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Jamaican Geode

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EARL DEVON WRIGHT (1961 – 2002)

On Thursday, November 14, 2002, Earl D. Wright, Consultant Hydrogeologist and Past President of the GSJ, departed this life under tragic circumstances. Earl's life touched so many persons that his sudden death sent shock waves throughout the geoscience and academic community. The University Chapel was almost packed to capacity on Wednesday, November 27 as hundreds turned out to pay their respects to the man who was their colleague, teacher and friend. This issue of the **Jamaican**

Geode is dedicated to the memory of Earl D. Wright. We now present excerpts from the tributes paid to Earl at his Memorial service.

Tribute From The GSJ

On behalf of the Executive Council and members of the Geological Society of Jamaica I wish to, first of all, express our sincerest condolences to the family of Earl Devon Wright, past-President of the Society. Like many other persons here today, Earl's passing came as a great shock to all of us in the Society and we pledge our continued support of the immediate family, Rochelle and Jadeyenne, as they go through this difficult time.

To adequately pay tribute to a man of Earl's stature would possibly require more than the few hours we have set apart today. Nevertheless, it is a great privilege to pay tribute to Earl Devon Wright on behalf of the Geological Society of Jamaica. This tribute is not entirely my own. It represents an amalgamation of tributes and recollections from various members of the Society, both in Jamaica and overseas, persons who knew Earl personally for a number of years, persons he worked with, persons he taught and persons who taught him. Earl has had a long association with the Geological Society of Jamaica, having become a member from the time he was an undergraduate student here at the University of the West Indies. After spending a short time studying in the United Kingdom, Earl immediately renewed his relationship with the Society upon his return. He was appointed Vice-President in 1993 and was eventually elected President in 1994, a position he held until 1996. During the time of his involvement, Earl was responsible for organizing and leading several field trips, conferences and seminars.

As President, Earl was a very meticulous leader in his own right. He was never in a rush to get things done. He was, however, quite goal-oriented and executed his duties effectively. He was a very humble and unassuming person, but quite dependable. After his term ended in 1996, Earl was once again elected Vice-President, and served in that position until February of this year, 2002. Although he became a very busy person, Earl always had time for the Society and its activities. Earl certainly had a lot to offer to the development of the Society and the Society certainly had a lot to offer him, having met and married Rochelle, who served alongside him at many a Council Meeting. He became the ultimate resource person and guide for the Society's Executive Council, providing valuable insight on procedures and information on practices. If there was anything we wanted to know about anything the Society was involved with, if no one else knew, Earl did. He will be remembered by many as one who always encouraged younger members of the Council, impressing upon them the value of their input.

Today, the members of the Geological Society of Jamaica mourn the loss of one of our giants. Though not so big in height, he was certainly enormous in his generosity, his faithfulness to service and his commitment to the mission of the Society. In whatever activity, Earl was there to do something, the big tasks and the small, anything to ensure successful implementation. We certainly will miss him, but his life has left deep impressions in the hearts and minds of so many of us, impressions that will last for a lifetime. Today we salute a great teacher, a competent leader, a true friend. May his soul rest in peace.

Ian C. Brown

Tribute From The Department of Geography and Geology, UWI

Earl was born some 41 years ago in the Parish of Trelawny. I must confess that like many of his colleagues I did not know Earl as a youngster growing up in the country but I imagine like those of us who grew up in the early sixties, that it was a carefree childhood. I could conjure up images in my head of him running around in short pants roaming the countryside.

Earl through hard work entered William Knibb Memorial High in Falmouth and upon graduating from that august institution entered the University of the West Indies, which is where we first met. I can remember laying eyes on him for the first time...a little slip of a fellow standing a generous 5'6" and probably weighing no more than 120 pounds. First year geology tends to go by like a blur what with the wonder of a new subject and the various field trips led by men who seemed to be tireless...walking it seemed forever. Earl however never had any trouble keeping up. There are memories of bus drivers who seemed to get into the "spirit" while we mapped the Devil's Racecourse, which made the journey home somewhat adventurous.

