



Two business initiatives of The University of the West Indies are underway that may further demonstrate its unique position in terms of the international value of its **Cocoa Research Unit (CRU)**, custodian of the International Cocoa Genebank, Trinidad (ICG, T).

Earlier this year, following initiatives led by Trinidad and Tobago's Ambassador to Venezuela, **Razia Ali**, a group of executives from the company, Chocolates El Rey (CER), visited the St Augustine Campus as part of a mission to locate a new home for their operations.

Ambassador Ali, a former director of the International Trade and Economic Relations Division of the Ministry of Foreign Affairs, advised the chocolate producers, who have been in business since 1929, that the political and economic climate in T&T, coupled with outstanding technological resources at the CRU, could provide them with advantages to be had nowhere else in the world.

So in January, a team, led by the President and CEO of CER **Jorge Redmond**, met with a UWI team led by Campus Principal **Professor Clement Sankat** to discuss the possibilities of a joint venture. Although it has not yet been finalised, the prospects look good as the meeting provided only positive reasons for a partnership.

For CER, relocating their operations to a country with such close geographical proximity (remember, we are said to be a chunk of 'broken



away' Venezuela), ensures a transition softened by climatic and cultural similarities.

Statements from the Second Roundtable Meeting for a Sustainable Cocoa Economy, held in T&T in March, indicate that the Government of Trinidad and Tobago is intent on revitalising the local cocoa industry and this augurs well for any company entering this sector.

As a producer of fine chocolates

primarily for export, it will be able to enter the largest market for high quality chocolates, the European Union, to which T&T has access.

It would also benefit from a supply of cocoa from one of the eight countries worldwide classified (according to the International Cocoa Agreement of 1993) as an exclusive producer of fine or flavour cocoa.

As a business service, The UWI can provide technological support, the

facilities of its labs at the CRU and its expertise. For The UWI, it will be an opportunity to help provide funding for the CRU, which has generally come from international agencies recognising the value of its work, and of course the significance of its prestigious ICG, T.

Hoping to encourage economic diversification regionally, The UWI has also offered similar services to Grenada, another of the exclusive eight countries, whose cocoa industry collapsed after being ravaged by recent hurricanes.

Meeting with representatives from the Ministry of Agriculture and other relevant parties, Principal Sankat and a team including **Dr David Rampersad**.

Director of Business Development, discussed helping Grenada to rebuild its economy with technical and other assistance. Grenada's cocoa industry, like T&T's primarily comprises farmers with small holdings, but unlike T&T, it suffers from inadequate training in processing and marketing its product.

The UWI will seek funding to enable the transfer of knowledge and to help rebuild the Grenadian economy, which has suffered tremendously in the past decade. It sees this as an opportunity to offer these services to other countries in the region, such as others belonging to the exclusive eight (Dominica, Grenada, Jamaica, St Lucia, St Vincent and the Grenadines, Samoa, Suriname and Trinidad and Tobago).

STUDENT NEWS - 04

Student Award

■ Purdy takes the prize



SPORT - 05

FIFA and UWI

■ Passion, games and benefits



RESEARCH - 10

Cocoa for King

■ Tilling the chocolate soil



HEALTH - 11

Olive Oil

■ Is extra virgin really better?



RESEARCH



Where's the Local Fine Chocolate?

It is legitimate to ask if Trinidad and Tobago is recognised as one of the world's eight exclusive producers of fine or flavour cocoa, why it has not been a producer of fine chocolates. Two years ago, **Prof John Spence**, in a series of newspaper columns on reviving the cocoa industry, said it was high time for Trinidad and Tobago to seriously consider manufacturing premium quality chocolates from locally produced beans. Prof Spence had pointed to the increase in world demand for fine or flavour cocoa, especially as dark chocolates had been scientifically proven to be healthier and loaded with anti-oxidants (but require more beans to produce than milk chocolate).

According to **Dr Darin Sukha**, a Research Fellow at the **Cocoa Research Unit (CRU)**, the response to this view is mixed, indicating the complexity of the issue.

"One school of thought states that producing countries should only focus on producing high quality cocoa for export in the most efficient manner possible and leave any further processing to be done at the traditional countries of export. Our current production volume is small and we have had no problem getting it sold at premium prices. We can double our present production levels without affecting price, so the incentive to produce chocolates has not been there," he said.

The main premise for this argument is that any local value-added production will distract from the local cocoa production task at hand and will potentially divert valuable cocoa production to less lucrative local enterprises.

"The other school of thought states that there are potentially lucrative local markets for a wide range of value-added products made from otherwise discarded primary cocoa processing by-products and lower grade fermented and dried cocoa beans. This parallel processing can utilise both lower grade beans and dedicated local first-grade cocoa bean production to create a range of value-added products for local and international consumption," he said.

As suggested by Prof Spence, these markets can be explored and developed by cocoa farmers themselves at the cottage industry level and there is long-term potential for an established secondary cocoa processing industry.

The answer to whether it is feasible to take the plunge and produce dark chocolate lies in another equally complex question. Is there enough cocoa production locally to serve both lucrative bean export and chocolate production?

Sukha feels that in the past five years there has been a discernible change in the attitude toward rebuilding and revitalising local cocoa production.

"I am seeing the Cocoa and Coffee Industry Board (CCIB) and the Ministry of Agriculture of Agriculture, Land and Marine Resources (MALMR) with the CRU and other stake holders working together in a concerted effort to

promote cocoa, increase cocoa production and make cocoa production more economically viable. What we need now is cheaper labour and research into labour-saving devices to make cocoa production less labour intensive," he said.

Cocoa production issues aside, on the international market, there are fine examples of exquisite chocolates using local Trinitario beans, branded especially to recognise their origins. **The San Juan Estate** in Gran Couva supplies beans for the European gourmet **Valrhona** chocolates, with one of its brands being called Gran Couva.

In reality, according to Sukha, "chocolate production has always been a very skilled task, requiring extensive capital outlay for machinery that was not small scale... Only recently has small scale machinery become available so that the capital risk in entering into chocolate production has decreased."

He has observed more people venturing into "chocolate and cocoa value-added products locally," but he cautions that the quality of these products must be high to compete with what is already out there. "I am only now seeing some attention being paid to high quality and this is as a result of increased consumer awareness about quality issues."

Another option for local chocolate production was successfully explored at the recent Second Roundtable for a Sustainable Cocoa Economy (RSCE2). For the RSCE2 meeting, the CCIB partnered with the Guittard Chocolate Company of California, USA, to produce a premium gourmet dark chocolate bar from 100 percent Trinitario beans from two (La Louisa Estate in Tamana and La Maraquita Estate in Gran Couva) of four cocoa estates (two in Moruga) owned by **Lawrence Duprey** and managed by **Prism Agri Estates Co Ltd**.

By entering into an exclusive contractual processing arrangement with an established dark or gourmet chocolate producer capable of handling small batches of beans, this option overcomes the prohibitive start-up costs and stringent quality criteria in setting up a chocolate manufacturing plant locally. This also allows low-risk testing of the local and export market for such a product until the critical mass and demand for the product are established.

With the urgency to diversify the economy, and add value to our primary production, and the evidence available that cocoa and fine chocolates are still in demand, The UWI has a crucial role to play. Sukha concluded that, "the CRU and UWI can facilitate in this drive to add value to cocoa production by partnering with entrepreneurs in research applied to chocolate formulation, product development and production, quality assessment as well as marketing."



Dr Jan Vingerhoets (Executive Director of the International Cocoa Organisation), **Senator the Honourable Arnold Piggot** (Minister of Agriculture, Land and Marine Resources) and **Mme Amouan Acquah** (President of the Second Round Table for a Sustainable Cocoa Economy (RSCE2)) sampling the premium gourmet dark chocolate produced for the Cocoa and Coffee Industry Board at the Opening Ceremony of RSCE2 held at the Hyatt Regency Hotel, Port of Spain.

EDITORIAL

THE SUMMITS AT OUR DOORS

Apart from being sites of research and teaching, universities have traditionally functioned as centres of discourse, places where ideas meet, collide and reverberate off each other as they take practical shape.

As you read this, the events surrounding the various versions of the **Summit of the Americas** would have ended. Hopefully, the ideas raised will resonate more powerfully for having been bounced around in such a refreshingly diverse series of chambers, and will move past being conceptual creatures and take the shape of real projects and programmes that yield benefits to the general citizenry.

At The University of the West Indies, we understand the importance of providing that interstice for differing views. The UWI hosted the "**Forum of the Workers of the Americas**" which was organised by the **National Trade Union Centre of Trinidad and Tobago (NATUC)**, headed by **Michael Annisette**. The **Coalition of Civil Society** organisations for the Summit of the Americas planned its **Civil Society Forum**, at our Daaga Hall Auditorium.

And although The UWI did not organise or structure the events, its St Augustine campus was the location for what came to be known as **The IV People's Summit of the Americas**, held by the **Federation of Independent Trade Unions** and **Non Governmental Organisations (FITUN)**, led by **David Abdulah** in partnership with the **Hemispheric Social Alliance** and the **Assembly of Caribbean People**.

Indeed, several members of the academic staff and students were participants at the various events: our Students Guild Council President **Hillan Morean** and others attended the **Youth Forum**.

As a citizen actively committed to serving our stakeholders, The UWI was happy to accommodate these discussions and will work towards seeing those ideas recorded, considered, and where appropriate, put into action. As participants and observers of the process, we remain vigilant to ensure that even in a society whose equilibrium has been shaken, ideas and discourse continue to be treated as valuable foundations and must always be nurtured.

