St. Mary's College, where he excelled in languages and history. In his first year, he studied by lamplight before electricity came to his village. His dedication paid off when he won a House Scholarship in 1942, the Jerningham Book Prize in Classics in 1945 and the Trinidad Open Scholarship in Classics in 1946.

He entered medical school at University College Dublin (now known as the National University of Ireland) and graduated with first class honours in 1953, winning three gold medals. Poon-King later completed a bachelor's degree in pathology and physiology in 1955. He did postgraduate training in cardiology at Harvard Medical School in Massachusetts, USA, working with the research group in the Arteriosclerosis Unit of the Massachusetts General Hospital that identified four new risk factors for coronary heart disease. He continued his postgraduate training in endocrinology as House Physician at the Royal Postgraduate Medical School, London where he developed a passion for research.

In 1958, he took up the post of Specialist Physician at the San Fernando General Hospital. He discovered that scorpion stings caused inflammation of the heart muscle and published the report in the *British Medical Journal*. In 1960, he undertook an extensive study on diabetes in Trinidad, which revealed a very high incidence of the disease in the population and noted heredity, obesity and multiparity as key risk factors. These findings were reported in the prestigious medical journal, *The Lancet*, in 1968.

Dr Poon-King established the Streptococcal Disease Unit at the San Fernando General Hospital in 1966, to investigate and control the epidemics of acute nephritis and the high incidence of rheumatic fever in south Trinidad. With his co-researchers, he discovered four new types of streptococci



during epidemics from 1965 to 1971, and published many papers on streptococcal diseases. Today, the Unit's research and control measures have virtually eliminated these diseases from south Trinidad.

In 1974, Dr Poon-King pioneered research on paraquat poisoning with Dr Rasheed Rahaman and Dr Edward Addo and, in 1986, published a new treatment regime in *The Lancet*. He also studied yellow fever and identified the first person with the virus in an outbreak in 1977.

Dr Theodosius Poon-King retains his humility, saying that he has always seen research as a part of his work in medicine. To young persons, he offers four watchwords - "self-discipline, enthusiasm, willpower and hard work," noting that, "to become successful, one should always develop a passion to work."

KEYWORDS

CARDIOLOGY: the study of disorders of the heart

CLASSICS: the study of the classical subjects of western civilisation, such as Latin and Greek language, literature and history

ENDOCRINOLOGY: the branch of biology dealing with the functions, processes and disorders of glands and hormones

MULTIPARITY: the condition of having more than one child

NEPHRITIS: inflammation of the kidneys caused by infection

PARAQUAT: also known as gramoxone, a weed-killer commonly ingested to commit suicide

PATHOLOGY: the scientific study of the origins, processes, causes, and effects of disease

STREPTOCOCCI: a group of bacteria that causes infection of the throat, skin, heart and/or kidneys

INTERESTING FACT

When told that their son had difficulty learning the alphabet, his mother advised that he should be promoted and his father responded that, one day, his little Ming Whi would become a doctor.

Photos from top to bottom:

1. *Poon-King (standing) at San Fernando General Hospital*
2. *Streptococci bacterial culture in a petri dish*
3. *On average, the human heart beats 72 times per minute and will beat approximately 2.5 billion times during a lifetime (about 66 years).*

WORLD-CLASS KIDNEY SURGEON

Lall Sawh

Urologist

Trinidad and Tobago

"Balance your life with sport, art, music and the classics, and never become too conceited…"
Dr Lall Sawh

Dr Lall Sawh is a urologist who is well known throughout the Caribbean and the world for his research and surgical innovations. He introduced to Trinidad and Tobago "buttonhole surgery", a procedure by which a small cut is made when performing kidney surgery. He was also the first doctor in the Caribbean to perform a kidney transplant from a live person.

Lall Ramnath Sawh was born on 1st June, 1951 in Couva, Trinidad. His parents were humble shopkeepers and he helped them sell produce at their shop and in the market. Despite his time-consuming home duties, Sawh still managed to focus on his schoolwork. Without the money to buy copybooks, he went to school and took notes on brown paper bags. He excelled in his examinations and obtained a place at Naparima College where he became Head Boy at the tender age of 16.

His performance at secondary school earned him a place at the School of Medical Sciences at The University of the West Indies (UWI), Mona, Jamaica. With financial help, he was able to complete his studies at the top of the class. He was awarded a Commonwealth Scholarship and ventured to Scotland in 1977 to train as a surgeon at the Royal College of Surgeons of Edinburgh. The gifted surgeon became interested in urology and his outstanding work led to a fellowship in 1985 at the esteemed Mayo Clinic in Minnesota, USA.

Returning to serve his homeland after completing his medical studies, Sawh was one of only three urologists in Trinidad and Tobago. Through research and experimentation, he introduced to the Caribbean many new surgical procedures such as "buttonhole surgery" and kidney transplantation. He was the first person in Trinidad and Tobago to perform a bloodless type of surgery called renal hypothermic surgery, where the kidney's temperature is lowered to eliminate bleeding. Dr Sawh also introduced the lithotripter, a device for removing kidney stones without surgery. He also made history as the first surgeon in the Caribbean to construct a penis for a boy who was born without one.

In 1993, Dr Sawh was awarded the Chaconia Medal (Gold) from the Republic of Trinidad and Tobago for his medical work. Only 43 at that time, he made history as the youngest ever awardee in the field of medicine.

Dr Lall Sawh currently lectures part-time at the Faculty of Medical Sciences, UWI, St. Augustine, and is one of its examiners. When he is not working, he enjoys playing lawn tennis. He advises students that, "Study starts with a disciplined approach to everything and a commitment to serving your fellowman." He adds, "Aim to be at the top of your profession and dedicate your life to that."

KEYWORDS

BUTTONHOLE SURGERY: a procedure making a small cut of approximately 2.5 cm in diameter (1 inch) to remove kidney stones or to examine the kidney

KIDNEY: one of a pair of organs that filters waste from the blood and produces urine

KIDNEY STONE: small solid masses of minerals and acid salts that collect in the kidney and obstruct the passage of urine

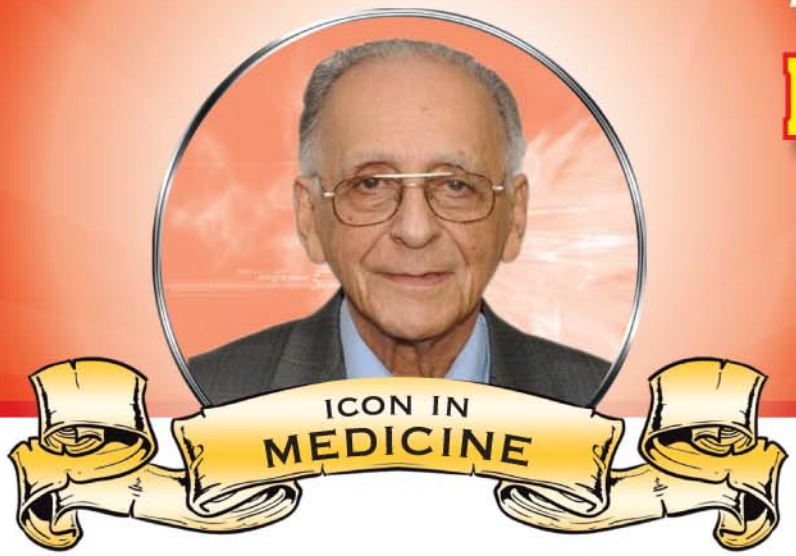
UROLOGY: the study of the organs of the urinary tract and male reproductive system

INTERESTING FACT

Dr Sawh is known as the "bow tie doctor" because he prefers them to traditional long ties.

Photos from top to bottom:

1. *Dr Lall Sawh (right) was also a teacher to his son, Dr Sean Sawh*
2. *Receiving an award in 1988 from Dr Romesh Mootoo for performing the first kidney transplant in Trinidad and Tobago*
3. *The kidneys are two bean-shaped organs, about 4 inches (10 cm) long and about 2.5 inches (6.4 cm) wide.*



THE VIRUS HUNTER

Leslie Spence

Virologist

St. Vincent and the Grenadines

"Viruses are responsible for many human illnesses, and new viruses and viral diseases are being discovered every year."
Professor Leslie Spence

Professor Emeritus Leslie Spence played a critical role in controlling the spread of viral diseases in Trinidad and Tobago. His pioneering research included the discovery of 11 viruses previously unknown to science. He also served as Director of the Trinidad Regional Virus Laboratory (TRVL), which has since been succeeded by the Caribbean Epidemiology Centre (CAREC).

Leslie Spence was born in St. Vincent on 16th August, 1922. He attended St. Vincent Grammar School and later, St. Mary's College in Trinidad. He studied medicine at Bristol University and, after graduation, took up training in tropical medicine. In 1951, he joined the Trinidad Medical Service and worked at local hospitals. He continued his studies in virology and bacteriology in the United States and England. In 1954, he started his career in virology at the TRVL, studying viruses and the diseases they cause.

At the TRVL, Dr Spence and his team of scientists identified a patient with yellow fever in Trinidad in 1954 – the first such diagnosis in 40 years. His quick response led to his employment by the government to implement control measures which prevented a deadly outbreak of this disease. Similarly, his detection of a polio outbreak in Guyana in 1962 led to the implementation of control measures in Trinidad and Tobago, which successfully prevented cases of polio from occurring in the two islands. Spence also investigated the influenza pandemic that affected Trinidad in 1957.

His most outstanding work was the discovery of the 11 viruses which were given indigenous names:- Mayaro, Oropouche, Bush Bush, Tacaribe, Bimiti, Lelao, Triniti, Nepuyo, Aruac, Ieri and Lukuni. He also confirmed the presence in Trinidad of several viruses that cause human diseases.

From 1962 to 1968, Dr Spence served as Director of the TRVL. During this time, the Laboratory became part of the Department of Microbiology at The University of the West Indies (UWI), St. Augustine, Trinidad. He served as Senior Lecturer in Microbiology at UWI and was subsequently appointed Personal Chair of Virology.

Six years later, Dr Spence moved to Montreal, Canada where he became Professor of Microbiology at McGill University. He later relocated to Toronto where he became Chairman of the Department of Microbiology of the University of Toronto and Head of the Microbiology Department of the Toronto General Hospital. He was an outstanding educator and was made Professor Emeritus in 1988 by the University of Toronto.

Professor Spence advises students that, "Medical virology is an interesting and worthwhile career. There is a world-wide shortage of medical virologists and there are great opportunities for anyone entering this field of work."

KEYWORDS

INFLUENZA: the "flu" virus, which causes high temperature, sore throat, runny nose, headache, dry cough and muscle pain

MICROBIOLOGY: the study of living things so small that they can only be seen using a microscope. These include bacteria, yeasts and moulds.

PANDEMIC: a global outbreak of any disease. Pandemics spread quickly and easily and infect many people at one time.

POLIO: a viral disease that can result in deformity and the loss of movement in the legs

PROFESSOR EMERITUS: an honorary position given to a distinguished retired professor who continues to teach

VIROLOGY: the study of viruses and the diseases they cause

INTERESTING FACT

Three of the viruses discovered by Professor Leslie Spence were especially significant to science: the Mayaro virus, which other researchers had mistaken for dengue in the past; the Oropouche virus that is considered to be one of the most important viruses of its type; and the Tacaribe virus, the discovery of which changed the way scientists classified that family of viruses.

Photos from top to bottom:

1. *Spence with his family*
2. *Spence at work in his laboratory at the University of Toronto*
3. *The Mayaro virus is spread by Haemagogus mosquito*

MASTER BRAIN SURGEON

Paul Steinbok

Neurosurgeon

Barbados

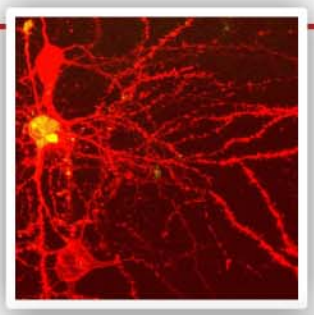
"I have been very fortunate. As part of my work, I help others, [and] save lives. This is a privilege granted to few."
Professor Paul Steinbok

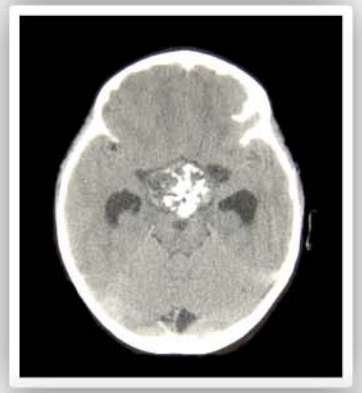
Professor Paul Steinbok is considered a world leader in the field of paediatric neurosurgery and has been listed in the *International Directory of Distinguished Leadership* and the *Best Doctors in North America*. He has lectured on medicine, neurology and paediatric neurosurgery in many countries, both developed and developing.

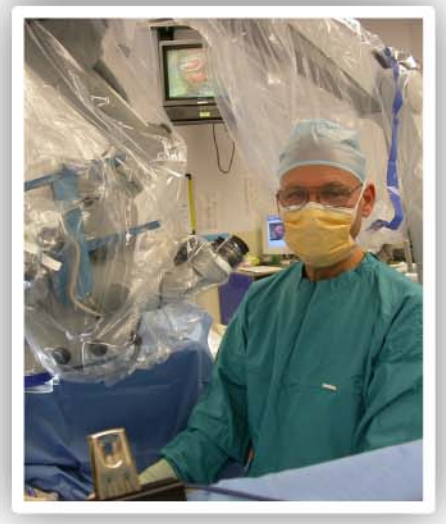
Paul Steinbok was born on 6th October, 1947 in St. Lawrence, Barbados, spending his childhood in Palm Beach. His parents, who were immigrants from Poland, ensured that their son always had company and was well looked after. They encouraged him to pursue medicine and, after he earned both a University of the West Indies (UWI) scholarship and the Barbados Scholarship at the age of 17, he began studying medicine at UWI, Mona, Jamaica. He left for England after accepting a one-year scholarship from the British Overseas Development Ministry to complete a Bachelor of Science (BSc) in Physiology at the University of Newcastle upon Tyne. After graduating in 1968, he returned to his studies in Jamaica and earned his medical degree in 1971.