In second year we became a little closer as we were divided into groups and Earl being a part of our section joined us on trips way up into the hills near Content Gap. We survived on that sumptuous geologists diet of tinned sausages and crackers or if we had the cash corned beef. We would typically load into an old Cortina motorcar called "struggles" and take that 90-minute trip to the mapping site. I must again confess that some of us and I wont say whom, spent more time than we should have in that little grocery shop/bar whose juke box had about four tunes...but not Earl who seemed to have the facility of a mountain goat as when we were ready for the journey back home we would find on some hillside, hammer and hand lens at the ready.



We managed to survive second year and prepared for the summer mapping which was a prerequisite for graduation. We were placed in groups of four and along with Sandra Morrison and Bridget McDonald, we set of to solve the mystery of the Skyline Drive to Irish

Town region. I will never forget the first day as we assembled at the foot of Skyline Drive ready to go and we looked around and Earl was nowhere to be found. Once again a careful search found him perched on the hillside facing the river, tapping away with his hammer. The incident remains with me because Sandra turned to me and said "boy Earl is a real geologist"...and she was right because you always got a sense that Earl loved what he did and put his all into it.

One particular incident that summer will remain with me forever. Our project that year involved some chemical analysis of the samples we recovered...I can remember Mr Yves Grosziny, the visiting Belgian geologist, telling Earl and myself about the reagent that we were using having a cyanide based acid. Well we placed our samples in the beaker and added the reagent and a gas was emitted by the solution...we looked at each other...cyanide based acid...gas ...put 2 and 2 together and got seventy. Try to picture Earl's 120 pounds and my 200 plus diving for the exit to escape the imaginary cyanide fumes that we were certain would get us...those were good times.

We graduated unscathed and Earl went to work with the now Water Resources Authority as a hydro-geologist. I lost touch with him over this period seeing him only occasionally on visits to the hope gardens complex. Earl rose to senior hydro-geologist and in the early nineties went off to the University of London to do his masters in Hydrogeology. Those of us who knew Earl as an undergraduate can attest to the fact the Earl came back from London twice the man he used to be ...both in terms of qualifications and physical stature.

With his new qualifications, Earl went back to the Authority but in addition was invited to teach the Hydrogeology part of the GL 33A course, which is where we renewed our friendship and association. He was the same unflappable man dedicated to his craft that I had remembered from our years at UWI.

His teaching style reflected his nature and personality calm and somewhat soft spoken with the occasional efficient chuckle... that seemed to come from deep within his belly and sounded almost like weeping. In the course of some seven or eight years together I can recall many examiners meetings as we huddled together trying to turn C's into B's and B's into A's. Sometimes when the case was hopeless, and those occasions were rare, he would simply say there was nothing he could do and with that same chuckle move on to the next victim. Some of his students who are here today will remember the tradition after the final GL 33a tutorial where we would share pizza and a cold beer with the students while answering questions on geology or simply life in general...the future.

Later on Earl formed a small company called Geotechnics, which offered both hydrogeology and geotechnical consultancy and when the semester was over and the marking of papers completed we would see each other fairly often working on several projects together...and we would often sit in my office just shooting the breeze and sharing a smoke and a beer...after hours of course. I will miss that... You see, you could call him for advice and he would offer his counsel generously...and that was Earl a quiet unassuming man whose generosity was legend...whether it was with his time or simply to help out a friend or colleague. Earl was also about service and he served with distinction as president of the Geological Society of Jamaica for two terms in the late 1990's as well as serving on general council for many years.

When I think over the twenty years that I knew Earl, what strikes me is that he did the right things throughout his life. By dint of hard work Earl rose from rural Jamaica and earned himself a degree and a profession...he worked with the government and earned the right to post-grad study...he worked hard and earned his Masters degree and returned home...he gave back to the University from which he graduated by helping to train young minds sharing the knowledge he

had gathered both here and overseas...he worked hard setting up a consultancy of his own...he settled down and started a family. You see, Earl's life, in essence, represented what Jamaica could and should be...a place where hard work and decency are rewarded with success. Sadly, Earl's tragic passing represents what Jamaica has become...