CLEMENT K. SANKAT

Pro Vice Chancellor & Principal

EDITORIAL TEAM

CAMPUS PRINCIPAL
Professor Clement Sankat

DIRECTOR OF MARKETING AND COMMUNICATIONS
Mrs. Dawn Marie De Four-Gill

EDITOR
Ms. Vaneisa Baksh

CONTACT US

*The UWI Marketing and Communications Office
Tel: (868) 662-2002, exts. 2013, 2014
Or email: uwitoday@sta.uwi.edu*


 ■ STUDENT NEWS

PHOTO BY AMY LI BAKSH

Purdy Mohammed is the second student from the Faculty of Engineering to win an IEEE award; the first was Kathryn Young.

High Voltage Girl

UWI honours student wins international engineering award

Her dream was to be an astronaut, not uncommon for 12-year-olds, but her mother said: NO. It was her grandmother who brought her back information on NASA, the American space programme, and from reading it she realised that all the astronauts were engineers.

So although she relinquished the astronaut ambition, when Purdy Mohammed enrolled at The University of the West Indies (UWI) it was at the Faculty of Engineering. Soon, she found she wasn't too keen on the computer aspect, "I wasn't good at it," she confesses, but she liked the electrical element, and by her third year when she had to do Industrial and Commercial Electrical Systems under the tutelage of Prof Chandrabhan Sharma, she found it "exciting," admitting that she was turned on by how empowering electricity could be, and that "the idea of dealing with all that high voltage stuff" just lit her up.

Purdy says she had been inspired by seeing the possibilities involved in efficiently channelling this source of energy on a national scale, and she resolved to get first-class honours at the end of her BSc.

It meant studying for practically 16 hours a day in her final year, but it was worth it; she graduated with distinctions, and is now taking a break before resuming a Master's degree in Electrical and Computer Engineering in the new academic year. She's already decided that the component she wants to do is Power Systems and in the meantime, she is getting some practical experience on how this functions.

She is working at T&TEC on some of their engineering projects, but she hopes to return to The UWI as a lecturer when she's finished her MSc and PhD.

Purdy's prize was the Clayton Griffin Student Paper Award, recognised by the Institute of Electrical and Electronic Engineers (IEEE) through its Power Engineering Society. But she almost didn't get it because she didn't check her e-mails frequently enough and it was only on the deadline date she noticed that submissions were due. She had to send it immediately.

It was her final year project paper, "Applying Demand Side Management to Trinidad Network," dealing with issues facing our national electricity provider, T&TEC. She explained that it was initially premised on dealing with greater demands than supplies.

"Before the economic crisis, we had forecast the load demands to be greater than what we could supply. For the next ten years, even the load demand will be twice as much as we can generate," she says. "But with the economic downturn it will change, and we will have to re-forecast that. We need to install more generators but that will take some time [one to three years, maybe even five], so I used demand side management to explore three of six techniques."

Broadly, they come under the related areas of load-shifting: applying tariffs during peak times (7-9a.m. and 8-11p.m.) to discourage electricity use; peak-clipping: similar in concept; and strategic conservation, which would be more of a public education campaign to encourage people to invest in energy-efficient appliances, and lowering their electricity consumption.

It is a practical approach to a global problem, which is what the world needs; but surprisingly, despite her intensity, Purdy never thought the paper would win. She just didn't believe that someone from a small place stood a chance, and that is simply shocking. (VB)

■ NEW PROGRAMME

Engineering Asset Management emerges

From September 2009, The University of the West Indies will be offering an Engineering Asset Management Masters (EAM) degree. The programme will be offered part-time in the evenings over two years, or full-time over one year.

Engineering Asset Management is an emerging inter-disciplinary field that combines the technical issues of asset reliability, safety and performance with financial and managerial skills. The emphasis of EAM is on achieving sustainable business outcomes and competitive advantage by applying holistic, systematic and risk-based processes to decisions concerning an organisation's physical assets, including its fixed plant, mobile equipment and civil, electrical and mechanical infrastructure.

This programme is for those wishing to become maintenance practitioners, but would be useful to engineers and managers responsible for plant maintenance and projects in manufacturing, utilities, energy engineering and engineering service industries. The programme intake is limited to about 25 for the first cohort. Graduates will be Engineering Managers capable of effective management of the engineering assets of their organisations. Professor Chanan Syan, Programme Leader for Graduate Studies in the Department of Mechanical and Manufacturing Engineering, describes EAM as "the missing link in the Caribbean."

"Caribbean countries are in that phase of their development where the majority of the industrial and economic activities comprise of procuring plant and assets, using these to produce value-added products and services locally and internationally. Effective asset procurement, operation, maintenance and disposal are the core competency requirements for the region. However, there is no capacity building, development in this critical area of engineering asset management regionally," explained Syan, a professor of Production Engineering and Management.

The development of a body of knowledge to meet the needs of a competent asset manager is an ongoing issue. Three World Congresses on EAM have been held already, and a fourth is to take place in September 2009 in Greece. The new UWI programme was developed in partnership with the University of Toronto (Canada) and the University of Warwick (UK), and will be run in collaboration with the Arthur Lok Jack Graduate School of Business in Mount Hope, Trinidad.

■ **APPLICATION PROCEDURE** Online applications run until May 15, 2009. For application details, please visit <http://sta.uwi.edu/postgrad.apply.asp>. Entry requirements include a BSc in Engineering or Science or an equivalent. One year of industrial experience is desirable but not necessary. Candidates with other qualifications will be considered if they have at least 10 years industrial experience in the area of Engineering Asset Management.

■ **POSTGRAD OPTIONS** The University of the West Indies, Faculty of Engineering, Department of Mechanical and Manufacturing Engineering offers MSc programmes in Production Engineering & Management, Production Management, Engineering Management, Manufacturing Engineering and Engineering Asset Management. Syllabuses are available online at <http://www.sta.uwi.edu/resources/documents/facultybooklets/EngPostgrad.pdf>.

■ **FINANCIAL SUPPORT** The Department may be able to provide some financial support for specific research projects. Trinidad and Tobago nationals are eligible for support under the GATE programme. For more information, please contact The Secretary at UWI Faculty of Engineering, Department of Mechanical and Manufacturing Engineering, Production Engineering and Management Office at (Tel.) 868 662 2002 Exts 2074 or 2067, (Fax) 868 662 4414, or (E-mail) Production.Engineering@sta.uwi.edu, or visit our website: <http://www.sta.uwi.edu/eng>.

The Return of UWI Games



The UWI Games are part of the University's ongoing preparations for the upcoming inaugural Caribbean Games

In just a few weeks, the St Augustine Campus will host the **2009 UWI Games**. The University's biennial student games, which are rotated among the three main UWI campuses, will return to Trinidad next month. This year's **UWI Games** will be opened by Campus Principal **Professor Clement Sankat** at an official ceremony on Tuesday 21 May, 2009.

More than 400 athletes from the three main campuses at St Augustine, Mona (Jamaica) and Cave Hill (Barbados) are expected to take part in this year's Games, which will include track and field, football, netball, cricket, volleyball, basketball, six-a-side hockey, swimming, table tennis and lawn tennis. Everything ends at a festive Closing Ceremony on Tuesday 28 May, 2009.

Most of the events will be held at the **UWI St Augustine Sport and Physical Education Centre (SPEC)**. With 34,000-plus sq ft of indoor space, seating capacity for 1,360 people, and fully equipped outdoor facilities, **UWI SPEC** is widely recognised as a significant resource for regional sport development, training and research. During the weeklong Games, the SPEC will be converted into a Recreational Village, where athletes and supporters can enjoy a relaxed



atmosphere, music and entertainment.

The UWI Games are part of the University's ongoing preparations for the upcoming inaugural Caribbean Games, which are carded to take place in Trinidad late this year, from July 12 to 19. During that time, the **UWI SPEC** will again be converted into a Games Village. From across the region 1,300 athletes will gather for this significant regional event, the first of its kind.

The UWI has taken the lead in providing premier sporting facilities and sport-related academic programmes in the region. The University's St Augustine Campus offers sport-related undergraduate degree programmes such as Sport and Tourism Management, Sport Management, Coaching and Physical Education. The University's newest sport programme is a postgraduate diploma programme in Sport Management, which will be hosted by an Institute for Sport Studies housed in **UWI SPEC**. This postgraduate programme emerged from a recently signed agreement between the University and The International Centre for Sports Studies (CIES), which is the academic arm of the world football governing body, **FIFA**.

CAMPUS NEWS

It's Hillan again

UWI Student Guild Council President, Hillan Morean, has begun his second consecutive term of office at the St Augustine Campus, following the March elections held at the John F. Kennedy Auditorium, UWI St Augustine.

Other successful candidates in the 2009/2010



Returning Student Guild Council President is congratulated by Deputy Principal, Professor Rhoda Reddock.

Student Guild elections were Darren Mitchell (Vice President), Nkese Parris (Secretary), Latoya Lewis (Treasurer), Diana Hosein (International Affairs Chairperson), Trevyn Devonish (Games Committee Chairperson), Rhett Toolsee (Publication Committee Chairperson), Aaron Thomas (National Affairs Chairperson), Ravi Babooram (Student Activities Chairperson), Cherise Algernon (Humanities and Education Representative), Irwin Hackshaw (Social Sciences and Law Representative), Nigel Thomas (Part-time and Evening Student Representative), Aduke Williams (Postgraduate Representative), Orrette Baker (Deputy Postgraduate Representative) and Kandice Gunning (Engineering Representative).

Within the Faculty of Engineering, the new executive of the Engineering Students Society comprises: Amit Seeram (Vice President), Triveni Rajiv Maharaj (Treasurer), Aarti Jagmohansingh (Secretary), Amrit Ramnarine (Students Coordinator), Gina Marie Gosine (Public Relations Officer).

Each student who pays the compulsory annual Guild fee of \$175 is a member of the Guild of Students. The Student Guild Council is a body of representatives elected by the Guild of Students. Elected students are known as Guild Councillors. The Councillors represent and assist students in the areas of academics, extra-curricular activities and general student life. A Guild Councillor is the student representative of a particular committee, faculty or hall of residence. At the St. Augustine campus, the entire council meets regularly.