Dr Steinbok specialised in neurosurgery because of his interest in research and his fascination with the functioning of the brain. He did his neurosurgical training in Vancouver, Canada where he was taught the importance of listening to and empathising with patients, in addition to giving one's best effort in surgery. In 1979, after spending a year at the University of North Carolina, Chapel Hill, USA on a brain tumour research fellowship, he returned to Canada intending to specialise in brain tumours in adults, but grew to love paediatric neurosurgery instead. In 1984, he was appointed head of neurosurgery at the British Columbia Children's Hospital and he gave up his adult practice.

Internationally recognised as an expert in the treatment of children with spastic cerebral palsy, he was the first Canadian surgeon to perform the only surgical procedure that can permanently cure the limb stiffness associated with cerebral palsy. He is also recognised for his pioneering research in treating craniopharyngioma tumours. With the help of Dr Douglas Cochrane, Dr Steinbok found ways to reduce the amount of blood needed for neurosurgery.







Dr Steinbok has taken a major interest in the education of paediatric neurosurgeons around the world. He has been Professor of Neurosurgery at the University of British Columbia since 1996. He helped introduce the use of endoscopes in neurosurgery at the University Hospital of the West Indies in Jamaica and has assisted Caribbean neurosurgeons with complex paediatric neurosurgical cases.

Professor Paul Steinbok attributes his success to the principles by which he leads his life. He recommends, "Always try to do your best. Be trustworthy. Treat your fellow human being with respect. Be honest to yourself and do nothing to undermine your personal values."

KEYWORDS

CEREBRAL PALSY: a disorder involving brain damage, which limits the movement of legs, arms or an entire side of the body. Spastic cerebral palsy is the most common type of cerebral palsy.

CRANIOPHARYNGIOMA: rare brain tumours that affect eyesight and hormone levels in children

ENDOSCOPY: a medical procedure that uses a viewing instrument called an endoscope to observe organs within the body with minimal injury

PAEDIATRIC: related to the treatment of children. Paediatric specialists are called paediatricians.

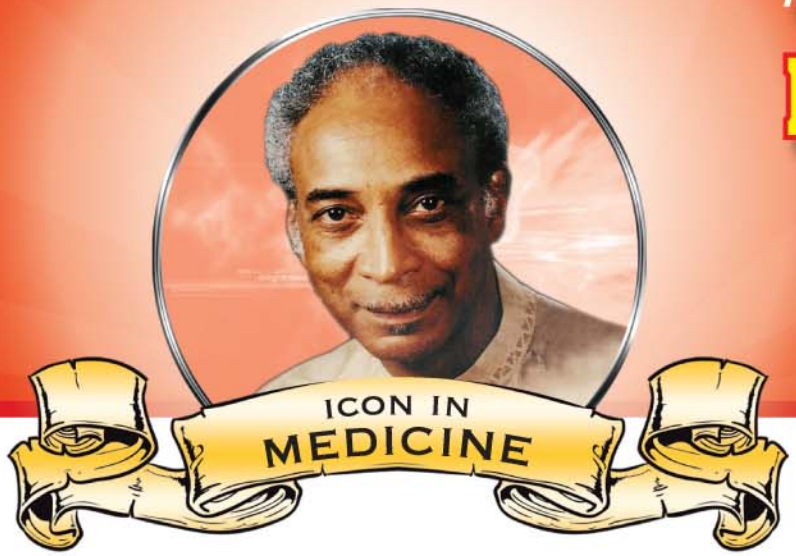
TUMOUR: a mass of cells that divide endlessly. Cancers are tumours that spread throughout the body and interrupt normal body functions.

INTERESTING FACT

Paul Steinbok entered school at the age of three and completed his primary schooling when he was seven. He completed his O' Level Examinations at the age of 13!

Photos from top to bottom:

1. *Neurons (nerve cells) make up the nervous system, which transmits information between the brain and the rest of the body.*
2. *CAT Scan of a human brain with a craniopharyngioma tumour (white area in centre)*
3. *Steinbok in the operating theatre*



MEDICAL EDUCATOR EXTRAORDINAIRE

Errol Walrond

General Surgeon

Barbados

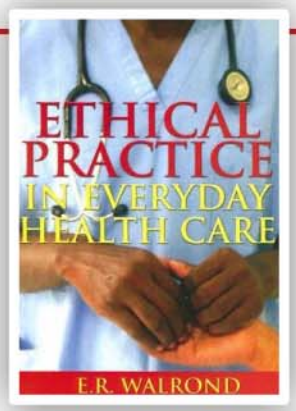
"To give is to receive – if you give of your best in whatever you do, your reward will come."
Professor Emeritus Errol Walrond

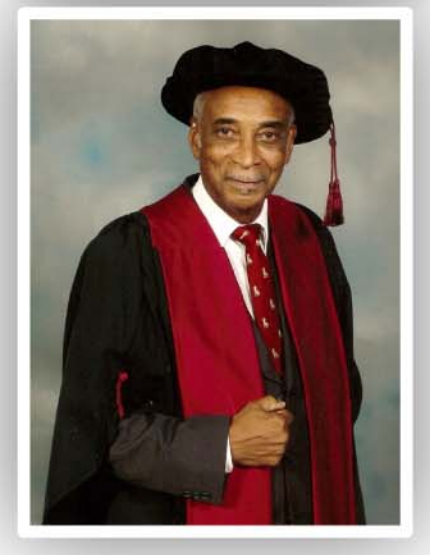
Professor Emeritus Errol Walrond began his medical career when there were few trained surgeons in Barbados. He practised general, chest and heart surgery and spent 45 years contributing to the progress of medicine in Barbados, writing over 100 publications on medical research, health policies and services, and medical ethics.

Errol Walrond, fondly known as Mickey, was born in Bridgetown, Barbados on 19th March, 1936. He attended Wesley Hall Primary School and Harrison College where he earned a Barbados Scholarship, with which he entered Guy's Hospital Medical School in England. In his final year, the funding was cut. He had successfully completed his Bachelor of Science (BSc) in Anatomy by that time, so he supported himself by working while studying. He completed his medical degree in 1961 and became a Fellow of the Royal College of Surgeons in 1964.

Dr Walrond returned to Barbados in 1965 as a Senior Surgical Registrar at the Queen Elizabeth Hospital and became a lecturer at The University of the West Indies (UWI), Mona, Jamaica in 1968. He returned to Barbados in 1974 and became a professor in 1977. Over a period of 25 years, he served as Vice Dean and Dean of the Faculty of Medicine at UWI, Cave Hill, Barbados. He expanded and improved the Faculty's programmes. He extended the clerkship programme, allowing the entry of students from other UWI campuses into the programme, and providing more alternatives for students choosing elective courses. Graduates were also given more options for residency training in the hospitals and the Cave Hill Campus became the only UWI campus that trained doctors in emergency medicine for many years.

Professor Walrond was the first Chairman of the National Advisory Committee on AIDS in Barbados and served from 1987 to 1994. During this time, an HIV/AIDS information centre, a telephone hotline and an HIV/AIDS management team were established. His strategy to combat the spread of the virus used television, newspapers and radio to educate the public about the spread and impact of the disease.





In 2001, Professor Walrond retired and was given the title of Professor Emeritus. He became the Founding President of the Caribbean College of Surgeons, which seeks to set standards for surgeons in the practice of surgery and surgical education. In 2004, he served as the Chairman of the newly formed Caribbean Accreditation Authority for Education in Medicine and the Other Health Professions. In 2005, he released a book entitled Ethical Practice in Everyday Health Care.

He advises students to, "Make the best of what you have. It is you who make the place you live what you want it to be. Never let problems overwhelm you."

KEYWORDS

CLERKSHIP: a course of clinical medical training in specialties such as paediatrics, internal medicine or psychiatry

HIV (human immunodeficiency virus): a retrovirus spread between sexual partners, by infected needles, and from pregnant mothers to their unborn children. It breaks down the body's defences and later causes AIDS. There are various strains of HIV, for example HIV-1, which is more easily transmitted than HIV-2.

MEDICAL ETHICS: the study of the rights and duties of doctors and patients, and everyone involved in or affected by this relationship

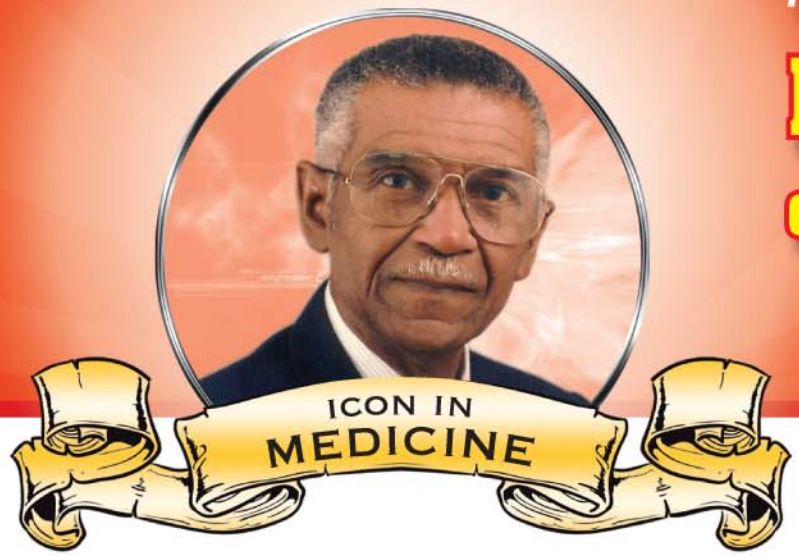
PROFESSOR EMERITUS: an honorary position given to a distinguished retired professor who continues to teach

INTERESTING FACT

Errol Walrond's father, Arthur served in World War II in the Barbados Second Contingent of the RAF alongside Errol Walton Barrow, who later became Barbados' first Prime Minister. Sadly, his dad was killed in combat. In 2008, a stamp was released to commemorate the Contingent.

Photos from top to bottom:

1. *The cover of Walrond's acclaimed book*
2. *Walrond with patient whose life he saved as a baby*
3. *In 2008, Walrond was made an Honorary Fellow of the Royal College of Surgeons of England (FRCS).*



FATHER OF CARIBBEAN FAMILY PLANNING

Hugh Wynter

Obstetrician and Gynaecologist

Jamaica

"Dr Wynter is regarded as one of the most creative and dedicated leaders in the field of family planning in the Caribbean. His clarity of vision and his influence have helped shape the provision of family planning and reproductive health services in the entire region." *Louise Frechette*

Professor Emeritus Hugh Wynter has been a pioneer in Caribbean family planning. Over his 40-year career, his research, practical expertise and contribution to medical education have significantly reduced Jamaica's infant death rate and population growth, and earned him the 1998 United Nations Population Award.

Hugh Hastings Wynter was born on 5th February 1933 in Spanish Town, Jamaica. His father, who paid his way through medical school in the United States during the 1920s, was one of the first Jamaican doctors. Young Wynter pursued the sciences at Wolmer's Boys School in order to study medicine, following in the footsteps of his father, aunt and cousins.

In 1958, he completed his medical degree at the University College of the West Indies (UCWI) - later renamed The University of the West Indies (UWI) - in Mona, Jamaica. He specialised in obstetrics and gynaecology at the University College Hospital of the West Indies before travelling to London, England to complete his postgraduate training at Hammersmith Hospital. He returned to Jamaica in 1965, having served as Senior House Officer and Registrar at both hospitals.

Dr Wynter immediately began lecturing at the Department of Obstetrics and Gynaecology at UWI, Mona, becoming Professor in 1974. He was a Founding Fellow of the West Indian Section of the American College of Obstetricians and Gynaecologists in 1972 and was Head of the Department for 11 years.

Professor Wynter's research has included studies on birth defects and diseases in newborns, and the effects of pregnancy and surgery on women. He has authored or contributed to seven books. He is an internationally recognised expert in female fertility management and the use of the culdoscope. Because of the high quality of his work, he was supported by the United Nations and the Federal Government of Germany for over 17 years.

In 1979, Dr Wynter founded the Advanced Training and Research in Fertility Management Programme at UWI, Mona, serving as its director for 24 years. Since its inception, more than 4,000 doctors, nurses, educators and social workers have been trained in reproductive healthcare. He spent nine years co-ordinating a distance learning programme that allowed fertility experts from Johns Hopkins University to educate people in Jamaica. Since then, he has been active in public education on family planning.

Professor Hugh Wynter retired as Director of the Fertility Management Unit on 31st October 2006, and was granted the title of Professor Emeritus. He lives by the belief that, "The root of happiness grows deepest in the soil of service."

KEYWORDS

CULDOSCOPE: an instrument used by surgeons to observe the internal organs of the female reproductive system

FAMILY PLANNING: controlling the number of children that a couple will have, using various methods like drugs and surgery

FERTILITY: the ability to have children. The term "fertility management" refers to certain family planning methods which affect fertility.

PROFESSOR EMERITUS: an honorary position given to a distinguished retired professor who continues to teach

INTERESTING FACT

Professor Hugh Wynter is married to Professor Dorothy King-Wynter, a former classmate of his and the first female graduate of the UCWI to attain professorial status. They have three children. Two are doctors and one is a captain with Air Jamaica.