When I got the terrible call two weeks ago, words failed me as I thought of my friend and colleague. When the Department of Geography and Geology asked me to pay tribute to Earl, all I hoped for was the inner strength to complete the task...We in the department know that words cannot erase the pain we all feel...but we say to Rochelle, Jade, his mother and brothers that we hope these few words offer at least some comfort...these few lines that pay tribute to our mapping partner, our batch-mate in the class of 85, our fellow professional, our colleague lecturer. A thoroughly decent man, a good kind generous human being

Farewell Early Bird. May flights of angels take you home to paradise. It was an honour to have known you and called you friend.

Andrew Irvine

EDITORIAL

Welcome to this the first issue of the **Jamaican Geode** for the year 2003-04. Several of our members were not able to attend the Annual General Meeting last February, and as such, have not renewed their membership. Please renew your membership by completing the form included in this issue and return the same with the appropriate fee to the Secretary/Treasurer.

The matter of crime in our society remains a hot topic for discussion across the island. The brutal slaying of Earl Wright late last year was another signal that the situation is way out of hand. Earl was the one person we all know did not deserve such a tragic end. As a Society we pledge our support for Rochelle and Jadeyenne as they go through this difficult time. This issue of the **Jamaican Geode** is dedicated to the memory of Earl D. Wright, an outstanding professional, a dedicated servant and a true friend.

Ian C. Brown – Editor

PRESIDENT'S REPORT 2002 – 2003

This report highlights the major activities of the GSJ for the year 2002 – 2003 following the Annual General Meeting of February 2, 2002. The first major activity for the year was a Field trip to Port Royal entitled "Port Royal – a geo-historical Overview" led by Mr. Anthony Porter, which saw some 12 – 15 persons in attendance. This trip examined the various local and imported rocks used in the construction of some of the key buildings in Port Royal as well as the relationship of the introduction of the imported stone to the history of Port Royal. It was an enjoyable half-day trip which ended in a lunchtime time at Gloria's. There were two additional field trips planned for the latter half of the year; one to the South-eastern coast of Jamaica and the other to examine the hydrogeological significance of the rising waters in Porus and surrounding areas. Both trips were postponed on several occasions due to several factors including the threat of Tropical Storms Kyle and Lili in the months of September and October.

There was very little activity throughout the summer months as expected as many persons were on vacation. The major activity of this period was the identification of a suitable recipient of the GSJ Scholarship. Five applications for the scholarship were received this year and two applicants were interviewed. The scholarship was eventually awarded to Miss Angela Munroe, a final-year student majoring in Geology at UWI. The Council took a decision to increase the value of the award in light of the rising costs of tuition and accommodation for students at UWI. We were able to make an award of J\$50,000 to Miss Munroe, an increase of \$10,000 over the previous award. We take this opportunity to express our sincere gratitude to the donor agencies PCJ, WINDALCO, and JAMALCO, for the contributions to the scholarship fund for 2002.

The next major activity was the staging of Earth Science Week 2002 after a two-year break. Some of the decisions taken at the last AGM were implemented in staging ESW this year. The exhibition was held from November 20 – 22 at the Old Dramatic Theatre at UWI under the theme "Geology and the Environment". There were some 50 schools represented at the exhibition and 10 exhibitors from government and private sector agencies. Another component of the exhibition was a Poster Competition in which five schools entered, with the American International School of Kingston receiving the award for best poster. The school received a prize of a Dell Computer System. The costs associated with staging this exhibition have increased significantly since the last occasion. We were however fortunate to receive a grant in the amount of J\$125,000 from the Environmental Foundation of Jamaica in support of ESW. In the future, ESW will be held every two years with the next exhibition due in 2004.