A Governor in the Chair



Governor of the Central Bank of Trinidad and Tobago, Mr Ewart Williams is the new chairman of the St. Augustine Campus Council of The University of the West Indies (UWI).

Mr. Williams, who has been serving as Central Bank Governor since 2002, chaired his first meeting of the St. Augustine Campus Council on March 17th, 2009. As an outstanding UWI graduate and postgraduate alumnus, he has also served as the Chairman of UWI, St. Augustine's Audit Committee. Welcoming him, Campus Principal, PVC Professor Clement Sankat paid tribute to his past service to The UWI and the region. Prior to his appointment as Governor of the Central Bank, Williams worked for thirty years at the International Monetary Fund (IMF), completing his career there as Deputy Director of the Western Hemisphere Department.

He follows the immediate past Chair, Mr Michael Mansoor, who first presided over a Campus Council meeting in March 1997. Mansoor chaired thirteen meetings of the Campus Council, and presided over the period of implementation of the University's first two strategic plans. He oversaw the implementation of a new system of governance of the Campus Councils.

Principal Sankat described Mansoor's contribution as "invaluable," adding that, "our St. Augustine Campus Council is very grateful for your time, steadfast support, service and signal contribution to the University over the past eleven years. This Campus in particular has been a beneficiary of the changes that have taken place over the period in which you had been Chairman of Campus Council."

While Mansoor ushered in The University's third strategic plan, it is Williams who will oversee its continued implementation over the next four years.



Members of the Students Guild Council.

OAS Assistant Secretary General at UWI colloquium

Two days before the Fifth Summit of the Americas, Assistant Secretary-General of the Organisation of American States (OAS), Albert Ramdin, spoke on 'The Western Hemisphere: Beyond the Summit of the Americas' at an international colloquium organised by The University of the West Indies (UWI) Institute of International Relations (IIR).

The colloquium was organised in collaboration with the Institut québécois des hautes études internationales (Université Laval) and the Centre for International Governance Innovation (Waterloo, Canada).

Ramdin's presentation was one of three sessions in the three-day colloquium. The formal opening included presentations by Professor Norman Girvan (Professorial Research Fellow, IIR) and Ms Alexandra Bugailiskis

(Assistant Deputy Minister, Latin America & the Caribbean & Summit Sherpa, Canada) on the place of the Caribbean in our turbulent world and the importance of the 5th Summit of the Americas.

The closing session was a roundtable discussion among representatives from selective think tanks over the Americas on the state of inter American relations. Participants included Carlo Dade (FOCAL), Francisco Rojas (FLACSO), Cristina Equizabal (LACC), Andres Serbin (CRIES), Paulo Sotero (WWC) & Tim Shaw (IIR). Several books were launched: The Summitry of Small States: Towards the "Caribbean Summit" (CIGI); Diplomacies of Small States: Between vulnerability & resilience (Palgrave Macmillan); and Americas Diplomatist Magazine.



OAS Assistant Secretary General Albert Ramdin has said that the region should deal head on with its critical challenges "such as energy, food and environmental crises, as well as the financial crisis."

RESEARCH



BY VANEISA BAKSH

Cocoa was never king in the Caribbean in the way that sugar, with its enormous plantations and masses of slave labourers, once was. Yet local cocoa history is one with a far nobler pedigree.

Ever since the first Spaniards planted the *Criollo* variety in 1525, and then later the *Forastero* variety obtained via Venezuela when the *Criollo* was destroyed in 1727 by what history records as “a blast,” cocoa seemed to develop a special love for this land and it virtually nurtured itself into a hybrid that naturally selected the best qualities of both original stocks into one magnificently structured *Trinitario*.

So superior was this hybrid that its international stature grew rapidly, and by the early 1800s, Trinidad and Tobago was producing 20% of the world’s cocoa, with only Venezuela and Ecuador ahead of it. What made it such a classic?

The *Criollo* is full of flavour and the *Forastero* is hardy and vigorous, says **Dr Darin Sukha**, a research fellow at the **Cocoa Research Unit (CRU)** of The University of the West Indies (UWI). “*Trinitario* combines the best of both,” and is versatile in cacao breeding programmes because of their “hybrid vigour.”

With this superb strain the cocoa industry took off, with mainly medium and small-holding farmers owning and running their estates, and between 1866 and 1920 it dominated the economy.

But everything was about to change.

By then West African nations were producing vast quantities of cocoa, flooding the market. This was followed by the economic depression in the 1920s and increasing sugar prices globally. Locally, the biggest blow came from Witches’ Broom disease in 1928 which hurt the farmers and this was exacerbated when the fledgling petroleum industry began to attract agricultural labour.

Cocoa had established its economic importance, so although production declined, the Cocoa Board of Trinidad

and Tobago was set up to try to revive the industry, but it continued slumping further as holdings grew even smaller and labourers, scarcer.

Cocoa lore reveres the rescue story of how **Dr F.J. Pound** undertook an exhaustive research survey in T&T between 1930 and 1935 and expeditions to Ecuador and the Upper Amazon between 1937 and 1942 to find genotypes resistant to Witches’ Broom disease.

This is where The University of the West Indies came in. People forget that its original incarnation was as the **Imperial College of Tropical Agriculture**, and most don’t know that given the prominence of cocoa to the economy of T&T, in 1930, a five-year cocoa research scheme had started, and by 1955 the Regional Research Centre was set up, leading to the establishment of the Cocoa Research Unit in 1963.

“By the early 1800s, Trinidad and Tobago was producing 20% of the world’s cocoa, with only Venezuela and Ecuador ahead of it.”



Dr Darin Sukha making cocoa liquors (the base for chocolate) at his Quality Laboratory, Cocoa Research Unit, UWI.

Dr Pound’s extensive survey had resulted in the Imperial College Selections planted in the San Juan Estate, Gran Couva, and his expeditions had yielded a collection of germplasm (trees of particular cacao types) planted primarily at Marper Farm, Manzanilla. For years too, the CRU had been conserving cacao germplasm, but they had been planted at various locations around the country.

By 1980, lack of resources and the threat of genetic erosion from competing land use meant that something had to be done urgently. Recognising the international importance of the collections, the European Development Fund provided the resources for all the little collections to be brought together at one properly managed and equipped site, and so the **International Cocoa Genebank**, Trinidad (ICG, T) was established between 1982 and 1994.

Set up at Centeno at the University Cocoa Research Station, the priceless collection includes 2,300 accessions representing the four major cacao groups (*Refractario* is the fourth) and clones are added as they become available.

This genebank, managed by the CRU, has been designated by Bioversity International as a “Universal Collection,” one of two such cacao repositories in the public domain.

Old plantation trees, Imperial College Selection (ICS) clones, have been replaced on many farms by newer commercial varieties (Trinidad Selected Hybrids) produced by the Ministry of Agriculture, Land and Marine Resources (MALMR) through the breeding programme pioneered by the late **W.E. Freeman**. These hybrids have increased resistance to diseases and favourable agronomic traits. The Ministry of Agriculture has considered quality as one of the selection criteria in its breeding programme and its TSH selections and their progenies have been made available to farmers. All of the commercial and superior TSH clones distributed to farmers have also been subjected to sensory analysis at the Cocoa Research Unit.



The 65% premium gourmet dark chocolate produced under contract by Guittard Chocolate Company, USA for the Cocoa and Coffee Industry Board using Grade 1 cocoa beans from estates managed by PRISM Agri Estates Company Ltd., Trinidad.

REBUILDING THE COCOA INDUSTRY

BY FRANCES BEKELE



Cocoa Research Unit at work

The Cocoa Research Unit's (CRU) research is core funded by the Government of Trinidad and Tobago and international partners such as the Cocoa Research Association (UK).

Its primary research activities are to make cocoa planting material available with improved traits such as: high yield potential, disease resistance, high fat content and good flavour characteristics.

It is also the custodian of the International Cocoa Genebank, Trinidad (ICG, T), and in that role, has focused on the conservation, characterisation (both morphological and molecular), evaluation and enhancement and use of the collection. The ICG, T has 12,000 trees making up its 2,300 accessions, which are groups of trees belonging to the same family.

Work in these four areas is funded through research projects with international commodity bodies such as the United Nations Common Fund for Commodities, Bioversity International and the World Cocoa Foundation. Currently at CRU, there are 10 internationally and locally funded collaborative research projects centered on the ICG, T. Many of these projects include active co-financing and counterpart contribution from within the chocolate industry. The CRU's work involves continuously seeking new avenues for funding, and disseminating its research findings in various local and international conference proceedings, newsletters and peer-reviewed journals.

The CRU functions at several levels. It provides training and quality assessments to the Ministry of Agriculture, Land and Marine Resources (MALMR) in screening new commercial type cocoa types before they are released to farmers. Cocoa accessions identified from its germplasm screening and enhancement programme for Black Pod and Witches' Broom diseases are distributed internationally via quarantine to cocoa breeding programmes and also form part of the MALMR's local breeding programme.

It screens the quality of beans from cocoa buying agents and trains them and fermentary operators in optimal cocoa post harvest processing for the Cocoa and Coffee Industry Board.

It works directly with some large farmers (who ship their cocoa privately and directly to chocolate manufacturers) to maintain high quality.

It is part of the National Cocoa Stakeholders Steering Committee and Working Group, helping to train farmers and guide the rebuilding process.

The CRU also collaborates with other research centres such as CIRAD (Centre de Coopération Internationale en Recherche Agronomique pour le Développement, France) and universities (such as Hamburg, Germany and Towson, USA) along with other UWI departments.