Photos from top to bottom:

1. *The Advanced Training and Research in Fertility Management Unit at UWI, Mona was renamed in honour of its first director on July 17, 2008.*
2. *Professor Wynter, looking at camera, in UWI Mona's 1995 graduation ceremony*
3. *The culdoscope is a variant of the endoscope. Endoscopes allows surgeons to examine the insides of the body using small incisions, and causing minimal pain.*

CRUSADER FOR TROPICAL WETLANDS

Peter Bacon

Wetland Ecologist

Trinidad and Tobago

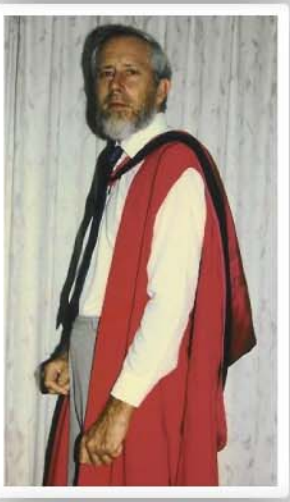
"[Peter Bacon is] Trinidad's most prominent academic marine turtle expert."
Suzanne Livingstone and Roger Downie

Professor Peter Bacon was a well-known, certified Professional Wetland Scientist whose knowledge of coastal and wetland ecology was highly valued, both locally and internationally. He was also a dedicated educator for over 30 years at The University of the West Indies (UWI), where he trained many young scientists.

Peter Robin Bacon was born on 17th April, 1938 in Reading, England. He attended the Maldon Grammar School and, after completing secondary school, he obtained his first job at the Museum of Natural History in London. While working at the museum, he became interested in zoology. He enrolled at the University of London and was awarded a Bachelor of Science (BSc) in Entomology in 1961 and, a year later, a Postgraduate Certificate in Education. In 1963, he migrated to Trinidad and Tobago, where he taught at the secondary level while studying for his Doctor of Philosophy (PhD) at UWI. Bacon's seminal work on the ecology of the Caroni Swamp constituted his PhD thesis and, in 1969, he was the first PhD graduate in zoology from UWI's St. Augustine Campus.

He lectured in zoology at UWI, St. Augustine from 1970 to 1980 and at Mona from 1982 to 1993. He returned to St. Augustine in 1993 to serve as Professor and Head of the Department of Life Sciences. He was instrumental in improving postgraduate facilities and initiated the Science for the Management of Tropical Environments programme, the first Master of Science in environmental studies at the Faculty of Natural Sciences.

At St. Augustine, Professor Bacon continued his research on the ecology of coastal wetlands and invertebrates, developmental impact assessment in tropical islands, and the management and protection of Caribbean wetland environments. He supervised research on the Caroni and Nariva Swamps in Trinidad and important wetland areas in Tobago. He also studied the biology and conservation of leatherback turtles in the 1970s and 1980s which resulted in several publications.



Professor Bacon worked with many local and international boards and committees that promoted conservation and preservation. Such groups included the International Union for the Conservation of Nature, the Wildlife Conservation Committee and the International Wetland Research Bureau. He was a member of a United Nations team that researched the effect of climate change on mangroves. In 1994, Professor Bacon set up the Wetland Research Group, which conducts research on the ecology and management of wetlands in Trinidad and Tobago.

During his life, he wrote many scientific papers, manuals and books including *The Natural Resources of Trinidad and Tobago* and *Flora and Fauna of the Caribbean*.

Professor Peter Bacon died on 24th February, 2003. In his honour, the postgraduate laboratory at the Faculty of Natural Sciences at UWI, St. Augustine was named the Peter R Bacon Postgraduate Laboratory.

KEYWORDS

DEVELOPMENTAL IMPACT ASSESSMENT: research and investigation into how businesses, industries and housing areas affect nature and the environment

ECOLOGY: the scientific study of the location, number and relationships between living organisms in an environment

WETLAND: an area located between a terrestrial and aquatic environment that is periodically waterlogged such as a mangrove swamp, bog or marsh. Wetlands provide a safe environment for many different species of fish, shellfish, insects and birds.

ZOOLOGY: the study of animal life

INTERESTING FACT

Professor Bacon, with the help of his wife Tyra, wrote *The Devil Birds*, a book of nature conservation stories for children, published in 1980.

Photos from top to bottom:

1. *The leatherback turtle is the largest of all living sea turtles*
2. *Bacon at UWI's graduation ceremony in 1991*
3. *The Caroni Swamp is the biggest wetland in Trinidad and Tobago and home to the Scarlet Ibis.*

Basil Burke

Natural Products Chemist

Jamaica

"[My] love and hope lie in the potential of the Caribbean's botanical biodiversity to provide substances from nature that will benefit mankind."
Dr Basil Burke

Dr Basil Burke has spent most of his professional life in research. He is highly respected for his expertise in and contribution to natural products chemistry, technology and teaching in Jamaica and the United States.

Basil Burke was born in St. Andrew, Jamaica on 12th November, 1943. He attended St. Aloysius Boys' School and Greenwich Town Primary. While he was at St. George's College, his father passed away but he excelled, guided by his mother. He was Vice President of the Science Society of St. George's College and captain of the cricket team. When he entered Form Six, he became the college's first student teaching assistant, assisting Father Lawrence O'Toole in teaching chemistry.

At The University of the West Indies (UWI) in Mona, Jamaica, Burke excelled academically and was active in campus life. He graduated in chemistry with honours and pursued his doctorate under Professor Wilfred Chan. In 1970, he married Hortense Guthrie, and together they departed for Canada. Burke taught at the University of British Columbia and experimented on P310, a substance believed to help fungi survive and grow in the dark. This information had implications important to agriculture in places with little sunlight.

In 1972, Burke returned to Jamaica where he lectured in the chemistry department at UWI, Mona. Over the next decade, he introduced advanced technology, isolated and analysed new natural products. His findings added to the scientific understanding of Caribbean plants, including various pepper and citrus plants. He became a Senior Fullbright Fellow to Stanford University and was also awarded the Jamaica Centennial Medal.

In 1982, Dr Burke joined Plant Cell Research Institute in California, where he directed and pioneered new research technologies and chemical discoveries with potential uses in medicine and agriculture. Among these were patented natural glucolipids, which repel insects on crops.

His team modified the characteristics of a number of crops, among them high solids tomatoes to make them easier to transport, and high sulphur protein soybeans and canola to make the constituents more nutritious as animal feed. He also spearheaded research leading to discoveries in allelopathy.

In 1991, Dr Burke became President and Chief Executive Officer (CEO) of Plant Research Technologies. Under his seven-year leadership, the company underwent significant improvements servicing the pharmaceutical and agrochemical industries. He co-founded Clinimetrics Biomedical, a division of Clinimetrics Research Associates. He later became Vice President of Theranos, a company that develops tools to evaluate patients' ailments at home and transmit the results to doctors electronically.

Dr Burke retains close ties to the Caribbean, is an active member of the Caribbean diaspora in North America, and most recently, became CEO of UWI Consulting, a spin-off of UWI dedicated to harnessing its intellectual potential to serve the region. He advises the scientists of tomorrow that, "The coin of life has two sides – adversity and achievement – yet its value is not diminished by which side is currently facing up."

KEYWORDS

ALLELOPATHY: the study of how plants protect and defend themselves from other plants, insects and disease-causing agents

FUNGUS (plural fungi): an organism that resembles a plant and grows on living or dead organic matter. Mushrooms and yeasts are fungi. Some fungi cause diseases in humans and animals.

GLUCOLIPID: a chemical compound with molecules that can be broken down to yield the sugar glucose. Glucolipids are found on the outer surfaces of cells and may provide energy or serve as identifying markers.

NATURAL PRODUCTS: chemical substances that are extracted from plants or animals, which have uses in science, especially in medicine

THERAPEUTICS: treatment and care to combat disease and alleviate injury

INTERESTING FACT

Basil Burke won three scholarships to attend university, including one to McGill University in Canada. However, he chose to attend UWI, Mona in order to be a support to his mother.

Photos from top to bottom:

1. *In his office*
2. *A peach with "brown rot", a disease caused by Monilinia fructicola, the fungus from which the P310 chemical compound was first isolated*
3. *Burke (left) at 1966 graduation, shaking hands with Princess Alice, Chancellor of UWI*

PIONEERING RESEARCH IN NATURAL PRODUCTS

Wilfred Chan

Natural Products Chemist

Guyana

"He was internationally recognised and was considered the leading organic research chemist in the English-speaking Caribbean from the mid-60s to the mid-80s. Just about every natural products chemist at UWI across the region and outside can trace his/her lineage to Professor Chan." Professor Anderson Maxwell

Professor Emeritus Wilfred Chan was a founder of the Natural Products Chemistry programme at The University of the West Indies (UWI). He was the first scientist in Trinidad and Tobago to do research on natural products extracted from marine organisms. He taught at UWI in Jamaica and Trinidad for over 40 years and also briefly in Canada and Venezuela.

Wilfred Chan was born in New Amsterdam, Guyana on 26th April, 1931. He attended Rosignol Government School, and like many Guyanese people, his morning journeys were long trips that involved both cycling and transportation by ferry. When he was eight, he and his brother contracted typhoid fever. However, he still passed his exams that year and he went on to Berbice High School and later, Queen's College, where he earned a scholarship to university.

He did his undergraduate and doctoral degrees at the University College of the West Indies (UCWI - later renamed UWI) in Mona, Jamaica. He then joined the university as a Lecturer in chemistry and rose through the ranks over the years that followed. During his time at UWI, Chan became Professor and served as the dean of natural sciences and the head of the chemistry department. He was a dedicated educator who mentored and inspired many Caribbean chemists.

Professor Chan's research centred mostly on products extracted from Caribbean plants and animals. He studied how chemicals obtained from sea sponges can treat the fungus that causes the disease, Candidiasis. His studies on land plants in the Caribbean sparked much interest in these plants among researchers who had never studied them before, leading to many discoveries in later years.

Professor Chan was a founder of the Caribbean Chemical Conference and the Mona Symposium on Natural Products and Medicinal Chemistry. In 1992, the symposium was dedicated to him. Since 2000, the Wilfred Chan Award has been given to the student with the best academic performance in Organic Chemistry at the Part II level of the bachelor's degree in chemistry.

Although Professor Wilfred Chan retired from UWI in 1996, gaining the title of Professor Emeritus in the same year, he remained active in teaching and served the Caribbean Academy of Sciences as President from 1998 to 2002.

Professor Chan advises aspiring scientists that, "All things have their place in nature. Make your life's work to learn and understand as much as possible. Read widely and as much as you can."

KEYWORDS

CANDIDIASIS: a infection of one of several fungi, commonly called 'thrush' or 'yeast infection'. Depending on the fungus involved, Candidiasis can be manifested in different ways, from superficial discomforts involving irritating and redness, to life-threatening infections of the throat or blood.

FUNGUS (plural fungi): an organism that resembles a plant and grows on living or dead organic matter. Mushrooms and yeasts are fungi. Some fungi cause diseases in humans and animals.

NATURAL PRODUCTS CHEMISTRY: the study of substances produced by chemical reactions inside of plants and animals, which may be used by humans

ORGANIC CHEMISTRY: the study of chemical substances with molecules that are made up mostly of carbon atoms

SEA SPONGE: a sea animal that resembles a plant. The household items that we call sponges were once made from these animals.

INTERESTING FACT

Professor Chan had an impressive academic career. He completed his first degree in two years and in 1957, he became the first UCWI student to complete a doctorate at the university.

Photos from top to bottom:

1. *Chan (right) receiving Jamaica's Order of Distinction (Commander Class) from Governor -General Howard Cooke, 2000*
2. *A tube sponge, one of the most common sea sponges in the ocean*
3. *As a young researcher*

Francis Cope

Botanist

Trinidad and Tobago

"He was an intelligent, quiet man with a good sense of humour, willing to help others…a dedicated teacher with a love for classical music…"
Dr Margaret Goodhead

Professor Emeritus Francis Cope is noted for his groundbreaking work in the 1950s on the breeding of cocoa plants and for his training of cocoa planters throughout the Caribbean. His discoveries led to improved breeding techniques, which increased crop yields and helped to advance the cocoa industry worldwide.

Francis William Cope was born on 15th August, 1913 in Portsmouth, England. He attended Drayton Road Primary School and later the Boys' Northern Secondary School where he developed his love for science. He obtained a Bachelor of Science (BSc) (General) at the Municipal College in Portsmouth in 1934 and, after being granted a Royal Scholarship, he completed a second Bachelor of Science (BSc) (Special) in geology and botany at the Royal College of Science and Technology, University of London in 1936. He was awarded his Master of Science (MSc) in Botany from the University of London in 1945 and represented the Caribbean at the world's first Cocoa Conference in London that same year.

Cope started his career in 1936 as a junior botanist for cocoa research at the Imperial College of Tropical Agriculture (ICTA) in Trinidad, a centre of excellence at that time for agricultural training and research. There, he developed an interest in understanding the reproduction of cocoa plants, the topic of his master's thesis. These plants reproduce by both self-pollination and cross-pollination. From many years of research on specimens collected from cocoa-producing countries, Cope discovered that self-compatible trees are able to self-pollinate successfully, whereas self-incompatible ones do not; he discovered that they produce fewer cocoa pods. This discovery eventually led to the interbreeding of different cocoa plants to produce higher yields and superior tasting cocoa.

In the 1940s, Cope helped to develop Grenada's cocoa industry and, in the position of Caribbean Agronomist to the Windward Islands, he was responsible for research on cocoa breeding and the training of cocoa plant breeders in the region.

For his decisive work on cocoa from the 1930s to the 1950s and his research on other tropical crops, Cope was awarded a doctorate in 1959 by the University of London. He then taught at The University of the West Indies (UWI) at St. Augustine, Trinidad where he edited the *Tropical Agriculture* journal for many years. He was appointed Professor of Botany by UWI and was the first Head of the Department of Biological Sciences. When he retired in 1973, he was given the title of Professor Emeritus.

Professor Emeritus Francis Cope eventually returned to England in 1984 where he lived until his death on 23rd February, 2004. He lived by the motto, "Diligence and honesty bring their rewards."