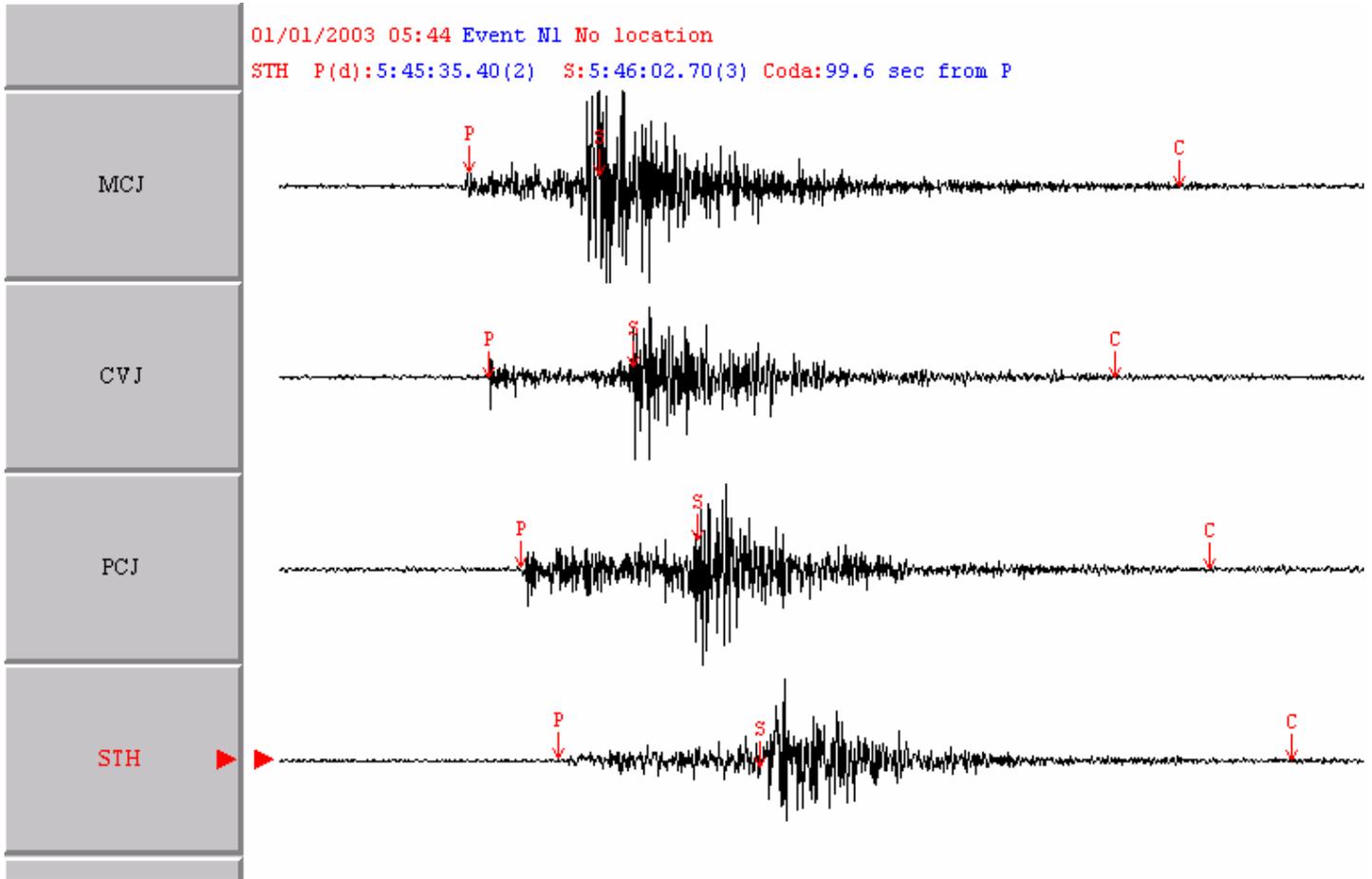
One of the problems plaguing the Council for 2003 was the inability to communicate effectively with the members through the newsletter, the **Jamaican Geode**. This was due in part to the fact that the **Geode's** Editor, Noel McKenzie had a difficult year having lost both parents by death within months of each other, as well as settling into a new job. The fact that submissions from members and other persons were slow in coming made the production of the first and only issue of the **Geode** for the year a difficult process. I wish to thank all the persons who contribute regularly to the **Geode** and encourage you to continue in that vein. I also appeal to you the members to keep the **Geode** alive by sending your articles, comments, news, upcoming events, reports, etc. We also lost a member of our team when immediate Past-President, Miss Norline Martin, resigned her post as Vice-President in October to pursue studies in the United Kingdom.