For instance, Dr Ivan Chang Yen of UWI's Department of Chemistry is involved in two State-funded projects; one that looks at heavy metals and Ochratoxin A (a fungal toxin) in local cocoa beans. This is primarily to protect the health of consumers and will enable a Hazard Analysis and Critical Control Point (HACCP)-based system for cocoa production, and thus a system of certification.

The other project led by Dr Chang Yen is based on the findings that dark chocolates contain healthy anti-oxidant and nutritive properties, known as nutraceuticals. Since the level of these nutraceuticals in local cocoa is unknown, the project seeks to "chemically characterise the flavour and nutraceutical content of local cocoa beans and to correlate their chemistries to their respective sensory qualities."

Ever since local cocoa research began, the task of assembling the ICG, T has spanned 60 years of effort, largely driven by the succession of reputable scientists associated with this historical centre of excellence.

More than 15 million people in African, Caribbean and Pacific countries are directly involved in cacao cultivation, with approximately 2.5 to three million small-holder cocoa farmers in over 50 countries. The World Cocoa Foundation reported that 40-50 million people depend on cocoa for their livelihood, and in 2008, the International Cocoa Organisation projected that world cocoa production would increase from around 3.7 million tonnes in 2007-2008 to about 4.5 million tonnes in 2012-13 with consumption almost on par. The annual earnings of the global cocoa and chocolate industry are estimated at US\$70 billion.

A ready market exists for all the cocoa Trinidad and Tobago can produce because of its premium quality and lack of restrictive quotas. The reputation of T&T's cocoa as 100% fine or flavour is well-known, and this cocoa is sought by manufacturers of delectable dark chocolates. This is why Trinidad and Tobago's cocoa currently commands between US \$4,500 to \$5,300 per tonne compared to US \$2,300 per tonne paid for bulk cocoa (used to make high-volume chocolate lines).

Yet over the last three decades, cocoa production, exports, acreage under cultivation and farmer participation in T&T have been declining steadily. Approximately 2,000 farmers now grow cocoa locally (compared to 10,000 in 1966). During the last five years, total local production has not exceeded 1.6 million kgs (metric tonnes) per annum. With low cocoa yields (less than 300 kg/ha), production costs were cited as TT\$7-11/kg in 1999. Currently, farmers receive TT\$20/kg for Grade 1 cocoa.

Only 10% of those farmers are between the ages of 20 and 40 while 85% are between 40 and 55. There is a drive to attract youth to cocoa farming, and to create value-added enterprises based on cocoa. Ten cocoa farmers' groups have been formed nationally with the help of the Cocoa and Coffee Industry Board (CCIB). The groups meet monthly, and are targeted for training by the Cocoa Stakeholders Committee, which was launched by The Ministry of Agriculture, Land and Marine Resources (MALMR) in May 2008.

Three key Divisions in the MALMR, viz., the Research, Agricultural Services and the Extension Training and Information Services work together to ensure that farmers have access to superior planting material and are informed about recommended practices for growing, harvesting and processing cocoa.

The CCIB was launched by an Act of Parliament in 1961 to "secure the most favourable arrangements for the purchase, sale, handling, grading, exportation and marketing of cocoa as well as coffee for the benefit of the industry." The CCIB has expanded its role to "encourage cocoa production" in order to continue to attract premium prices and sustain and satisfy the demand for local cocoa. With the Agricultural Development Bank, CCIB has launched The Cocoa Revitalizer Programme, which has financially assisted 246 farmers on a total of 2390 acres.

At the Cocoa Research Unit (CRU), research is ongoing; including studies on diversity assessment, screening for Witches' Broom and Black Pod disease resistance, germplasm enhancement (pre-breeding) and flavour assessment, among others. The results of the CRU's various research activities are well documented and have been of enormous value to cocoa researchers worldwide. CRU manages one of the largest and most diverse collections of cacao germplasm in the world, the International Cocoa Genebank, Trinidad (ICG, T). The genetic resources conserved in the ICG, T are actively being used to benefit the local and international cocoa industries.

The CRU's research, coupled with the superior planting material from MALMR, attractive incentive programmes and other efforts of MALMR and CCIB, should encourage existing farmers and stimulate interest in the industry among the youth. It is critical that problems associated with access to capital and land tenure be addressed. This approach will offset the constraints of labour, and the high per capita costs associated with the primary processing of cocoa.

With increased production, it will be possible to add value to the primary product through down-stream processing. This could include the use of by-products and wastes such as the pod wall or husk to produce livestock feed. There is also a potential to produce specialty products such as cocoa juices, liquors, ice cream, jams, and jellies among others. Everything is in place; all we need is the will.

Mrs. Frances Bekele is a Research Fellow and Cocoa Germplasm Specialist at the Cocoa Research Unit of The University of the West Indies, St Augustine.



UWI, St Augustine Principal, Prof Clement Sankat, shakes hands with the Ambassador of the Kingdom of the Netherlands, His Excellency Hans P.P.M. Horbach at the Commissioning Ceremony of the newly laid irrigation system at the International Cocoa Genebank, Trinidad. Looking on are Dr Marcel Vernooij, representative of the Ministry of Agriculture, Nature and Food Quality of the Netherlands (at right); Dr Michelle End of the Cocoa Research Association, UK (third from left) and Prof Dyer Narinesingh, Dean, Faculty of Science and Agriculture (partly hidden). In the foreground is Mr Yunusa Abubakar of the International Cocoa Organisation.

CAMPUS NEWS



Left: Mrs Merle Ali, HIV/AIDS activist and Dr Dorrell Philip, a motivational youth speaker spoke at the forum.

Passing on the care

Students of The University of the West Indies (UWI) organised a public forum on April 3, 2009 called, "Nurturing a Caring Society—Pass it on." The forum took place at the Trincity Mall and aimed at increasing social consciousness and affecting change that will encourage the country's transformation into a more caring society.

The Social Policy and Administration students intend to translate their theories of social work into real benefits for society. They wanted to make the public more sensitive to the ways in which individual actions contribute to the national deficit in positive values. The forum also focused on young people and socially displaced groups, such as persons living with HIV/AIDS, mentally and physically challenged persons, and the elderly.

RESTORING JUSTICE



Dr. Dianne Williams and Prof. Onwubiko Agozino at the "Developing a Caribbean Criminology" conference 2009. Professor Agozino is the coordinator of the Criminology Unit, host of the conference.

It couldn't have come at a better time: "Developing a Caribbean Criminology," was the theme of a two-day conference earlier this month hosted by the Criminology Unit of The University of the West Indies (UWI), St Augustine Campus. The conference, held at the Institute of Critical Thinking, was part of a multidisciplinary research project investigating the causes of crime both locally and internationally.

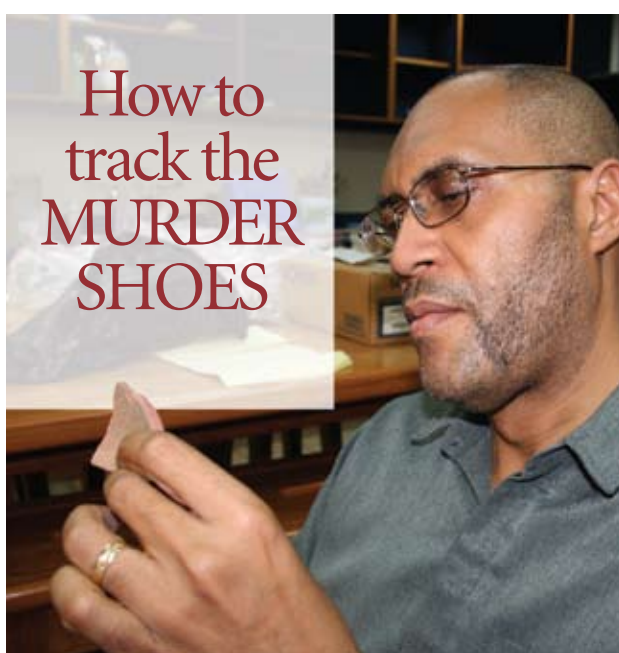
There were 33 presentations from researchers around the world with one common bond: they each had an interest in the area and had looked at the Caribbean situation.

Speaking on the second day, **Dr Dianne Williams** said the models currently used locally: crime control and due process, have been ineffective. The problem, she said, is that both were retributive, punitive models and it is now necessary to look at a different approach to reducing crime. She recommended the concept of restorative justice, which focuses directly on the victims and the offenders and seeks redress and some degree of satisfaction for the victim, and consequences for the offender.

One of the organisers, **Keron King** said, "This conference was the culmination of a grant funded by the Government of Trinidad and Tobago through The UWI St Augustine Researcher-Initiated programme to study the causes of crime in the country, the region and globally. Consequently, the Unit thought it wise to host a Criminology Conference with the sole aim of evaluating the contributions to a Caribbean Criminology."

The next step will be to combine all the presentations into one manuscript for publication in the hope that it will provide a useful guide. Also, said King, a research assistant at the Criminology Unit, the conference provided a useful opportunity to broaden the network of researchers involved in this area. The plan is also to work more closely with the criminal justice system, and to strengthen The UWI Institute of Criminology based at the Mona Campus.

Featured speakers were **Professor Ramesh Deosaran**, Professor at the Centre for Criminology and Public Safety at the University of Trinidad and Tobago, and **Professor David Plummer**, Adjunct Professor in Public Health at the University of Texas.