KEYWORDS

AGRONOMIST: a scientist who studies soil management and crop production, and develops methods to increase crop yields and promote the efficient use of crop lands

BOTANIST: a person who studies plant life (botany)

PROFESSOR EMERITUS: an honorary position given to a distinguished retired professor who continues to teach

INTERESTING FACT

Professor Francis Cope explored the Amazon Rainforest for two years collecting wild cocoa pods for his research.

Photos from top to bottom:

1. *The UWI Administration building formerly housed ICTA*
2. *Cocoa pods and fresh beans with pulp*
3. *Dried cocoa beans for making cocoa powder and chocolate*

NOBEL PRIZE NOMINEE IN CHEMISTRY

Bertram Fraser-Reid

Organic Chemist

Jamaica

"Being challenged and rising to new heights - that's what chemistry is all about."
Dr Bertram Fraser-Reid

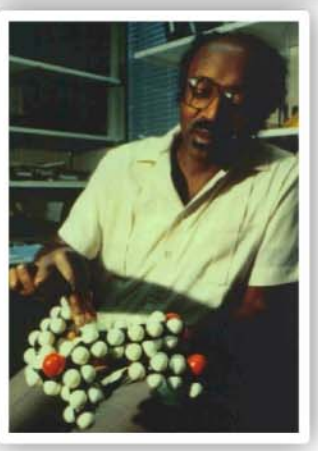
In 1998, Dr Bertram Fraser-Reid became the only Jamaican to be nominated for a Nobel Prize in Chemistry. He contributed to over 300 research publications during his career, and did important research on the energy-supplying substances that are called complex carbohydrates. He found that they could be used to make many types of chemicals, paints, medicines and plastics.

Bertram Fraser-Reid was born on 23rd February 1934 in Bryce, Jamaica. He attended Excelsior School and then Clarendon College. An average student who saw no real reason to apply himself, he found his calling when he bought the book *Teach Yourself Chemistry*. He received assistance from his siblings and a family friend to study at Queen's University in Canada, where he completed both his bachelor's and master's degree in chemistry. After completing his Doctor of Philosophy (PhD) in Chemistry at the University of Alberta, he left Canada to pursue advanced laboratory training at the University of London, England.

Dr Fraser-Reid returned to Canada to start work on carbohydrate research. His studies focused on using carbohydrates to make complex materials such as plastics. He also discovered how to use carbohydrates to repel certain insects from plants that they would normally attack, providing a safe way to protect crops without using insecticides. In 1980, he joined the University of Maryland in the USA and remained there until 1982, conducting research on substances that could be used to halt or slow the growth of cancers.

Dr Fraser-Reid later worked at Duke University in North Carolina, where he and his team discovered a chemical compound that would assist in understanding the deadly disease known as sleeping sickness. This discovery earned him the Nobel Prize nomination.

In 1996, after retiring from Duke University, he founded the non-profit Natural Products and Glycotechnology Research Institute in North Carolina, which he currently heads. This group researches and develops strategies to fight diseases in developing countries. In 2004, the



institute synthesised the chemical that is suspected to give cerebral malaria its deadliness and in 2005, it successfully produced two of the carbohydrates that are found on the tuberculosis bacteria - an important step in finding a vaccine against this deadly disease. In the following year, Dr Fraser-Reid led a team of four that constructed the largest ever synthetic hetero-oligosaccharide, a compound that may lead to a greater understanding of the working of mycobacteria.

Dr Fraser-Reid advises that, "There is no substitute for hard work and even that may not be enough!" He adds, borrowing from Milton Berle, that "if there is no door open to you, make your own door."

KEYWORDS

CARBOHYDRATE: a chemical substance made up of carbon, hydrogen and oxygen. Living things use simple carbohydrates (sugars) to provide energy and complex carbohydrates (like starch and cellulose) to make up various physical structures.

CEREBRAL MALARIA: a disease spread by mosquitoes, which affects the brain, and is caused by *Trypanosoma brucei*, a microscopic parasite called a protist. The disease causes high fever and coughing, and can be fatal.

CHEMICAL SYNTHESIS: the use of chemical reactions to create complex chemical compounds from simpler ones

HETERO-OLIGOSACCHARIDE: A compound made up of three to ten simple sugar molecules, with one or more of these sugars differing from the others. Hetero-oligosaccharides are used in producing food supplements and animal feed, and living cells use them to transmit information.

MYCOBACTERIA: a genus of bacteria that causes several dangerous diseases including tuberculosis and leprosy

SLEEPING SICKNESS: a potentially fatal disease found in Central and Western Africa that is spread by the tsetse fly. Symptoms include fever, headaches, organ failure and irregular sleep.

TUBERCULOSIS: an infectious disease of humans and animals caused by the bacteria *Mycobacterium tuberculosis* which usually affects the lungs. Also known as TB, it is usually accompanied by violent coughing, pale skin and fever.

INTERESTING FACT

A great lover of music, Bertram Fraser-Reid spent most of his spare time in secondary school listening to jazz rather than studying!

Photos from top to bottom:

1. *At the University of Waterloo in 1975*
2. *Fraser-Reid (left) at a natural products conference in Kenya, 2001*
3. *Fraser-Reid with a model of a molecule*

BREEDING THE WORLD'S BEST TASTING COCOA

William Freeman

Botanist

Trinidad and Tobago

"As a cocoa agronomist in the Ministry of Agriculture for almost 30 years [William Freeman's] devotion to duty, consideration for cocoa farmers and basic love of the cocoa crop resulted in many improvements to this crop and its unique farming system." *Professor Nazeer Ahmad*

Mr William Freeman studied the science of cocoa breeding and developed one of the world's most commercially successful varieties of cocoa, the Trinidad Select Hybrid (TSH), which now has eight clones. These are highly regarded for their superior yield, excellent flavour and resistance to diseases. TSH is distinct and makes for the best and most expensive chocolate in the world.

William Edwin Freeman was born on 4th May, 1909 in Kent, England and moved to Trinidad as a young boy when his father got a job as the Director of Agriculture. He attended the primary school at the Queen's Royal College and continued his schooling in England. With a great love for nature, he gravitated to studying science at the University of London. At the university, he proved to be both a good student and a good athlete. He gained first class honours in botany and did postgraduate studies at University of Cambridge where he captained the university's rugby team and excelled on the rowing team. He attained further qualifications at the Imperial College of Tropical Agriculture, Trinidad completing his thesis on cocoa.

After graduating in 1931, Freeman conducted research in Africa on various crops, including tobacco, oil palm, groundnuts, cotton, banana, cocoa and rubber. He supervised numerous plantations and did research on the use of different fertilisers on these plantations. He retired as Senior Botanist in 1953.

He returned to Trinidad in 1954 and lectured in crop husbandry at the Eastern Caribbean Farm Institute (now Eastern Caribbean Institute of Agriculture and Forestry –ECIAF) in Centeno. A few years later, he joined the Cocoa Board as a research officer where he bred improved cocoa clones and hybrid seedlings during the period 1956 to 1978. He also started using methods of planting cocoa trees at closer intervals to increase yields. After many years of experimentation, he developed the highly acclaimed TSH clones.

Photos from top to bottom:

1. *Freeman enjoying a quiet moment*
2. *In his trademark field outfit*
3. *Cocoa pods take 5-6 months to mature on the tree*

His work was of importance to all cocoa growing nations, but mostly to Trinidad and Tobago, which produces the finest quality cocoa in the world. When the Cocoa Board stopped operations, Freeman continued his work at the Ministry of Agriculture until he retired in 1978.

Freeman loved plants and was an active member of the Horticultural Society of Trinidad and Tobago. He was honoured by the Agricultural Society of Trinidad and Tobago and The University of the West Indies, which named a street after him. He passed away on 15th December, 1988. He was posthumously awarded the Chaconia Medal (Gold) in 1991 for his outstanding contribution to agriculture.

Mr William Freeman believed in simplicity and advised, "If there are two words with the same meaning, always use the shorter one."

KEYWORDS

BOTANIST: a person who studies plant life (botany)

CLONE: an exact copy of an organism produced through asexual reproduction

CROP HUSBANDRY: the field of science concerned with the growing and harvesting of crops as a business

HORTICULTURE: the planting and growing of garden plants

HYBRID SEEDLINGS: plants produced from two different parent plants. These seedlings are developed to possess the valuable traits such as disease resistance, size, colour, taste and other desirable qualities of both parent plants.

INTERESTING FACT

Mr William Freeman always wore his trademark field gear to work, which comprised of a chocolate coloured shirt and short pants.

Velmer Headley

Mathematician

Barbados

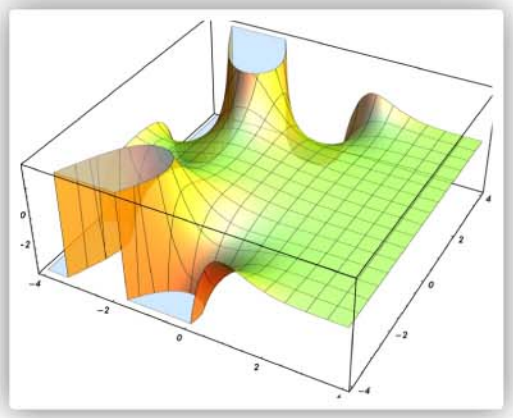
"His greatest accomplishment came from his uncanny ability to make his students grasp the sometimes difficult concepts of mathematics… [which was] his first love." *Dr Glyden Headley*

Professor Emeritus Velmer Headley had a special gift for mathematics and, in particular, calculus. He was a dedicated mathematics educator for more than 30 years and published in prestigious journals including the *Journal of Mathematical Analysis & Applications*.

Velmer Bentley Headley was born in Mile and a Quarter Village in Barbados on 7th September, 1934. He was a quiet child who got along well with his siblings, studied hard and was helpful to his friends. He was a bright student with a unique sense of humour. He attended All Saints' Boys Primary School, Parry Secondary School and the prestigious Harrison College, where he excelled. He taught briefly at Coleridge and Parry secondary schools before pursuing university education. He was awarded the Second Grade Exhibition, the First Grade Exhibition of the Ministry of Education and the Armstrong Scholarship, earning a place at The University of the West Indies (UWI), Mona in Jamaica. While studying for his bachelor's degree in mathematics, he taught at the secondary school, Munro College.

He graduated with honours and proceeded to Canada where he enrolled at the University of British Columbia. He focused on differential equations for his master's degree, completing it in 1967. He went on to obtain his Doctor of Philosophy (PhD) in Mathematics at the same university one year later. After finishing his doctorate, he joined the then fledgling Brock University in Ontario, Canada.

For the next 32 years, he lectured and conducted mathematical research, serving as Chair of the Department of Mathematics, a member of the University Senate and a two-term president of the Brock University Faculty Association. His research on partial differential equations helped to provide new perspectives on, and improve the understanding of, this important branch of mathematics, and attracted attention from mathematicians around the world. One of his papers was published in the esteemed *Proceedings of the American Mathematical Society* and another was presented at the Second World Congress of Nonlinear Analysts. After his retirement, Professor Headley was awarded the title of Professor Emeritus.



Besides being a brilliant mathematician, Professor Headley was also known for his exceptional singing ability since his teenage years. He was a regular soloist with the Niagara Symphony and an occasional recording artist for the Canadian Broadcasting Corporation. In his later years, he sang at Holy Trinity Lutheran Church in Buffalo, New York.

After a long battle with illness, Professor Emeritus Velmer Headley died on 24th March 2004 at age 70. At the time of his death, he had begun work on a book on differential equations.

KEYWORDS

CALCULUS: a branch of mathematics that studies change using equations. Calculus is used in physics and engineering to explore phenomena such as speed (change in distance over time) and pressure (the relationship between force and area).

PARTIAL DIFFERENTIAL EQUATION: an equation that investigates two or more independent variables i.e. quantities that change. Common examples of these variables include distance, time and friction. These equations are used among other things to investigate magnetism, radiation and the flow of liquids.

PROFESSOR EMERITUS: an honorary position given to a distinguished retired professor who continues to teach

INTERESTING FACT

As a teenager, Headley was a bookworm. He once walked to the local standpipe, reading a library book, while carrying a full basket of household items. Forgetting that he was not holding a bucket, he then placed the basket under the tap!

Photos from top to bottom:

1. *Velmer (left) with his brother Oliver in 1972*
2. *Professor Headley lecturing at Brock University in 1997*
3. *A 3D surface plot of the Airy function, one of the differential equations that Headley studied*

BOLD STEPS IN RESEARCH

Gerald Lalor

Environmental Geochemist

Jamaica

"It has been shown time and time again that citizens of the developing world can perform as well as any."
Professor Gerald Lalor

Professor Emeritus Gerald Lalor is a visionary with a passion for research. He helped to modernise the campus of The University of the West Indies (UWI) in Mona, Jamaica and established the Centre for Environmental and Nuclear Science, now known as the International Centre for Environmental and Nuclear Science (ICENS).

Gerald Lalor was born in Kingston, Jamaica on 15th December 1930. He attended Kingston College and then UWI, Mona where he studied chemistry, physics and mathematics. Soon after attaining his bachelor of science (BSc) degree in 1953, Lalor began working at West Indies Chemical Works, the world's largest producer of logwood dyes, where he researched his master's thesis on haemotoxylin and haematein. Before he left the company, he had become Chief Chemist and had discovered a new, profitable method to produce synthetic haemotoxylin after the logwood tree became endangered. He also did a year's research at the University of Cambridge on a Leverhulme Colonial Scholarship. In 1960, he was appointed Assistant Lecturer in Chemistry at UWI and in 1963, he obtained his Doctor of Philosophy (PhD) in Physical Inorganic Chemistry from the University of London.