The year ended on a very sad note when we lost our Past-President and member Earl Wright under very tragic circumstances in November 2002. It was a difficult time for many of our members especially those closely associated to Earl. I would encourage all of us to continue to support his family in any way possible while they come to terms with this loss.

All in all, it has been a very challenging year for me as President and for the members of the Council, especially the new members. I wish to publicly thank the Council Members Norline Martin, Sherene James, Georgette D'Aguilar, Simon Mitchell, Anestoria Shalkowski, Noel McKenzie, Deborah-Ann Rowe, Brian Richardson, Shakira Khan and Thomas Stemann for their diligence in carrying out their duties and their support to me in difficult times. We are grateful for the opportunity to serve the Society in this way.

Ian C. Brown - President

THE FIRST EARTHQUAKE OF 2003



Summary Earthquakes of 2002

Felt Earthquakes of 2002

1. February 18, 2002, 12:09 am.; magnitude 3.0 Mt .
 2. August 10, 2002, 01:22 a.m., magnitude 4.6 Mt.
- 3 & 4** Two other earthquakes occurred in close succession for August 2002. They were on August 10, 2002, at 03:58 and 03:59 a.m. . The magnitude of these earthquakes were 4.2 and 3.7 Mt respectively.
5. October 8, 2002, 10:27 p.m., magnitude 2.7Mt.
 6. October 10, 2001, 5:57 p.m.; magnitude 3.4.

RANGE	DETECTED	EVENTS FELT
LOCAL	193	6
NEAR	65	0
REGIONAL	94	-
TELESEISMIC	95	-
TOTAL	447	6

By Raymond Stewart, Earthquake Unit, UWI.

GSJ COUNCIL 2003 – 2004

President	-	Mr. Ian Brown
Vice-President	-	Dr. Thomas Stemann
Secretary/Treasurer	-	Ms. Sherene James
Asst. Secretary/Treasurer	-	Miss Georgette D'Aguilar
Editor	-	Dr. Simon Mitchell
Council Members:	-	Mr. Gavin Gunter
	-	Miss Shakira Khan
	-	Miss Shanti Persaud
	-	Mr. Brian Richardson
	-	Miss Deborah-Ann Rowe
	-	Miss Anestoria Shalkowski

THE DEVELOPMENT OF JAMAICA'S NATIONAL HAZARD MITIGATION POLICY – ODPEM

The island started its hazard mitigation programme from early in its colonial history. This programme was based on the need to reduce the country's vulnerability to hazards, primarily those relating to hurricanes and earthquakes. Mitigation measures were instituted in some sectors such as agriculture and housing. Examples of these mitigation measures include:

- ? The importation of new crop types to prevent starvation – 1700's
- ? Relocation of important commercial towns – first in the Spanish era from St. Ann's Bay to Spanish Town and - second in the English era from Port Royal to the present capital of Kingston
- ? Changes in the form of traditional housing designs - these changes include the use of hipped roofs, steep pitched storm roofs and minimal eaves.
- ? The use of structural measures – the Colonial government commissioned engineering works to reduce the population's vulnerability to hazards. These included dams, sea walls, dykes, retaining walls and flood control systems.
- ? Building Codes – these were not very formal and incorporated designs used in other British Colonies with minor adaptations being made for the difference in climate.

However, changes in the island's population and settlement pattern resulted in a change in the country's vulnerability. Two significant events in the late 1970's and early 80's highlighted the need for a detailed examination of the country's hazard management programmes.

PRELIMINARY NATIONAL HAZARD MITIGATION PROGRAMME

This review process began in 1979 and continued into 1981. The process was assisted by funding from UNDRO and OFDA (Office for Foreign Disaster Assistance) and took the form of interagency meetings and subsequently interagency consensus, arrived at through interagency collaborations. This consensus formed through these meetings established a Preliminary National Hazard Management Programme. The first priority under this initiative was a study of the vulnerability of the existing housing stock to hurricanes and earthquakes. This was done in tandem with a revision of the building code.