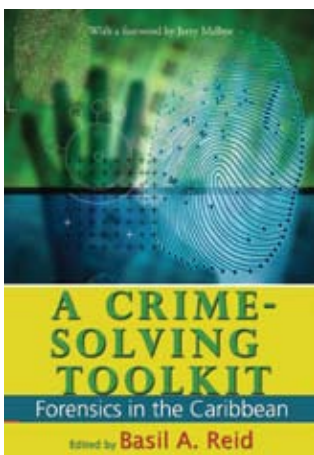


How to track the MURDER SHOES

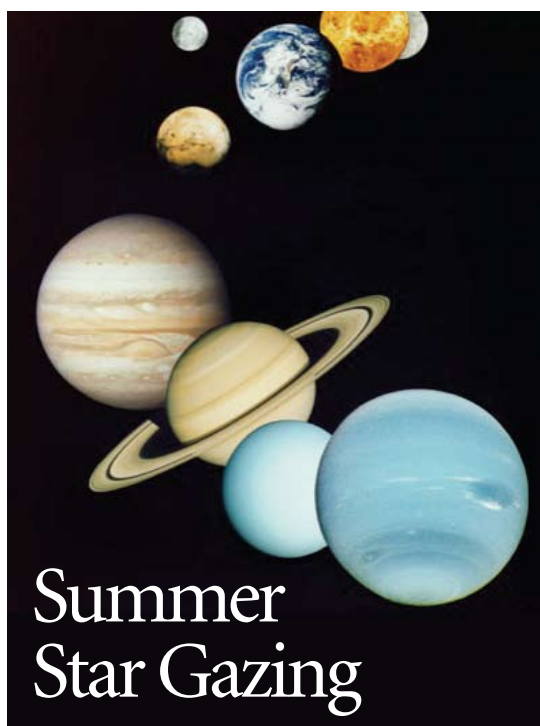
It is not just high murder and crime rates in the Caribbean that have contributed to a climate of fear and despair, it is also the unacceptably low rates of arrests, detections and successful prosecutions that leave citizens feeling hopeless and perpetually vulnerable.

Forensic technology provides an important tool in evidence gathering and contributes significantly towards successful convictions. While forensic sciences have been used in the region for an appreciable time, most publications on the subject have focused on North American and European situations.

A new volume on the subject, "**A Crime-Solving Toolkit: Forensics in the Caribbean**" promises to bring a geographic and cultural relevance to the area. Edited by **Dr Basil Reid**, a lecturer in Archaeology at the UWI, St Augustine, the collection focuses on disaster-victim identification protocols, forensic anthropology, computer forensics, geospatial technologies, shoe-print identification, suicide hangings and forensic linguistics.



It includes case studies from Trinidad and Tobago, Barbados, Jamaica, Grenada, Guyana, Haiti, the Dominican Republic and Guatemala. The contributors are **Cheryl A. Corbin, Sheau-Dong Lang, Nazir Alladin, Parris Lyew-Ayee, Trevor Modeste, Basil A. Reid, Godfrey A. Steele and Calle Winskog**. The book is a publication of the UWI Press and is available at The UWI Bookshop.



This year has been declared the International Year of Astronomy, celebrating 400 years since Galileo looked through the telescope, launching us into an era of enhanced vision into the Universe. Astronomy is one of the most dynamic fields where new discoveries are routinely made as humanity boldly goes where no man has ever gone before in increasing our reach and observation of the Universe. As part of the International Year of Astronomy recognition, UWI launches a new course on "Introduction to Astronomy" (PHYS 1001) from the Department of Physics, Faculty of Science and Agriculture. This course traces the development of Astronomy from ancient times in different cultures like the Greek, Babylonian, and the Mayan inputs into Astronomy. It leads the participant on a journey from our own solar system, exploding and dying stars into the far reaches of distant galaxies. On the way exotic objects like quasars are explored towards understanding their role in the Universe. The origins of the Universe is explored in light of the standard Big Bang model and the course ends on the philosophical and sobering note of search for life in the Universe and some of the research being undertaken at UWI as well.

This three-credit course is open to students from all faculties and other non-campus persons. There are no formal prerequisites, except for normal matriculation requirements for UWI. The course lecturer is Dr. Shirin Haque, Astronomer at UWI.

HEALTH



Dr. Dan Ramdath says you should use all oils sparingly.

Thanks to 16 years of Food Network's marketing on cable TV, everyone knows what EVOO is and what's more, has been persuaded that extra virgin olive oil is the slick, chic way to highfalutin health.

So what has made this fruit oil so beguiling that we are prepared to pay up to five times more for it than any of the over thirty different types of available edible oils?

Even in these recessionary times, the appearance of several different brands and qualities in supermarkets, ranging in labels from 'extra-virgin' to plain 'olive oil,' suggests that despite its costliness, it is the new signature ingredient of the modern kitchen.

So, is EVOO all it's cracked up to be, or have we been seduced by shrewd marketing into adopting it as a status symbol?

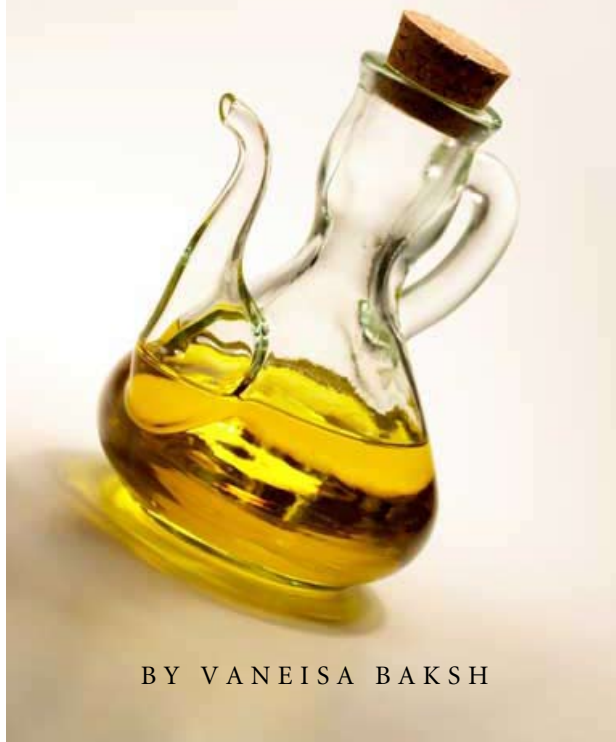
Dr Dan Ramdath, Professor of Biochemistry at The University of the West Indies (UWI) and Registered Nutritionist (UK), remembers olive oil being around in the old days when pharmacies stocked it as sweet oil, used for softening ear wax. A rather mundane Caribbean origin—but one that burgeoned as communications technology let us in on its prominence in the Mediterranean diet and its association with reduced risk for coronary heart disease.

Prof Ramdath says that Mediterranean uses of the oil involve light drizzles on salads or brushing it onto fish, meat or vegetables just before serving, and rarely involves heating or frying, but people don't realise that cooking with the oil actually alters its effects significantly, and so blithely fry everything in it.

"When polyunsaturated fatty acids are heated, they absorb oxygen from the air and the process of rancidity is initiated. As the oil is progressively exposed to more oxygen or is heated further it takes up more oxygen and starts smelling rancid. In our bodies, antioxidants such as Vitamin C, E, and carotene prevent our cells from going rancid. In oils, this process is called oxidation and can be prevented to some extent by the use of antioxidants. In addition, the structure of the fatty acids change and these changes can have adverse effects on LDL and HDL and the risk for heart attack," he says.

The Hot Myth of Olive Oil

Is Extra Virgin better?



BY VANEISA BAKSH

You can sprinkle practically any kind of oil onto your salads, he says, it really is a matter of taste; and as with everything else, the difference in health benefits has more to do with how much you use. Olive oil might be different from other oils in some ways, but excess is always bad.

"The difference is due to the building blocks of dietary fats called fatty acids. Fatty acids can become rancid when exposed to air and this depends on their chemical structure. Those rich in saturated fats like coconut oil are resistant to rancidity. Olive oil is rich in monounsaturated fatty acids, which have been shown to lower LDL (high risk cholesterol) with modest increases in HDL (protective cholesterol). Interestingly, avocado has a fat profile that is similar to olive oil. Other oils (sunflower, or canola, or soya or grapeseed) are predominantly rich in polyunsaturated fatty acids which promote favourable LDL but also reduce HDL; so like all types of oils it is important to use it sparingly," says Prof Ramdath.

"Grapeseed oil is very interesting because recent research has shown that it contains compounds that have beneficial effects on cell growth and antioxidant status. These compounds are similar to those that cause the colouring of most fruits and vegetables (called flavonoids) and have been shown to improve the ability of our body to handle sugar, which is very promising for persons with pre-diabetes or diabetes. Some flavonoids found in grapeseed also stimulate cellular metabolism and help to burn off excess calories in rats, which prevent the onset of diabetes," he says.

Cooks will be happy to know that grapeseed oil has a high smoking point so it can be used to cook at high temperatures: stir-fries and sautés, for instance. And it's good for your skin too: recommended as an all-over skin moisturizer, said to reduce the visibility of stretch marks, and used as a lubricant for shaving. However, it is fairly expensive as well, roughly three times the cost of vegetable oil.

Prof Ramdath contends that there really is no safe, healthy oil, "but rather it is the amount of oils and other fats you consume in your daily meals that is more important."

Most health problems, like hypertension and diabetes, are associated with large waist circumferences—a result mainly of overeating. His advice?

Eat less, remove skin and fat from meats, avoid fried foods; try them grilled, barbecued or baked, and watch out for mayonnaise.

"The bottom line," he says, "is to stay away from fats and oils, minimise usage when necessary and use the money spent in buying expensive 'healthy oils' to buy more fruits and vegetables, and a good pair of running shoes."

GRADE THEM

Virgin means the oil was produced with no chemical treatments.

Refined means that the oil has been chemically altered; usually to neutralise strong tastes.

Extra-virgin and **virgin** olive oils ought not to contain any refined oils, which are considered to be inferior in quality.

Oils graded as **Pure Olive Oil** or **Olive Oil** are usually a blend of refined and virgin production oil.



A wide variety of olive oils is available at supermarkets, and despite high prices, managers say they are hot sellers ...and high pilferage items. A 750ml bottle of Taliani Extra-Virgin Olive Oil retails locally for \$225.