In 1966, Professor Lalor travelled to Harvard University and other American universities on a Carnegie Fellowship. After his return to Mona, he became a UWI professor and Head of the Chemistry Department. He was appointed Pro-Vice Chancellor in 1974. In 1978, he began Project Satellite, which introduced satellite communications to Caribbean education and public service. After its success, he became the first director of UWI's distance learning programme.

Professor Lalor was Principal of the Mona Campus from 1991 to 1995. During this time, he established the Biotechnology Centre and the Centre for Nuclear Sciences, initiated the computerisation of the campus, and improved accessibility for the physically challenged. He has been the Director of the Centre of Nuclear Sciences since its establishment in 1983, contributing to over 50 of the Centre's scientific

publications. Under his direction, the Centre compiled its findings on soils and water into a Geochemical Atlas of Jamaica, and developed a database of this research. ICENS discovered, reduced, treated and prevented lead poisoning in children in the Kintyre district, an area in St. Andrew where backyard smelting is prevalent. These studies led to island-wide research on the effects of lead smelting. ICENS discovered remarkably high levels of heavy metals in some Jamaican soils and conducted research on the transfer of the toxic metal, cadmium, to plants, animals and humans and its negative effects on their health.

Professor Lalor advises students, "If you are interested in how things work and why they work, and how people behave, any of these things, I don't think there can be any career that can be more fascinating than science… but it's not easy."

KEYWORDS

GEOCHEMISTRY: the science dealing with the chemical composition of, and changes in, the earth and its environment

HAEMATEIN: a chemical compound derived from haemotoxylin. It is used as a dye in staining tissues and cells to make them easier to see under a microscope.

HAEMOTOXYLIN: a chemical compound, also used in staining, which was extracted from the logwood tree and can now be synthesised artificially

INORGANIC CHEMISTRY: the study of inorganic compounds. Organic compounds are made up mainly of carbon atoms. All compounds that are not organic compounds are inorganic.

NUCLEAR REACTOR: a device that generates huge amounts of energy by controlled nuclear fission, a process which splits the atoms of very radioactive elements, like uranium or plutonium

INTERESTING FACT

At one point, Professor Lalor wanted to study medicine. He changed his mind after working as a pathology technician at the Government Forensic Pathology Facility in Jamaica.

Photos from top to bottom:

1. *Gerard Lalor (age 9) after winning a scholarship to Kingston College*
2. *The reddish-brown logwood heartwood produces a dark red solution in water .*
3. *Lalor (second from left) looks on as the first sample is placed into the new ICENS nuclear reactor.*

BREAKING GROUND IN CHEMISTRY RESEARCH AND EDUCATION

Kenneth Magnus

Applied Chemist

Jamaica

"This [Applied Chemistry and Food Chemistry major] would not have been possible without the foresight, tenacity and dedication of Professor Kenneth Magnus." *Dr Donna Minott-Kates*

Professor Emeritus Kenneth Magnus contributed greatly to the Faculty of Natural Sciences at The University of the West Indies (UWI), Mona, Jamaica. He undertook myriad research studies and pioneered important teaching programmes and initiatives across the region. He authored and co-authored four books, including one on the development of science in Jamaica.

Born on 27th November, 1927 in Vineyard Town, Jamaica, Kenneth Magnus attended Titchfield Primary School in Port Antonio and was a scholarship student at Wolmer's Boys High School. After working briefly as a Laboratory Assistant at the Agricultural Chemistry Laboratory, he completed his Bachelor of Science (BSc) (General) and his Master of Science (MSc) in Organic Chemistry at the University College of the West Indies (UCWI), later renamed UWI. In 1959, he received his Doctor of Philosophy (PhD) in Organic Chemistry from the University of London. Dr Magnus and Professor Cedric Hassall synthesised the antibiotic called Monamycin, which was named after the Mona Campus and which Magnus patented in Canada, Germany and the UK.

In 1959, Dr Magnus joined the Department of Chemistry at UWI, Mona. He conducted research on essential oils, food flavouring, sweeteners, sugar cane processing, food preservation, and local medicinal plants, discovering that some "traditional cures" were actually poisonous! He studied bauxite manufacture and the environmentally unsafe red mud residue from that process. His many reports included a 1984 preliminary study on converting biomass to fuel.

Dr Magnus was an outstanding educator and administrator. In 1968, he started the Applied Chemistry Programme, which became a separate degree at Mona and at the St. Augustine Campus. Between 1969 and 1970, he helped develop the science curriculum for Jamaica's primary and secondary schools. He introduced the postgraduate Diploma in Sugar Cane Processing, which attracted Caribbean and non-Caribbean students. In 1982, he led the introduction of food chemistry courses.

Photos from top to bottom:

1. *Magnus in his lab at UWI, Mona, Jamaica*
2. *Magnus (second from left) at 1952 UCWI graduation*
3. *Slate rock sample containing bauxite*

He headed the Department of Chemistry from 1977 to 1986, and became Professor in 1987. He served as Dean of the Faculty of Natural Sciences from 1985 to 1993, introducing courses in environmental studies, establishing faculty awards for outstanding students, and initiating computerisation. His impact on the Faculty's approach to teaching led to its renaming as the Faculty of Pure and Applied Sciences. Professor Magnus fostered the Faculty's relationship with industry, which has since been formalised through the Mona Institute of Applied Sciences. He also increased access to university education by facilitating the completion of the UWI first-year science programme at colleges in the Eastern Caribbean.

On his retirement in 1996, he became Professor Emeritus. In 2007, the university renamed the Applied Chemistry Teaching and Research Laboratory of the Mona Campus The Kenneth Magnus Building in "recognition of his significant contributions."

Professor Magnus advises aspiring scientists to do science only if they really want to, not because of external pressures. He adds that they should decide early what aspect of science interests them most, and do it to the best of their ability.

KEYWORDS

ANTIBIOTIC: a chemical substance, often from a natural source, which is used to treat diseases by killing specific bacteria

BAUXITE: the major ingredient in making aluminium. Although useful, the mining of bauxite produces waste materials that can harm the environment.

BIOFUEL: solid, liquid or gaseous fuel made from the remains of recently-dead living matter

BIOMASS: living material or the remains of recently dead material, usually plant remains and animal waste

ESSENTIAL OILS: volatile, aromatic and highly concentrated liquids derived from shrubs, flowers, trees, roots, bushes, herbs, and seeds, and usually used either for their healing properties or in the manufacture of perfumes and artificial flavours

ORGANIC CHEMISTRY: the study of chemical substances with molecules that are made up mostly of carbon atoms

INTERESTING FACT

Kenneth Magnus developed his love for science during childhood visits to Navy Island, Jamaica where he explored, rowed, swam and caught small sea creatures.

THE PLANT DOCTOR

Leonard O'Garro

Plant Pathologist

St. Vincent and the Grenadines

"Education brings awareness and is the path to success."
Professor Leonard O'Garro

Professor Leonard O'Garro is a coordinator of the United Nations Global Biosafety Programme. A former professor of plant pathology at The University of the West Indies (UWI), Cave Hill, Barbados, he did extensive research to reduce the spread of diseases affecting Caribbean agricultural crops. He trained many UWI graduates and led the effort to establish UWI as a centre for plant pathology research in the region.

Leonard Wellington O'Garro was born on 31st May, 1958 in Kingstown, St. Vincent and the Grenadines. As a student, he played sports, painted and did well academically. He first studied history but later decided to study science instead. In 1982, he completed a Bachelor of Science (BSc) in Biology and Chemistry at UWI, Cave Hill, Barbados. For his Doctor of Philosophy (PhD), he did research on tomato "wilting disease," a fungal disease that kills the plants or prevents them from bearing.

In 1988, Dr O'Garro began lecturing in biology at UWI. During this time, he secured several research grants from leading regional and international institutions, which were used by his students. In 1993, he discovered the agent that causes onion blast disease, which severely affected the onion industry in Barbados and St. Kitts and Nevis. His work promoted the development of disease control methods as well as research into new disease-resistant varieties of the crop. He also helped address the "rainy season" disease that infects pepper and tomato crops in the Eastern Caribbean, and developed disease control programmes for anthuriums and yams in Dominica and Barbados, and papaya in St. Vincent and the Grenadines.

Dr O'Garro was promoted to Professor of Plant Pathology in 1999. He conducted many workshops on plant biotechnology and plant pathology and served as the team leader of the UWI biotechnology programme.

Professor O'Garro served on the National Committee on Biotechnology and Biosafety in Barbados, the United Nations Compliance Committee for the Cartagena Protocol on Biosafety, editorial boards of several international science journals, and numerous boards of government agencies overseeing agriculture and science and technology. In 2005, he joined the United Nations Environment Programme (UNEP) as one of its global coordinators of a programme to oversee the implementation of the Cartagena Protocol on Biosafety. He also assisted Caribbean countries with this programme, through the development and implementation of national biosafety frameworks. He is currently charged with the responsibility of developing the UWI Biotechnology Institute for the Caribbean.

Professor Leonard O'Garro advises students, "If you have a keen interest in science, you should pursue it, seizing initiatives and going beyond the call of duty to make a worthwhile contribution." He believes that, "Children should pursue training in the field that they love best."

KEYWORDS

BIOSAFETY: the safe handling of infectious agents or modified genetic materials that can adversely impact human, animal, plant or environmental health

CARTAGENA PROTOCOL ON BIOSAFETY: an international agreement, adopted in 2000, which seeks to protect humans and the environment from potential risks arising from the trade in living organisms that have been genetically modified

PLANT BIOTECHNOLOGY: techniques that use science to modify plants in order to produce desirable qualities such as high yields, improved nutritional value, and/or more vivid colours

PLANT PATHOLOGY: the study of plant diseases

INTERESTING FACT

Leonard O'Garro is the first graduate from the UWI Cave Hill Campus to complete a PhD degree at that campus.

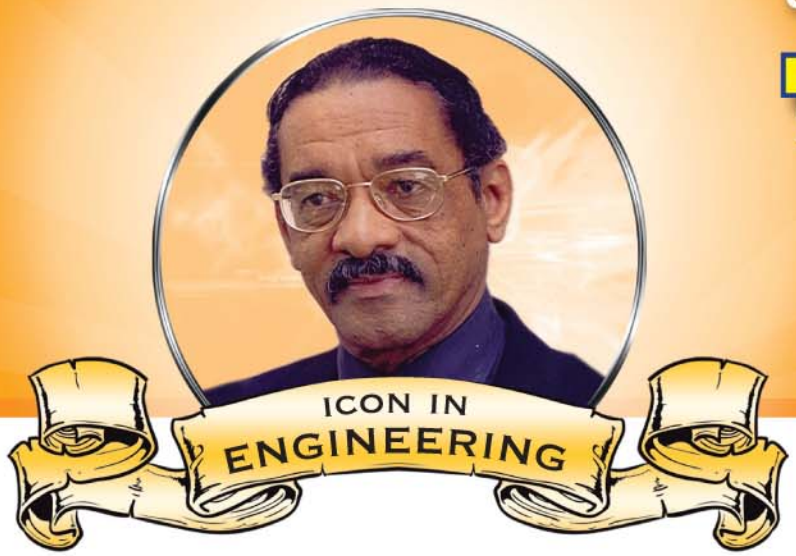
Photos from top to bottom:

1. *Tomato wilt prevents the uptake of water from the soil resulting in the plants wilted appearance.*
2. *Onion blast is a fungus that spreads rapidly, devastating the leaves, hence the name "blast".*
3. *The papaya is a short-lived, fast-growing, woody plant which grows to 10-12 feet in height.*

CHASING HURRICANES

Tony Gibbs

Civil Engineering



Grenada

"For several decades, he has taken a leading role in sharing his knowledge, insights and expertise with the public as well as a wide range of professionals..." *The Jury for the Sasakawa Award for Disaster Reduction 2007*

Mr Tony Gibbs is a pioneer in developing buildings in the Caribbean and elsewhere to withstand natural hazards such as hurricanes and earthquakes. Other interests of this civil engineer involve working with architects and other professionals to create innovative designs for hazard-resistant buildings using a variety of high-strength concrete forms.

Tony Gibbs was born on 2nd October, 1937 in St. George's, Grenada. His parents were civil servants whose jobs entailed frequent overseas assignments. As a result, he attended 10 schools: eight primary schools in Grenada, St. Lucia, St. Vincent and Trinidad and Tobago, and two secondary schools, St. Vincent Boys' Grammar School and Presentation Brothers' College in Grenada.

His academic ability won him a Colonial Development Scholarship, which he used to attend Queen's University in Belfast in 1957. There, he completed a Bachelor of Science (BSc) in Civil Engineering in 1961. After gaining some professional experience in the field both in Trinidad and in London, he was awarded a Commonwealth Scholarship to pursue a postgraduate Diploma in Concrete Technology at the University of Leeds.

Mr Gibbs is truly a Caribbean man. He has worked in every country in the region and was personally responsible for over 1,600 building projects of his firm over a period of 35 years. In addition to designing buildings to withstand natural hazards, he has taken a keen and practical interest in the interrelationship of engineering and insurance.

Mr Gibbs played a critical role on the Caribbean Uniform Building Code committee and was a member of several committees on building standards, and on science and technology in Barbados. Internationally, he has held top positions at The Institution of Structural Engineers in the United Kingdom, and the American Association for Wind Engineering.

As a result of his outstanding work, Mr Gibbs has been honoured with several awards, most notably the Lewis Kent Award for service to structural engineering for three decades, given by The Institution of Structural Engineers. In 2007, he was Joint Laureate for the Sasakawa Award for Disaster Reduction given by the United Nations.

Mr Tony Gibbs has influenced standards and advances in building design worldwide. Currently, he is the Secretary General of the Council of Caribbean Engineering Organisations and a member of many international committees on natural hazards. He is also a member of the Disaster Mitigation Advisory Group of the Pan American Health Organization.

He advises students to, "Make the best use of opportunities that come your way. Be prepared to continue learning throughout your career."