RESEARCH



While dairy
cooperatives are
the way to go...

We should be milking buffaloes



During the last National Budget presentation, the point was repeatedly made that the approach to development would be 'people-oriented.' **Dr Rajendra Kumar Rastogi** believes that in the dairy sector, this approach must take the form of cooperative structures.

What is the role for cooperatives in our modern economic scenario? After all, have we not embarked on a new economic path in which privatisation, globalisation and liberalisation are the catch words? Why should anyone be concerned with whether or not cooperatives enjoy a progressive legislation?

These questions are important not just for the thousands of our small farmers, but for the wider Caribbean.

Land is perhaps the most important income-generating asset in the rural economies of Trinidad and Tobago and other Caribbean countries. Yet scarcity of land (particularly freehold) and its skewed distribution are two of the major constraints of the rural Caribbean landscape. Not only is it limited, a large portion consists of holdings other than small farmers' holdings. Small farmers in the Caribbean, accounting for more than 60 per cent of rural households, have access to only about 30 per cent of arable land. There are approximately 1,500 small dairy farms in Trinidad alone.

While various types of farmers' cooperatives play a useful role in promoting rural development, dairy cooperatives have special attributes that make them particularly suitable. They can facilitate the development of rural economies, thus upgrading the standard of living of the poor and not so poor.

The main constraint that milk producers seek to overcome by acting collectively is the marketing of their product. They need to be assured of a secure market. Dairy farmers can cooperatively establish their own collection system and milk treatment facility to convert their perishable primary produce, which requires special and timely attention, into products with longer lasting quality.

The Minister of Agriculture, Land and Marine

Resources understands the importance of dairy cooperatives in bringing about an increase in milk production with simultaneous upliftment of the rural poor.

As a first step, the Minister should dispatch a team of five people to study the cooperative milk producers' organisation in Anand, India. The team should comprise two officials from the Ministry and one each from The University of the West Indies, small dairy-farming community and medium-to-large dairy-farmers' group. The team's study tour should be routed through the existing mechanism of the Technical and Economic Cooperation with the Government of India which should be further requested to provide technical assistance to help develop the dairy cooperative movement here in Trinidad and Tobago.



The law concerning the definition of 'milk' is in urgent need of revision. At present, only cow's milk is defined as 'milk' and only the producers of this milk (and no other types, for example, buffalo, goat, sheep, etc.) are entitled to State's assistance.

Dr Rajendra Rastogi

The laws concerning the establishment and operation of cooperatives in the country should be reviewed and amended to facilitate setting up dairy cooperatives. The law concerning the definition of "milk" is in urgent need of revision. At present, only cow's milk is defined as "milk" and only the producers of this milk (and no other types, for example, buffalo, goat, sheep, etc.) are entitled to State's assistance. The law is strangling dairy development, as cows are not the most efficient/economic producers of milk in our circumstances.

For years, I have argued that water buffaloes are better suited to the production of milk and meat than cows under local environmental conditions. There has been limited success, but the Government's Aripo Livestock Research Station now has a pilot herd of buffaloes for this purpose.

However, buffalo milk cannot be sold for money under the present law and thus has to be given away freely. No wonder small farmers are not interested in buffaloes for milk production.

Rice farmers should immediately integrate buffaloes into their farming system, utilising the straw to produce meat, even while waiting for the law to be amended to include the sale of buffalo milk, which can be used in the production of ice creams and yoghurt for example, until the taste for it is acquired.

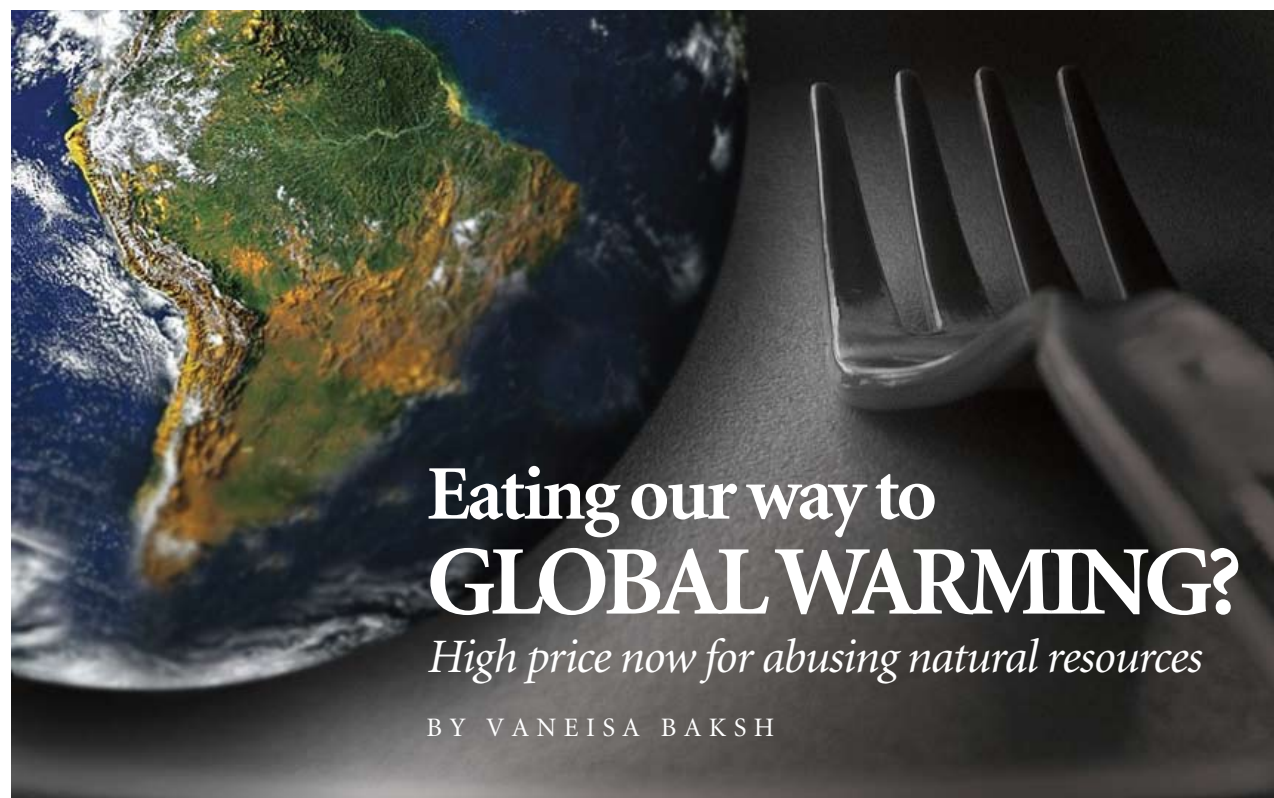
Praedial larceny is another important constraint to livestock sector development and the law must be modified to include life imprisonment as punishment. Praedial larceny is no less significant in its economic impact on society than the problem of narcotics and marijuana cultivation and should be treated with the same urgency and resources.

A minimum of five to ten years must be allowed for this movement to anchor itself among the grassroots people through education programmes. This means that once a policy on dairy cooperatives is formulated, it must be followed to its logical conclusion, regardless of which political party is in government.

The Government should encourage cooperatives as a vehicle for its people-oriented dairy development. There are problems to be addressed, however, including an insufficient number of dairy animals of the right genetic quality; inefficient management; low standards of hygiene on farms; inadequate nutrition of livestock; archaic laws; praedial larceny; and lack of proper leadership. Moreover, since the government is unable to allocate new funds towards expensive imports of heifers from temperate countries of the North, it must give attractive incentives for the implementation of heifer-rearing schemes by private farms initially and the cooperatives later. Significant resources should be channeled to develop buffaloes for milk. At the same time, male calves should be reared for fattening on a feedlot system for the meat industry. These can be fed on agro-industrial by-products such as rice straw, grain-milling industry by-products, and fruit-cannery waste products.

Dr Rajendra Kumar Rastogi is a Senior Lecturer, Department of Food Production, The UWI, St. Augustine.

RESEARCH



Eating our way to GLOBAL WARMING?

High price now for abusing natural resources

BY VANEISA BAKSH

Bet you didn't know that livestock are responsible for 18% of the greenhouse gases that cause global warming. That's more than cars, planes and all other forms of transport put together (13%). When you think of the awful stink caused by motorised transport as opposed to the innocuous existence of animals, it sounds incredible.

Unfortunately, the world's livestock population is mainly ruminants—sheep, goats, cattle, camel, buffalo—whose four-chambered stomachs generate the methane that has 21 times more of an impact on temperature than carbon dioxide does. (The methane comes from the chamber called the rumen where bacteria are broken down.)

Livestock also produces more than 100 other polluting gases, including more than two-thirds of the world's emissions of ammonia, one of the main causes of acid rain.

If that isn't startling enough, the 2006 report of the Food and Agricultural Organisation identified ranching as the major driver of deforestation. And just imagine, cows use 990 litres of water to produce one litre of milk!

It's not the animals' fault; it is the level of animal husbandry resulting from humans' escalating appetite for their flesh. Eating meat warms the planet drastically, said Professor Chandrabhan Sharma, as he encouraged vegetarianism or lower meat intake as ways to retard global warming.

In a provocative series of questions and assessments, Prof Sharma's recent professorial inaugural lecture shied away from nothing as he comprehensively addressed the subject of renewable energy by asking "Is this the panacea for sustainable energy security in an island state?"

Despite his fascinating environmental data, he is actually a professor of electrical and computing engineering at The University of the West Indies, and his lecture focused on exploring the energy challenges facing [small] islands... across a spectrum where any one point is cause for alarm.

He broadly identified the problems as pollution, increasing population, finite land mass, global climate change and growing petroleum consumption and variable prices.

Then he went into several possible sources of renewable energy—solar, wind, wave and ocean, geothermal, bio-mass and hydro—exploring each one's potential in terms of what it entails, how it can be used, the cost of installing and

sustaining its technology and infrastructure and making recommendations based upon this detailed analysis.

For instance, he recommended that photovoltaic (PV) solar energy was not cost effective as the electrification rate is about 98% (and solar power requires significant land area: five to 10 acres per megawatt of power, plus it produces toxic wastes in the manufacture of the photo-cells). On-shore wind energy farms were not particularly feasible for small islands because inter alia, funding costs are very high and an island's demand may be inadequate: it would require cranes with the capacity for lifting 80-metre long towers; it needs large acreages and wind variability would still require back-up power. Its feasibility could be improved, however, in a supportive environment.

On the other hand, he thinks that soon, dual-use applications of wave energy technology may prove cost effective: "Power generation technologies could be incorporated into breakwaters harbour walls or other structures or they could be integrated with other commercial activities, acting as artificial reefs for marine agriculture operations or as platforms for desalination facilities."

Prof Sharma warned that geo-thermal energy "which is transformed into energy (electricity or direct heat) is an extremely capital-intensive and technology-dependent industry."

As for bio fuels, he reminded that they were intended to reduce emissions, but argued that emissions will increase if forests are cleared for bio fuel crops and if peaty soils are burned or disturbed. He cautioned policy makers to be mindful of this as well as the costs of production and transportation as he was not convinced it would be cost effective.

It is all about creating an enabling environment, said Prof Sharma; one that includes sustainability and interdisciplinary competence, capacity, planning, implementation, evaluation and assessment.



Prof Chandrabhan Sharma explores energy security in islands and reveals some startling data

From his analysis, he concludes that with the exception of "biomass co-firing" no renewable energy technology is able to generate power commercially without some form of financial support. He also advocates policy measures to overcome some of the market barriers he envisages—such as lack of information, institutional barriers, the small size of renewable energy companies and high financing costs.

He encourages public involvement in the quest to adopt renewable energy sources as a path to sustainability of life.

So, what can you do?

You can understand your role in the process. Human consumption has contributed significantly to the depletion of energy sources and endangered our planet. We are now at the point where we have to pay the price for that wanton abuse. Prof Sharma urges that citizens lobby for policies that focus on development and implementation of renewable energy systems; that we practise efficient energy use; that we support development and research efforts into new fuels...and of course, watch what you eat!

Environmental Issues

Animal agriculture uses 30% of earth's land surface.

Worldwide, meat production is the major cause of soil erosion.

Every minute, the equivalent of seven football fields is bulldozed for animal husbandry.

Irrigating feed grains and raising livestock accounts for over 50% of fresh water used in the USA.

Globally, ruminant livestock produce about 80 million metric tons of methane annually, accounting for about 28% of global methane emissions from human-related activities.

The Bottom Line

Increasing levels of greenhouse gases—and the climate change they are causing—are real and they are a major problem

To stabilise concentrations, the world is going to have to reduce its emissions of CO₂ and other greenhouse gases by at least 90%.

Over the coming decades, there will be pressure for enormous changes in the nature and operation of the global energy systems.

A global system for control can be built up over time from separate regional efforts. A global agreement is not the necessary first step.

Market Barriers

Commercialization barriers faced by new technologies competing with mature technologies

Price distortions from existing subsidies and unequal tax burdens between renewables and other energy sources

Failure of the market to value the public benefits of renewables...Kyoto Protocol

Market barriers such as inadequate information, lack of access to capital, "split incentives" between building owners and tenants, and high transaction costs for making small purchases.

■ CAMPUS NEWS

Coastal students not quite at sea!

At the end of March this year, for the first time, students studying the MSc in Coastal Zone Engineering and Management attended a field trip in Charlotteville, Tobago. This was part of the module on Coastal Zone Metrics which aims to provide an understanding of measurement techniques used in the coastal region for environmental assessment, shoreline management and coastal engineering schemes.

Fifteen students attended the course, which was supervised by Professor Andrew Chadwick (professor of Coastal Engineering), David Neale (part-time lecturer and director of Cane Associates) and Dr Joanna Ibrahim (part-time lecturer). The students were set a comprehensive scoping study for the potential upgrading of the beach facilities at Man-O-War Bay, involving measurements of beach profiles and material properties, sea bed contours, tidal currents and water levels and water quality parameters.

They worked in groups of five, spending the day taking measurements and the evenings preparing the reports and making presentations. The hard work was enjoyed by all and by the end of the trip everyone was exhausted but very satisfied. A celebratory barbecue was held on the Saturday evening, before returning to Trinidad the next day.



Beach profile surveying: Cristal Narine looks through the level, while Tamara Goberdhan takes notes.



Transfer from pier to survey vessel: As their backs are turned to us, we can't be too sure how Rameez Persad and Candice Leung Chee are faring, but from the looks on the faces of Maurice Wylie, Dhanishi Bhagwandeem and Astrel Medina, no one seems seasick yet.



Charlotteville: Sediment input into the beach system, note the poorly designed pier in the background.

PHOTOS BY PROF. ANDREW CHADWICK

■ NEW PROGRAMME



Region's first BSc in Optometry

This September, The University of the West Indies (UWI) will begin another new undergraduate degree programme, a BSc in Optometry, the first of its kind in the Caribbean aimed to change the way we view...well, everything.

"A dream come true," is how Optometrist Petra Bridgemohan, one of the coordinators of the new programme, describes watching her project come to life. Sight is one of our most vital senses; and according to two of the BSc in Optometry coordinators, Bridgemohan and UWI Physics Professor Ramsey Saunders, the shortfalls in the local and regional field of optometry are plain to see. They point out that you are hard-pressed to find persons who don't have family members who have suffered with cataracts, glaucoma, childhood eye diseases or many of the other prevalent ailments related to sight.

Optometrists are trained professionals who examine eyes, give advice on visual problems, prescribe and fit spectacles and refer patients with eye disease to medical colleagues. In Trinidad and Tobago, there are only 98 registered optometrists, 97 of whom are in the private sector. At present, Bridgemohan is the only optometrist who works in the public sector, a situation she describes as "dismal."

Prof Saunders notes that the most prominent aim is to "prevent preventable blindness" through effective screening and monitoring of health care systems.

The UWI's programme is a hybrid, says the coordinators. In order to ensure that the programme was unique, they created "a hybrid of all the different [academic] systems, designed to suit the demands and evolving needs of the region." A UWI team has visited international universities with the most respected Optometry programmes, over a period of years, liaising with accreditation councils and researching academic curricula. The course will cover a broad range of topics including anatomy, physiology, clinical optometry, visual optics, ocular pharmacology, communication skills and law and optometric management. The final product is what they've termed "an optometrist's wish list," and is expected to turn out excellent specialists, well-equipped to deliver above satisfactory vision care.

This undergraduate degree is a four-year programme, with the first three years devoted to theoretical training. The fourth year will serve as an internship where students will gain practical experience at public and private eye clinics, with qualified supervisors. Applicants to this program must have obtained at least a Grade 2 in GCE Advanced Levels in three subjects, which must include Physics and Chemistry. An appropriate associate degree or relevant experience will also be considered. This selection process is expected to be highly competitive as the first batch of students is expected to be limited to 25 persons, due to the need to provide highly specialised equipment for all.

Bridgemohan has high hopes for the programme and its students, noting "graduates are expected to be policy makers in eye care in the region." She said it is not common knowledge that professionals in the field of ophthalmology were the ones responsible for driving the fight to implement the law compelling drivers and passengers to wear seatbelts, an act motivated by the high percentage of eye injuries suffered during car accidents. She expects the programmes to produce like-minded professionals who can advance the region's mindset where eye care is concerned.

Missing link?

Is there a link between research and policy? The Sustainable Economic Development Unit (SEDU) of The University of the West Indies (UWI), with the support of The UNESCO Kingston Cluster Office for the Caribbean, addressed this question in the conference entitled "Bridging the Gap between Research and Policy for Sustainable Development in Caribbean Small Island Developing States (SIDS)". The Conference was held at the Faculty of Social Sciences Lounge, UWI, St. Augustine Campus.

The conference reflects SEDU's continued efforts to deepen discussions on how research institutions and can collaborate with national industries to bridge the gap between research and policy, and achieve sustainable development.

SPORT

FIFA Sport Management comes to SPEC

In a move targeted at strengthening the country's standing in the international sporting fraternity, The University of the West Indies (UWI) has sealed an agreement with The International Centre for Sports Studies (CIES) to launch a postgraduate diploma programme in Sport Management, under the auspices of the world governing body in football, FIFA.

On March 25, UWI St Augustine Campus Principal Professor Clement Sankat, signed this landmark agreement alongside Mr. Vincent Monnier, Senior Manager International Relations and Professor Pierre Lanfranchi, Scientific General Coordinator. Also present were Minister of Sport and Youth Affairs Gary Hunt, and Mr. Oliver Camps, President, Trinidad and Tobago Football Federation (TTFF).

With this new programme, UWI joins the FIFA/CIES International University Network, which, to date, counts nine universities from Argentina, Chile, Costa Rica, Egypt, Senegal, South Africa, Turkey, and the Ukraine.

Professor Sankat noted that the executive sport management programme is "the first of its kind in the region to be offered at a tertiary level."

Mr. Monnier said participants in the region would be charged with learning how to "apply theories learnt and adapt them to local realities."

Professor Lanfranchi pointed out that "the sports industry is the only field which aligns passion, games and benefits." He praised the local sports industry for what he termed "lots of goodwill," but felt it suffered from a lack of

formation, due to the deficit in formal training.