KEYWORDS

BUILDING CODE: a set of rules that guide the design of buildings and structures. These codes are written by experts and made into law by the government. They ensure that the buildings are safe and stable, and will withstand natural disasters as well as the wear and tear of time.

NATURAL HAZARD: a naturally occurring event such as an earthquake, tsunami, landslip, flood or volcanic eruption that causes damage to property and human life

WIND ENGINEERING: a branch of structural engineering that deals with the study of wind effects on structures

INTERESTING FACT

Tony Gibbs enjoys chasing hurricanes to determine the causes of damage before the evidence is destroyed! He spent 30 "wonderful" hours at the main meteorological station at the airport monitoring Hurricane Luis in Antigua in 1995 and, while the wind was still blowing, he inspected buildings for damage.

Photos from top to bottom:

1. *Tony Gibbs (right) at the UN Sasakawa Award Ceremony, Geneva with Joint Laureate Prof Yoshiaki Kawata and Silvano Briceño*
2. *Playing "mas" in Peter Minshall's Tapestry*
3. *A hurricane-resistant concrete shell structure designed by Gibbs at Piarco, Trinidad*

ENGINEERING SWEETNESS

Winston Mellowes

Chemical Engineer

Barbados

"All who met him were quick to appreciate his courtesy, his unwavering principles, his sense of duty, his wit and above all, his integrity."
President George Maxwell Richards

Professor Emeritus Winston Mellowes led the Department of Chemical Engineering at The University of the West Indies (UWI), St. Augustine with wisdom and efficiency, during a career that spanned over 30 years. He is acknowledged as an expert on fluid dynamics and the technology of sugar cane processing.

Winston Mellowes was born on 28th June, 1941 and grew up in St. Michael, Barbados without the amenities of electricity, telephone or television. He spent his days studying and playing outdoor games. At school, his teachers described him as "bright" and he was also an excellent athlete who represented his school in cricket and track and field.

His performance at school earned him a scholarship in 1962 to the newly founded University of the West Indies in St. Augustine, Trinidad. There, he continued to excel in sports and participated in cricket matches. He was one of the first graduates from the campus, and among the second batch of graduates from the Faculty of Engineering.

Mellowes started his career as a lecturer at UWI, St. Augustine in 1971. Over the years, he gained the respect of students and faculty for his skill in both the teaching and practice of engineering. He served as the Faculty's Assistant Dean for Undergraduate Student Affairs and Deputy Dean for Postgraduate and Research Matters. He also served as President of the Association of Professional Engineers of Trinidad and Tobago, President of the Caribbean Academy of Sciences, and a member of the Board of Directors of the UWI Credit Union for several years. In 1996, he was made Professor of Chemical Engineering, after serving as Head of Department in 1986 and 1992. He is currently the Editor of *The West Indies Journal of Engineering*.

Professor Mellowes' research focused on the sugar industry, its by-products and waste products, and their impact on the environment. He improved the treatment of wastes from the sugar refineries of Caroni (1975) Ltd and promoted the use of modern technologies in the sugar industry regionally. His other research included the impact of air pollution on the environment, isolating dextran from various juices, and the


UWItoday Sunday, April 15, 2007

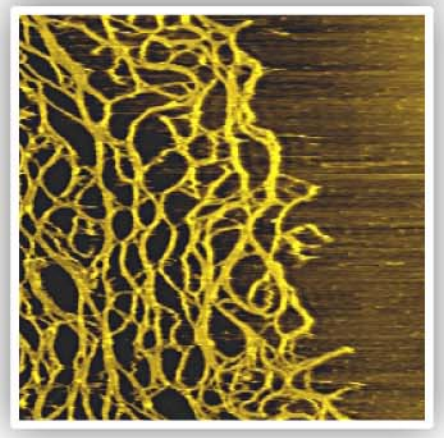
nbers Prof Mellowes

Professor of Chemical Engineering, Winston Mellowes (left) receives an award from Professor Clement Sankat, Dean, Faculty of Engineering, UWI at the retirement function held in his honour

use of biomass from coconuts, sugar cane, sweet potatoes and other crops to produce activated charcoal and biofuels. He received several awards from the Inter-American Cane Sugar Seminar for his organisation of the seminar. At the 2004 West Indies Sugar Technologists' Conference hosted in Barbados by the Sugar Association of the Caribbean, he received the Best Paper award for his work on Xanthan gum, which identified a new, efficient process for producing the gum from sugar cane by-products. In April 2008, he was granted a US patent for this process.

In 2007, Professor Winston Mellowes retired from UWI and was conferred with the title of Professor Emeritus.

He advises budding scientists to, "Be curious about things around [you]. If [you do] not know, seek answers from those who ought to know."



KEYWORDS

ACTIVATED CHARCOAL: a form of charcoal that is very porous and is an excellent filter. Activated charcoal is important in treating poisoning and drug overdoses, removing pollutants from air or water, extracting metals, and purifying sewage.

BIOMASS: living material or the remains of recently dead material, usually plant remains and animal waste

CHEMICAL ENGINEERING: the branch of engineering that deals with the design, building and use of the machines that are used in factories to carry out chemical reactions

DEXTRAN: a naturally-occurring sugar with various medical, surgical and laboratory uses. Commercial dextran is synthesised from sucrose (table sugar) by certain types of bacteria.

FLUID DYNAMICS: the study of how gases and liquids move and react to pressures and forces

PROFESSOR EMERITUS: an honorary position given to a distinguished retired professor who continues to teach

XANTHAN GUM: a chemical substance added to various processed foods in order to keep them from separating into their constituents. Xanthan gum is often used in making salad dressings, sauces, frozen foods and beverages.

INTERESTING FACT

Professor Mellowes is a Methodist Local Preacher and President of the Local Preachers' Fellowship.

Photos from top to bottom:

1. *Mellowes (left) was honoured by the Faculty of Engineering, UWI, St. Augustine in 2007 at his retirement function.*
2. *10 kilograms of sugar cane produces 1 kilogram of sugar*
3. *Xanthan gum is added to food products like salad dressings and sauces, to keep the mixtures together.*

DAMAGE CONTROL

Norris Stubbs

Civil Engineering

The Bahamas

"Always explore the interrelationships among science, technology and society... [and] most importantly, never forget your social and cultural roots." Professor Norris Stubbs

Professor Norris Stubbs lectures in civil engineering at Texas A&M University in the United States. He has spent 30 years studying the internal forces and stresses within structures using non-destructive damage evaluation. He holds the patent to a well-known and widely used technique called the Damage Index Method, which can be used to estimate damage to structures and their contents in the event of a hurricane or other disaster. Professor Stubbs was on the Texas A&M University team attached to the Hazard Reduction and Recovery Center that examined the World Trade Center after the 2001 attacks.

Norris Stubbs was born on 8th November, 1948 in Nassau, The Bahamas. He attended the Western Junior School, Western Senior School and the Government High School in Nassau, The Bahamas. As a child, he mastered several brass instruments, including the French and baritone horn, which he played in local concert bands and orchestras. While at school, he became a sprinter and represented The Bahamas in the Pan American Games in 1967 and the 1968 Olympics. He received his Bachelor of Arts (BA) in Physics from Grinnell College, Iowa, USA in 1971 before he obtained his Bachelor of Science (BSc) and Master of Science (MSc) in Civil Engineering, and Doctor of Engineering Science (EngScD) in Engineering Mechanics at Columbia University, USA.

He started his career as an assistant professor in civil engineering and engineering mechanics at Columbia University in 1976. He moved up the ranks to Professor and mentored graduate students in the field of engineering mechanics. At least six of his former doctoral students became professors at other institutions around the world.

In the past two decades, Professor Stubbs has been actively involved in understanding how natural hazards such as extreme wind and water affect large buildings and structures like bridges. He ensures, through the application of quality management techniques, that

structures can withstand these hazards, and his patented Damage Index Method has been applied to the Bay Bridge (San Francisco), the Vincent Thomas Bridge (Los Angeles), the Space Shuttle fleet, the Dang Sang Bridge (Korea), and the King Storm Water Channel Bridge (California).

In recent years, his work has focused on the development of algorithms to locate non-destructive damage in large structures. Professor Stubbs has made a significant contribution to the field of civil engineering, and his findings have resulted in over 250 publications. In 2005, he was presented with the Golden Coral Award by his homeland in recognition for his work in physics and engineering.

Professor Norris Stubbs advises children to "familiarise yourself with the great figures of science and technology…[and] learn from their experiences."

KEYWORDS

ALGORITHM: a mathematical procedure, made up of several steps or rules, which is used to solve problems

DAMAGE INDEX METHOD: a type of non-destructive damage evaluation that analyses energy patterns in structures in order to determine how badly they have been damaged

NON-DESTRUCTIVE DAMAGE EVALUATION: a method used to examine structures and materials that have been damaged though accidents or wear and tear. It determines how much damage has been done without causing further destruction and is a very useful way to ensure that structures are durable and safe.

QUALITY MANAGEMENT: a method for ensuring that all of the activities necessary to design and develop a product or service are effective, efficient and safe

INTERESTING FACT

Norris Stubbs took part in the 1968 Olympics in the 100 meters, the 200 meters, and the 4x100 meters relay. The Olympic relay team set a Bahamian record, which was not broken for almost 30 years.

Photos from top to bottom:

1. *Stubbs teaching at University*
2. *Stubbs testing designs in his workshop*
3. *The San Francisco Bay Bridge, built in 1936, is the longest high-level steel bridge in the world.*

SOWING THE SEEDS FOR CARIBBEAN AGRICULTURE

Chelston Brathwaite

Plant Pathologist

Barbados

"[He] has demonstrated excellent leadership qualities in putting to task his academic agricultural knowledge and managerial skills in transforming IICA into an effective hemispheric agricultural body." Ambassador Albert R Ramdin

Dr Chelston Brathwaite is the current Director General of the Inter-American Institute for Cooperation on Agriculture (IICA). His work as an administrator, researcher, lecturer and technical advisor on plant diseases and crop protection has benefited agriculture throughout the Caribbean.

Chelston Whitley Da Costa Brathwaite was born on 8th March, 1943, in St. Michael, Barbados. He attended the St. Matthew's Boys School and the Modern High School. He furthered his studies in agriculture at The University of the West Indies (UWI) in St. Augustine, Trinidad, where he aided the development of the Harland Society, which engaged students in agricultural development in the region. After obtaining his first degree in 1966, he headed to Cornell University in the United States, where he completed his Master of Science (MSc) and Doctor of Philosophy (PhD) in Plant Pathology.

Dr Brathwaite worked at UWI for 10 years. He also served as an external examiner for universities in Nigeria and Kenya, and worked with the Food and Agriculture Organization of the United Nations. He supervised a number of research projects on plant diseases and crop protection and provided technical advice to plant protection directors in the Caribbean. He contributed to pest control efforts in the region and to the development of plant protection measures for important crops such as sugar cane in St. Kitts and Barbados, and sweet potatoes in Trinidad and Tobago, which resulted in improved crop yields.

In 1981, he joined IICA as Regional Plant Protection Specialist for the Caribbean. Dr Brathwaite was made the ninth Director General in January 2002. He promoted sustainable agricultural development within member states of IICA and his institutional reforms have made the institute a global centre of excellence.

Dr Chelston Brathwaite advises young students to "arrive at your goals in life by having a plan and a strategy for implementing your plan."

Photos from top to bottom:

1. *Brathwaite (left) as IICA celebrates 40 years in Ecuador*
2. *Sweet potato was most likely spread to the Caribbean and South America by indigenous peoples circa 2500 BC.*

KEYWORDS

PLANT PATHOLOGIST: a scientist who deals with the symptoms, causes, spread and control of plant diseases

INTERESTING FACT

When Chelston Brathwaite decided to study agricultural science, there were those who said, "You are a bright boy. Why don't you study medicine or law?" But he studied agricultural science because he wanted to use his scientific knowledge and skills to feed the world.

SAVING BEACHES AND COASTLINES

Compton Deane

Civil Engineer

Guyana

"When one thinks of the importance of the tourism industry to the region, and the reliance of the sector on our beaches, one can begin to understand the vital role that [Compton Deane] has played as a Caribbean engineer of distinction." Trevor Deane

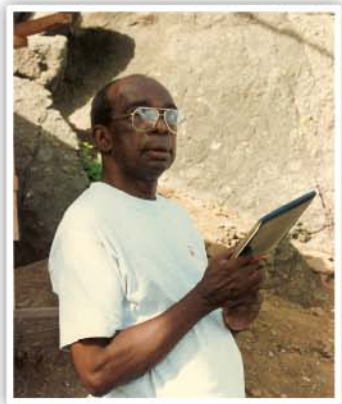
Mr Compton Deane was a prominent civil engineer in the Caribbean. He started a Caribbean-wide research programme on beach erosion and became a regional expert in the field. He was responsible for many innovative designs in drainage, irrigation and flood control works in the region, among them the Boerasirie Extension Project in Guyana.

Compton Deane was born on 9th December, 1931 in Georgetown, Guyana. He attended Comenius Moravian School then Queen's College in Georgetown and was awarded a Government Merit Scholarship. Prior to taking up his scholarship at the University of London, he taught chemistry at the Grenada Boys' Secondary School.

In 1955, he graduated with first class honours in civil engineering, and received the prestigious Chadwick Gold Medal for Best Academic Performance. He completed a postgraduate diploma in hydraulic engineering at Delft University in Holland. He returned to Guyana to take up the post of District Engineer in the Department of Drainage and Engineering. His work focused on addressing the drainage problems faced in low-lying coastal areas with changing tidal levels.

In 1962, he joined the Faculty of Engineering at The University of the West Indies (UWI) in St. Augustine, Trinidad. He lectured in surveying and hydraulics. In 1966, he went to Japan to learn about tropical beach erosion and became an expert in this area. He went on to work as a specialist consultant to various public and private organisations developing beaches throughout the Caribbean for the next two decades. From 1970 to 1973, he also served as Project Manager of UWI's Regional Beach Erosion Control Programme. In 1984, he was honoured by the Association of Professional Engineers of Trinidad and Tobago for excellence in engineering.