The new UWI/CIES programme will provide a wide platform of formal training in sport management, marketing, finance, law, communication, event management and facilities management. It will be coordinated by the Faculty of Social Sciences, and will be housed by an Institute of Sport Studies, established under the umbrella of the UWI Sport and Physical Education Centre (SPEC).

Minister Hunt assured that the government "endorses this initiative wholeheartedly" and hoped that "this programme will lend support to the national vision for sport in Trinidad and Tobago."

UWI Sport and Physical Education Director, Dr Iva Gloudon, said, "What this Institute will do is bring all of the University's academic, recreational and competitive physical education programmes under one umbrella. The focus of the Institute will be to develop a robust academic outlook on sport and physical education and to create a meaningful body of rigorous research about Caribbean people by Caribbean people. There is very little research out there on us, and even less research out there by us. This academic research can be used to inform all of our sport programmes, whether recreational or competitive, whether community-based or regional."

Dr Gloudon was key to the signing of a previous Memorandum of Understanding (MOU) between UWI Vice Chancellor, Professor E. Nigel Harris and FIFA President, Mr. Joseph Blatter in September 2008. That MOU, the predecessor of last month's agreement, established an agreement between UWI and FIFA to undertake cooperative programmes in the areas of research, training, education and facilities development in sport management, education and administration. Professor Sankat hosted the 2008 UWI-FIFA MOU signing, which was attended by representatives of the Ministry of Science, Technology and Tertiary Education and the Ministry of Sport; Mr. Austin 'Jack' Warner, FIFA Vice President; Mr. Oliver Camps, President of the TTFF; and Lord David Triesman, Chairman of the English Football Association.



Dr Iva Gloudon, UWI Director of Sport and Physical Education addresses attendees at the signing of the landmark agreement between FIFA and The UWI. Also at the head table were FIFA's Professor Pierre Lanfranchi, Scientific General Coordinator, Minister of Sport and Youth Affairs Gary Hunt, Vincent Monnier, Senior Manager International Relations, FIFA, UWI St Augustine Campus Principal Professor Clement Sankat, and Oliver Camps, President, Trinidad and Tobago Football Federation (TTFF).

NEW PROGRAMME



Advanced Nursing now available

The University of the West Indies (UWI), School of Advanced Nursing Education has introduced a postgraduate programme that will help to meet the Caribbean region's need for high-quality health care, particularly in the field of Nursing.

The Master of Science in Advanced Nursing (MScN), the latest addition to the University's Faculty of Medical Sciences at Mt Hope, is the first accredited programme of its kind in that country. Set to launch in September 2009, the MScN will soon be equipping a new generation of nurses to assume leadership roles in the areas of nursing education, management, clinical specialties and other professional positions within the health care system.

MSN graduates will develop an understanding of health care policy, organisation and financing, and, participate in the design and implementation of care in a variety of health care systems, and assume a leadership role in the management of health care resources.

"Before this programme, advanced Nursing education at the postgraduate level almost did not exist in Trinidad and Tobago," says Dr Meryl Price, Director of the UWI School of Advanced Nursing Education (SANE). She explained that, previously, local nurses who wanted to pursue an advanced nursing degree either had to go to Jamaica or migrate out of the Caribbean.

The MScN is also available to professionals wanting greater knowledge of the field of Nursing. The programme is being offered full-time in modular format, to facilitate those who prefer to remain in practice while studying.

Structured around the major components of theory, research and clinical, the MSN focuses on central concepts of leadership, critical thinking, decision making, evidence based practice and planned change. It eliminates the prolonged use of lecturing as the sole teaching method, by integrating a number of different forms of distance education, teleconferencing, Computer-Assisted Instruction (CAI), mentoring and service-based learning.

The UWI Medical Sciences Faculty plans to expose students to teaching from faculty in schools of nursing in the USA, Canada and UK, where SANE has established linkages with Michigan State University, College of Nursing, Mc Master University, School of Nursing, Sheffield University School of Nursing and Midwifery, University of Virginia School of Nursing at Charlottesville, and University of California, LA School of Nursing.

Since its establishment in 2004, SANE has launched two undergraduate degree programmes—the Bachelor of Science (BSc) Nursing in 2005 and the BSc Nursing (Oncology) in 2007—and has continued to position itself as a major hub of academic development and advancement for nursing and midwifery personnel in Trinidad and Tobago and the wider Caribbean region. SANE's latest postgraduate offering now makes it possible for graduates of the BSc programmes to fulfill their career trajectory.

APPLICATION PROCEDURE Online applications continue until July 2009. For application details, please visit <http://sta.uwi.edu/postgrad.apply.asp>. Entry requirements include a BSc in Nursing or an equivalent. Candidates with other qualifications will be considered if they have at least 10 years experience. Applicants who do not gain admission may reapply.

For more information about this programme, please contact Dr. Iva Gloudon, UWI Director of Sport and Physical Education, at (868) 662-2002 Ext. 2307 or email Iva.Gloudon@sta.uwi.edu.

UWI CALENDAR *of* EVENTS

APRIL-MAY



**28th Annual
West Indian
Literature
Conference**

26th-29th April 2009
The University of Guyana

The 28th Annual West Indian Literature Conference 2009 will be held at the University of Guyana from April 26-29, 2009 under the title “Quiet Revolutions in West Indian Literature and Criticism.” The conference theme for 2009 is designed to explore, among many other things, the several developments, preoccupations, forms or issues that may reflect “quiet revolutions” in West Indian literature and criticism. The conference will also host a special panel dedicated to Guyanese authors, Edgar Mittelholtzer, and Wilson Harris.

*For further information,
please contact Al Creighton
Tel. 592- 222 -4923
or email: deanseh@hotmail.com OR
alcreightonjr@hotmail.com.*

**Orchestra set to bring
Classical Nostalgia to life**
5.00p.m.

Saturday 25th and Sunday 26th April, 2009
Bishop Anstey High School East and Trincity College East (BATCE) Auditorium, College Avenue, Trincity

The St. Augustine Chamber Orchestra (SACO) presents The Trinidad and Tobago Youth Philharmonic (TTYP) in “Classical Nostalgia,” an evening of light classical music, featuring Vivaldi’s Winter Concerto and performances by violinist Alyssa Cross. Tickets can be purchased at a cost of \$60 and \$80.

*For further information,
please call 676-8603, 681-9115, 784-8867
or email sacottyp@gmail.com*

De Mass, De Gospel, De Folk
Sunday 3rd May, 2009
6:30pm

The Festival Arts Chorale and National Sinfonia Orchestra present Caribbean and international music selections with voice and live orchestra, featuring soloists Turon Roberts-Nicholas, Marlon De Bique and Michelle Dowrich under the direction of Jessel Murray.

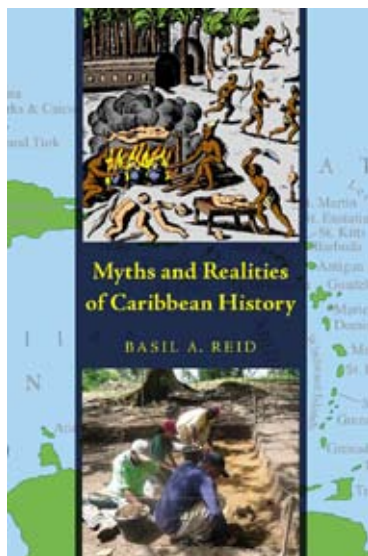
*For further information,
please email the Festival Arts Chorale, UWI.
festival.arts.chorale@gmail.com,
or call 743-0841 or 296-6567 or 341-5862.*

**Myths and Realities of
Caribbean History’ Book Launch**
Monday 27th April 2009
St. Michael Barbados and St. Ann’s Jamaica

Dr. Basil Reid, Lecturer in Archaeology in the Department of History will be presenting a public lecture and launching his latest book *Myths and Realities of Caribbean History* at the following locations in the Caribbean:

*April 27, 2009:
The Barbados Museum and Historical Society, St. Ann’s Gate, Garrison, St. Michael, Barbados.*

*May 5, 2009:
Seville Great House, St. Ann. This event is being organised by the Jamaica National Heritage Trust as part of its Taíno Day observation.*



**First They Must be Children:
The Child and the Caribbean Imagination**
Thursday 21st and Friday 22nd May 2009

The Department of Liberal Arts will host a cultural studies conference entitled “First They Must be children: The Child and the Caribbean Imagination.” Despite the iconic status of children in Caribbean cultural practices and spiralling concern about their social and psychological well being, the issues surrounding Caribbean childhood have not been given sufficient academic attention. Sorely lacking on a regional scale is the institutional infrastructure to facilitate effective interventions. The conference seeks to facilitate interdisciplinary dialogue on the social experiences and representational patterns related to the Caribbean child and childhood. It invites analysis of ideological perspectives and discursive practices in relation to children as social and imaginative subjects; the roles, symbolic codes and identities they have been assigned; their acts of resistance and transgression as cultural agents; and the multiple meanings of their presence in traditional and contemporary Caribbean mythologies of being and becoming.

*For further information,
please call (868) 662-2002
Exts 3025, 3028 or 3567.*

UWI GAMES 2009
21st - 28th May 2009
UWI, St. Augustine Campus

This year’s UWI games will be held on the St. Augustine Campus from Tuesday 21st to Tuesday 29th May 2009. Over 400 athletes from the three main campuses at St Augustine, Mona (Jamaica) and Cave Hill (Barbados) are expected to take part in this year’s Games, which will include track and field, football, netball, cricket, volleyball, basketball, 6-a-side hockey, swimming, table tennis and lawn tennis. Most of the sporting activities will be held at the UWI St Augustine Sport and Physical Education Centre (SPEC). During the weeklong Games, the SPEC will be converted into a Recreational Village, where athletes and supporters can enjoy a relaxed atmosphere, music and entertainment.

*For further information,
please call (868) 662-2002 Ext 3751, 2307*