Mr Compton Deane was admired as a first-rate teacher and student mentor. After his retirement from UWI in 1987, he remained actively involved in consulting on coastal erosion. He passed away on 28th September, 2007.



Photos from top to bottom:

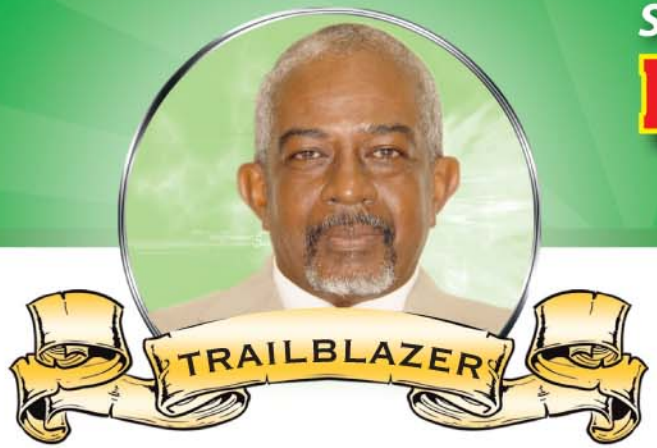
1. *Deane collecting data on beach erosion*
2. *Building of the Chacacabana Beach in Trinidad*

KEYWORDS

CIVIL ENGINEER: an engineer who designs and constructs buildings, roads, bridges and other public structures
HYDRAULIC ENGINEERING: a branch of civil engineering that deals with the flow and transportation of fluids
IRRIGATION: the artificial application of water to land to assist in the production of crops

INTERESTING FACT

Mr Compton Deane designed and oversaw the construction and rehabilitation of beaches on the majority of Caribbean islands. His work in Trinidad included restoration works at Los Iros as well as new beach construction at Chagville and Chagacabana. Chagacabana unfortunately has not been maintained as he would have liked it.



SQUARIC ACID AT WORK

Lincoln Hall

Inorganic Chemist

Trinidad and Tobago

"My true goals were to be the best I could be by using my talents to their fullest and being an inspiration to the young people I taught."
Professor Lincoln Hall

Professor Lincoln Hall gained a reputation within and outside of the Caribbean for his seminal research on squaric acid and the chemical compounds made from it.

Lincoln Hall was born in Siparia, Trinidad on 14th August 1947. He excelled at the Siparia Union Canadian Mission School and was skipped three times. He continued to do well at Iere High School and earned a teaching scholarship to attend The University of the West Indies (UWI), St. Augustine. He completed his bachelor's degree at UWI in 1970, receiving first class honours in chemistry and upper second class honours in mathematics. He taught those subjects at St. George's College, Barataria for the next five years, while studying for his master's degree in inorganic chemistry at UWI.

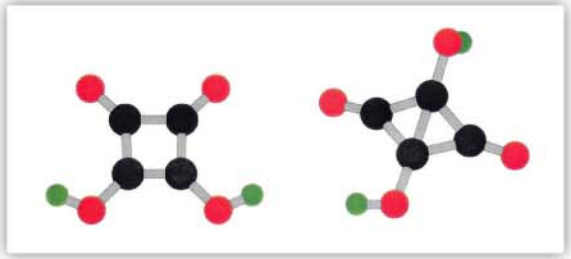
In 1978, Hall began to lecture in chemistry at UWI, St. Augustine and earned his Doctor of Science (PhD) in Analytical Chemistry in 1985. He became Professor in 1993 and served as Head of the Inorganic Chemistry Department from 1992 to 2008. Two of his students won the Best Thesis Award.

In the 1980s, Professor Hall participated in several studies on the effect of dangerous pollutants on Trinidad's environment and population. He also spent years researching the organic compound, squaric acid, and deriving related chemical compounds from it, discovering 78 such compounds. In 1993, he received a Leverhulme Award to further his research at the Imperial College, University of London.

Professor Hall's research on squaric acid derivatives focuses on the medical applications of these compounds, including MRI scanning, cancer treatment and diabetes diagnosis through measuring blood sugar. This latest phase of work led to the development of a series of electron-transfer mediators funded by UWI and Abbot Laboratories.

Professor Hall is a member of many scientific societies both in the USA and the UK including the Royal Society of Chemistry and the American Chemical Society.

His advice to budding scientists is that one should pursue research opportunities wherever they are found, including developed countries where research is funded and rewarded.



Photos from left to right:

1. *The chemical structure of squaric acid, and a compound derived from it*
2. *Hall (second from right) with family members at his Professorial Inaugural Lecture*

KEYWORDS

ANALYTICAL CHEMISTRY: the study of the chemical composition of natural and artificial materials

ELECTRON-TRANSFER MEDIATORS: chemical compounds that "transport" electrons to and from molecules to help speed up chemical reactions

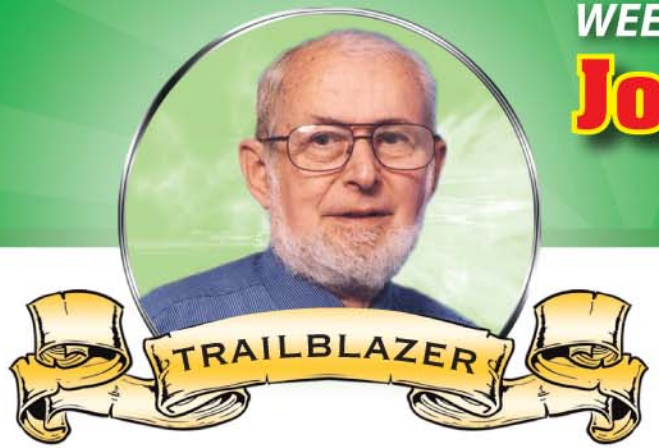
INORGANIC CHEMISTRY: the study of inorganic compounds i.e. compounds made from non-living materials

MAGNETIC RESONANCE IMAGING (MRI): technology that uses electromagnetic radiation to produce images of the internal structures of the body

SQUARIC ACID: a compound with square-shaped molecules. It is often used as a building block in synthesising larger compounds.

INTERESTING FACT

Abbott Laboratories is one of the top 10 pharmaceutical companies in the world.



WEED WHACKER

John Hammerton

Weed Scientist

The Bahamas

"[Dr Hammerton] was a great scientist who is fondly remembered not only for his professional contributions but also for his vision, wisdom, wit and as a kind and understanding gentleman…" Dr Lewelyn Curling

Dr John Hammerton was the Chief Scientist to the Bahamas Environment, Science and Technology (BEST) Commission. He conducted environmental impact studies and played a key role in the protection of the natural landscape in The Bahamas. He was also an authority on alien invasive species and environmental conservation in that country.

Born on 18th October, 1934 in Reading, England, Hammerton attended St. Alban's primary and grammar schools. After obtaining excellent grades in his A' Level Examinations, he pursued his bachelor's degree in agriculture at the University of Reading. He went on to the University of Wales in Aberystwyth, where he obtained his Doctor of Philosophy (PhD) in 1959. He remained at the university as a lecturer for several years. In 1969, he accepted a lecturing post at The University of the West Indies (UWI), St. Augustine, Trinidad.

In 1970, Hammerton moved to Jamaica to work at the Regional Research Centre (RRC) as a research fellow. In 1975, he joined the Caribbean Agricultural Research and Development Institute (CARDI) and served as head of the Jamaica unit. His work focused on the control and elimination of weeds. A year later, he transferred to Belize to set up a CARDI unit.

Dr Hammerton went on to work in other CARDI-associated Caribbean islands, sharing his knowledge and expertise. In St. Lucia, he served as a member of the Pesticides Control Board. In The Bahamas, he held numerous positions including Assistant Director of the Department of Agriculture and Chief Scientist to the BEST Commission, and was a member of the Bahamas National Trust. He published many papers in scientific journals and was also active in educating the general public on environmental protection.

After his retirement, he continued to serve on many boards including the Committee on the Convention for Trade in Endangered Species.

Dr John Hammerton advised students that agriculture "… is a very satisfying field, perhaps not as well paid as other areas of study but it is truly people-oriented and rewarding."

He passed away on 19th May, 2008.

Photos from top to bottom:

1. *Hammerton (in front of blackboard) at work with colleagues*
2. *Hammerton with his mother and sisters in the late 1990s*

KEYWORDS

ALIEN INVASIVE SPECIES: foreign species which, when introduced to a new environment, cause economic or environmental harm. They can cause a significant change in an ecosystem by altering wildlife habitat and displacing native species.

WEED: any wild plant, particularly an unattractive or undesired plant, which grows where it is not wanted

WEED SCIENCE: the study of the characteristics of weeds and methods of controlling their spread

INTERESTING FACT

Dr John Hammerton co-authored with Jacques Fournet of Guadeloupe the book entitled *Weeds of the Lesser Antilles*, written in French and English.

UNEARTHING OUR HISTORY

Desmond Nicholson

Archaeologist

Antigua and Barbuda

"Nicholson dedicated his life to the research and documentation of Antiguan history. . . He donated all of his personal books to create the library there, and the artefacts came from collections he has been working with for years." Dr Reginald Murphy

Desmond Nicholson established the Museum of Antigua and Barbuda in St. John's and the Dockyard Museum in English Harbour. He produced 25 booklets on Antigua and Barbuda's heritage, and lectured on local history and archaeology.

Desmond Vernon Nicholson was born on 9th July, 1925 in Southsea, Hampshire, England. He attended the Saltus Grammar School in Bermuda and Clayesmore School in Dorset, England and the Camborne School of Metalliferous Mining in Cornwall, England. In 1946, he joined the Royal Corps of Signals and served for two years. Nicholson left England with his family in their schooner, Mollihawk, but when they stopped off at English Harbour, Antigua in 1949, they fell in love with the place and decided to stay.

During Nicholson's first year in Antigua, a wealthy American asked him to take his family sailing on the Mollihawk. This launched a successful yachting and tourism industry in Antigua and Barbuda, which helped to revive the country's economy following a slump in the sugar industry. His family repaired the ruins of the Georgian dockyard at English Harbour and established several businesses in the tourism sector.

In 1967, Nicholson's discovery of artefacts in Freeman's Bay rekindled his schoolboy passion for archaeology. He explored this passion extensively and collected so many artefacts that he decided to preserve them for the people of Antigua by establishing the Museum of Antigua and Barbuda in St. John's. He also played a key role in the rebuilding of the English Harbour naval base now known as Nelson's Dockyard.

Over his years of public service, he served as President of the Antigua Archaeological Society in 1971, President of the International Association for Caribbean Archaeology from 1979 to 1983, and Director of the Dockyard Museum in 1996. He received Antigua's Order of Honour (Silver) in 1994 and the Cowrie Circle from the Commonwealth Association of Museums in 1999, in recognition of his exemplary work and contribution.

Nicholson died on 24th January, 2006. He lived his life by the motto, "Knowledge, to be of any value, must be communicated."

Photos from left to right:

1. *Nicholson (far right) receiving his Order of Honour from the Prime Minister of Antigua and Barbuda*
2. *The 70 foot schooner, The Mollihawk, built in 1903*

KEYWORDS

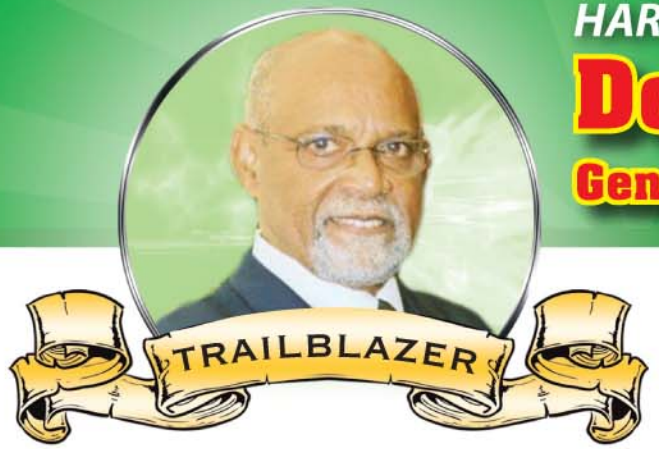
ARCHAEOLOGY: the study of human culture through the recovery of material remains and environmental data

ARTEFACT: a human-made object, such as a tool, weapon or ornament, especially one of archaeological or historical interest

GEORGIAN: a style of architecture developed in 1714 during the reign of King George I. It remained popular until the 1830s, during the reign of King George IV.

INTERESTING FACT

While serving in the Royal Corps of Signals, Nicholson was the army's high jump champion in 1946.



HARVESTING BLACK GOLD

Denis Noel

General Agriculturist

Grenada

"We must plan ahead because the weeds of today might become the basis of our economic success tomorrow."
Denis Noel

For centuries, Caribbean people have used traditional herbal remedies. Denis Noel has combined the wisdom of the past with the science of modern medicine.

Denis Noel was born on 13th December, 1937 at Carlton, St. Andrew's, Grenada. He represented Grenada in football for several years. On his father's property, Balthazar Estate, he grew to love nature, and this led him to pursue a Diploma in General Agriculture at the Imperial College of Tropical Agriculture (ICTA) in Trinidad. He graduated in 1960, after which he joined the Grenadian Ministry of Agriculture as a land use officer.

He served as Chief Technical Officer between 1971 and 1982, after which he became Grenada's Deputy Ambassador to the Organization of American States (OAS). In 1984, he returned to the Ministry for three years before entering politics. He was appointed to the Senate and served as Minister responsible for Foreign Affairs in the Prime Minister's Office, Junior Minister of Agriculture, and also Junior Minister of Communication and Works between 1990 and 1995.

After leaving politics in 1995, Noel diversified the operations of the Balthazar Estate. He packaged and marketed herbal tea made from lemon grass. He was the first Grenadian to cultivate the noni plant and market noni juice. In 2000, he released Nut-Med - a pain-relieving spray which combined nutmeg, a traditional remedy, with conventional analgesics. Nut-Med became internationally famous and was registered with the Food and Drug Administration (FDA) of the United States. His company also provides remedies for kidney stones, gallstones and cholesterol-reduction using Caribbean plants. Flowers from his estate helped Grenada to earn six Gold Medal awards at the prestigious Chelsea Flower Show in England over a 10-year period. The estate is currently Grenada's largest producer of cut flowers.

In 2005, Denis Noel was inducted into the Order of the British Empire (OBE) for his contribution to agriculture and manufacturing.

Denis Noel advises young people that, "Every person has intrinsic gifts and ideas which, when pursued, can lead to innovation and can change lives forever."

Photos from top to bottom:

1. *Noel (right) conversing with Her Majesty Queen Elizabeth II of England*
2. *Noel (centre, front row), captain of the ICTA football team, 1960*

KEYWORDS

ANALGESIC: a substance that reduces pain without causing loss of consciousness

NONI JUICE: made from the noni plant of Tahiti, which is believed to have beneficial health properties. It has gained popularity in the Caribbean region.

INTERESTING FACT

Denis Noel is a great lover of horses and is the owner and trainer of successful race horses that have competed in Grenada, Trinidad and Barbados.

Jean Picciottino

Structural Engineer

Trinidad and Tobago

"The beauty of science and technology is the ability to see your innovations being developed for the benefit of future generations." *Dr Jean Picchiottino*

Dr Jean Picchiottino oversaw the building of the Mount Hope Medical Sciences Complex in Trinidad, the most advanced hospital in the English-speaking Caribbean at the time. He is highly respected for his expertise in construction and his role in preparing world-class building codes for Trinidad and Tobago.

Jean Michel Lucien Picchiottino was born in Savoie, France on 27th November, 1937. His father's role in rebuilding France after World War II inspired him to study architecture but he later changed his mind to pursue his Engineering Certification at the prestigious *L'Ecole Nationale Supérieure d'Arts et Métiers*. He completed his doctorate in Soil Mechanics at the University of Grenoble in 1962.

Dr Picchiottino served in the military for two years before entering the family business. In 1964, he became a consultant in soils investigation and building construction. He was a technical director for two leading French engineering firms before joining the international firm, SODETEG, in 1983. He managed 13 subcontracting companies and 1400 workers during the construction of Mount Hope. Immediately afterward, he managed the construction of Madeleine Hospital in French Guiana, which accommodates 325 patients.

In 2001, Dr Picchiottino became a consultant engineer. With Agostini Industries in Trinidad, he developed and implemented the "Metal Home" concept, which allowed Agostini to build houses quickly, efficiently, economically and to international standards by using custom-made components. He was also involved in many marine projects in the English and French-speaking Caribbean and French Guiana.

Dr Picchiottino served on several committees of the Trinidad and Tobago Bureau of Standards and was the Technical Secretary and Designer in the preparation of the *Small Building Guide of Trinidad and Tobago*. He contributed to the *National Physical Planning Code, Storm Water Drainage Code* and the *Plumbing Code of Trinidad and Tobago.*

He advises young people to,"Always strive, always achieve... Money is not the point of life… Do what makes you comfortable, and never be afraid to get your hands dirty."

Photos from left to right:

1. *Picchiottino in his office in the Eric Williams Medical Sciences Complex, Trinidad*
2. *The frame of a Metal Home, Trincity Industrial Estate, Trinidad and Tobago*

KEYWORDS

BUILDING CODE: a set of rules that instructs people in designing buildings and structures. These codes are written by experts and made into law by the government. They ensure that the buildings are safe and stable, and can withstand natural disasters as well as the wear and tear of time.

STRUCTURAL ENGINEER: a civil engineer who analyses, designs and builds structures to support significant weights

INTERESTING FACT

Using "Metal Home" techniques, a fully outfitted, hurricane and earthquake resistant, three-bedroom house can be built by six workers in about two months.

A CARIBBEAN FLORENCE NIGHTINGALE

Mary Seacole

Nurse

Jamaica

"I was very young when I began to make use of the little knowledge I had acquired from watching my mother, upon a great sufferer - my doll." Mary Seacole

Mary Seacole was a dedicated nurse and a great humanitarian. Though less famous than Florence Nightingale, she was a heroine who risked her life to treat soldiers in the Crimean War, as well as victims of cholera and yellow fever in the Caribbean and Central America.

Mary Grant was born in Kingston, Jamaica in 1805. She got her love of nursing from her mother, who was knowledgeable about folk medicine and cures, and had built Blundell Hall in Kingston, where she nursed army officers and yellow fever patients. From the age of 12, she began to help her mother. As a teenager, she travelled to many countries, collecting information on plants and herbs used as medicine, and developed her own cures.

In 1836, she married Edwin Seacole. In 1843, fire destroyed Blundell Hall. Although it was rebuilt, this was followed by a greater tragedy when Seacole's husband and mother passed away the following year. Seacole took charge of the new Blundell Hall and continued her mother's nursing mission.

During a cholera outbreak in Jamaica in 1850, which killed over 32,000 people, Seacole saved many lives using simple herbal medicines, and became highly respected for her treatments. She also treated cholera victims in Panama and yellow fever patients in Jamaica and Cuba. On hearing about the Crimean War in which many soldiers were dying from cholera and dysentery, she applied to join Florence Nightingale's contingent, but was rejected because of the racial prejudice at that time.
In 1855, at age 50, she used her own resources to open the British Hotel in Crimea to treat injured soldiers. The hotel, which was built in two months, became a refuge for soldiers on both sides of the conflict. So courageous and committed was "Mother Seacole" that she often went onto the battlefield to attend to the wounded.

At the end of the war, Seacole returned to London deeply in debt, but the British Commander- in-Chief of the Crimean forces, in gratitude for her humanitarianism, helped her financially. Seacole's outstanding work earned her great recognition. Several buildings in the UK and Caribbean have been named to honour her, and the Government of Jamaica awarded her the Order of Merit.

Mary Seacole died in England on 14th May, 1881 at the age of 76.

Photos from top to bottom:
1. Cover of Seacole's autobiography
2. 2005 Jamaican stamps commemorating the 200th anniversary of Seacole's birth

KEYWORDS

CHOLERA: an infectious disease of the small intestine that results in diarrhoea, vomiting and cramps. It is spread through contaminated water and food.

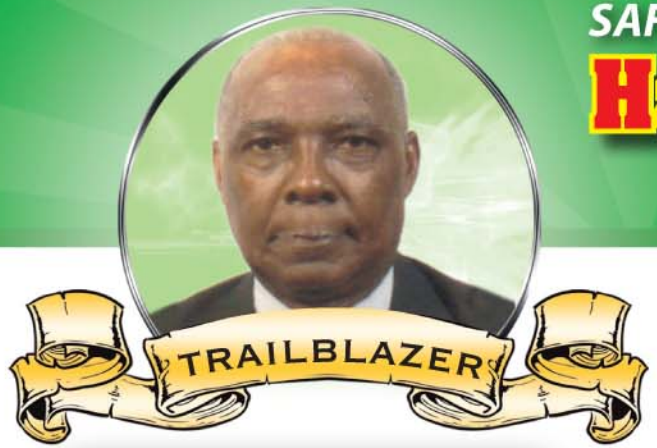
CRIMEAN WAR: a military confrontation between 1854 and 1856, in which England, France and Turkey declared war on Russia over a conflict of the Holy Land. Fighting took place in the Crimean Peninsula just to the north of the Black Sea.

DYSENTERY: an infectious disease which causes inflammation of the large intestine resulting in severe diarrhoea, vomiting and cramps. It is generally spread through contaminated water and food.

YELLOW FEVER: an infectious disease, spread by the Aedes aegypti mosquito, which can result in death

INTERESTING FACT

In 1871, Count Gleichen, the nephew of Queen Victoria, carved a bust sculpture in Mary Seacole's honour.



SAFEGUARDING THE PUBLIC

Hayden Thomas

Food Chemist

Antigua and Barbuda

"Dr Thomas is credited with the transformation of the Government Chemist Laboratory with a staff of two (2) to the Chemistry and Food Technology Division with a staff of twenty-four (24)." Stacey Gregg-Paige

Dr Hayden Thomas is known for his work on the processing and preservation of tropical fruits and vegetables and for establishing the Chemistry and Food Laboratory Division in Antigua and Barbuda.

Hayden Thomas was born in Roseau, Dominica on 8th October, 1935 and taken to Antigua as a toddler. He attended Willikies Government School and Faith and Hope High School. He was later awarded a scholarship to pursue his Bachelor of Science (BSc) in Chemistry at The University of the West Indies (UWI), Mona, Jamaica. After graduating in 1965, he went on to complete his Master of Science (MSc) in Food Technology at the University of Reading, England in 1973 and his Doctor of Philosophy (PhD) in Food Science at the University of London, England in 1981.

As the Chief Government Chemist in Antigua and Barbuda from 1981 to 1995, Dr Thomas analysed addictive drugs for the police forces of four Leeward Islands nations, and was a member of the Board of Directors of the Caribbean Regional Drug Testing Laboratory. He studied solar crop drying and new uses of exotic plants, and carried out phytochemical screening of medicinal plants. He taught chemistry at UWI's Extra-Mural Department in Antigua and helped to initiate a first-year science programme at the Antigua State College.

Dr Thomas was a member of the editorial board of the British journal *Food Chemistry*. He coordinated projects funded by the Organization of American States (OAS) in food biotechnology, the environment and natural resources. He was a member of the OAS Science and Technology Committee, the Commonwealth Science Council and the Caribbean Standards Council.

In 1995, Dr Thomas became the first Ombudsman of Antigua and Barbuda. He was the founding President of the Caribbean Ombudsman Association and Vice-President of the Board of Directors of the International Ombudsman Institute before he retired in 2006.

Dr Thomas is a member of the Industrial Court. He is active in community service and sponsors the Dr Hayden Thomas Trophy for the Best Chemistry Project in the Antigua and Barbuda National Science Fair.

Photos from left to right:

1. *The Antigua Black Pineapple, Antigua's national fruit, is one of the sweetest pineapples in the world. It darkens as it gets riper.*
2. *Representing Antigua and Barbuda at an international meeting*

KEYWORDS

FOOD CHEMIST: a scientist who studies plant and animal products that are used for food. Food chemists are concerned with the chemical processes that affect food before and after it is consumed, and its effect on the body. They determine whether food is safe and healthy.

MICROBIOLOGY: the study of living things so small that they can only be seen using a microscope. These include bacteria, yeasts and moulds.

OMBUDSMAN: an official who deals with people's complaints against the government

PHYTOCHEMISTRY: the branch of chemistry that investigates chemical substances derived from plants, which may have scientific, medicinal or commercial uses

INTERESTING FACT

For many years, Dr Thomas was a judge for science fairs in the Eastern Caribbean.

MATRON OF PUBLIC HEALTH

Bronte Agatha Welsh

Public Health Nurse

St. Kitts and Nevis

"…I can attest to the fortitude of her spirit, her faith, and courage. She is an example to all… she [retained]… her ability to make the best of life as it is…" Mrs Helen Mc Lean

Bronte Welsh overcame many challenges to educate herself and shape public health in St. Kitts and Nevis.

Bronte Agatha Welsh was born in Challengers Village, St. Kitts on 31st December, 1918. She attended the Girls' High School in Basseterre (now Basseterre Senior High), but encountered difficulties in travelling from home to school and left before sitting her final examinations.

Bronte Welsh worked as a private tutor, midwife and pharmacist before entering nursing in 1942 at the Cunningham Hospital in Basseterre, St. Kitts. By 1945, she was the first public health nurse in St. Kitts.

In 1949, Welsh completed a course on venereal disease treatment in Trinidad. In 1950, she pursued studies in Jamaica on the treatment of tuberculosis. On her return, she was part of a three-person team that implemented a massive United Nations vaccination programme. When it ended after three years, a quarter of the population of Anguilla, St. Kitts and Nevis had been tested for tuberculosis and the death rate due to the disease had been halve. In 1954, she studied Home Nursing Care and Supervision at the Westminster and Chelsea Queen's District Nursing Home in England on a British Commonwealth Scholarship. In 1957, she was the first local nurse to be appointed Superintendent of Public Health Nursing in St. Kitts. In 1963, she studied Public Health Administration at the Royal College of Nursing in London, England.

In 1971, Welsh retired from the public service and moved to the US Virgin Islands. In 1979, she suffered a fall, injuring her spine. After two years of surgeries and treatments in Puerto Rico and Boston, she returned to St. Kitts. She would never walk again.

Despite her injury, the elderly nurse published a booklet entitled *Nursing – A Calling or a Career?*, which narrated the history and development of nursing and women's rights in St. Kitts and Nevis. The proceeds from selling this booklet assisted the Red Cross in buying a van for transporting the physically challenged.

Bronte Welsh passed away in August 1997.


NURSING

A CALLING OR A CAREER ?

BY

BRONTE WELSH

Photos from top to bottom:

1. *Welsh's book on the development of the role of nurses over time*
2. *Immunisation programme*

KEYWORDS

PUBLIC HEALTH: the field of medicine concerned with disease prevention and the promotion of healthy living through public education

TUBERCULOSIS: an infectious disease of humans and animals caused by the bacteria *Mycobacterium tuberculosis* which usually affects the lungs. Also known as TB, it is usually accompanied by violent coughing, pale skin and fever.

VENEREAL DISEASE: a communicable disease, spread through sexual contact

INTERESTING FACT

In 1992, when Trinity Primary School was reconstructed after being destroyed by Hurricane Hugo, it was renamed Bronte Welsh Primary School in her honour.

ISBN 978-976-95095-8-0