Next, was the development of a Comprehensive Management Strategy, which was launched at a meeting in October 1981. This called for a review of the mitigation strategies of all agencies, and formed the basis of the island's current Hazard Mitigation Programme. The group worked with a foreign consultant – Mr. Ralph Fields. Ralph Field and Associates along with the local taskforce designed a work programme that was divided into 3 phases.

Phase 1 – short-term issues

The short-term issues that were concentrated on are as stated below

- ? Streamlining of all agencies disaster related functions
- ? Designing a Disaster Information Management System
- ? Establishing Damage Assessment Procedures

Phase 2 – Hazard Related Problems

Phase 2 was designed to examine hazard related problems. Some of the results of this process are

- ? Floodplain mapping project funded by the World Meteorological Organization – flood plain maps
- ? A flood warning system for the Rio Cobre
- ? The development of a hazard management matrix – this identifies the roles and responsibilities of the major public and private sector agencies
- ? The development of the Preliminary High Risk Map (SLIDE)

Phase 3 – Hazard Mitigation Policies

This phase is concerned with the development and documentation of Hazard Mitigation Policies, Strategies and options. The approach to be taken would stress the use of non-structural mitigation measures due too the high cost factor associated with structural mitigation measures. The recommendations from this stage of the National Hazard Mitigation Programme was divided into 6 areas

- ? Data Collection and Risk Analysis – this will involve hazard mapping and risk assessment
- ? Planning and Regulation – this should include the interfacing of the Town and Country Planning Act and the Building Regulations
- ? Private Sector Support – this would involve the use of financial entities such as the Banks, Building Societies and Insurance companies to influence location and development in high risk areas

- ? Public Construction and Investment Decisions – this calls for interagency/self policing to regulate development in high risk areas and the adoption of hazard mitigation regulations in operating policies
- ? Structural mitigation – to be used only after detailed cost-benefit analysis
- ? Preparedness and Recovery – this will include improvements in weather forecasting, the development of Rapid Damage Assessment instruments/facilities and a National Response Team

THE NATIONAL HAZARD MITIGATION POLICY

Based on the aforementioned, the ODPEM continued the programme with the assistance of the USAID to develop the Draft National Hazard Mitigation Policy. Work on the current document began in earnest in 1998 with a series of interagency meetings and workshops. A group of seven persons was chosen to act as a Steering Committee for the Policy. The Group met at set intervals to examine the data collected and to give its support to the developing document.

COMPILATION OF THE POLICY

The policy was compiled using information gathered from:

- ? The Ralph Fields documents
- ? A review of the Acts and Regulations relevant to Hazard Mitigation
- ? Personal interviews with heads of agencies and with members of the Steering Committee
- ? Literature review of current mitigation measures as practiced by the international community and
- ? Consultations with interest groups e.g. the Jamaica Institute of Engineers, and Insurance Companies

THE PROCESS

Several workshops were also held in 1998/99 to determine the content and format of the policy. During this period, the policy was guided by one foreign-based consultant, who acted as a moderator and guide for the workshop and a local consultant whose job it was to compile and format the information obtained, under the tutelage of the ODPEM.

CHALLENGES

There are many challenges that were encountered in the development of the Policy. One of the largest challenges that usually accompany any interagency collaboration is the slow return of documents submitted for review. Many copies of the Policy in its infant stages were printed and circulated to the major players in the field. Meetings were arranged and progress was for the most part very slow. It was decided to use another strategy and this took the form of telephone calls, office visits and small group meetings of 3-4 persons at a time. This produced marginal results as some persons were most difficult to find and/or the information not readily available.

Another challenge was the lack of commitment required for some of the agencies. The problem was that the persons who attended these consultations did not have the authority to make any long-term commitment on behalf of the agency/organization that they were representing. This can be a frustrating part of the Policy development process and served to provide great ideas but the final commitment was always missing. Hence, it was

impossible to associate the idea/resulting activity with any realistic deadlines.

Perhaps the largest challenge to be faced yet is the completion of the Policy and to have it table before the Cabinet. This process will involve another round of consultations and workshops/meetings with not only industry leaders, but also with environmental and community groups. Next to this will be the incorporation of hazard management in the school curriculum at the secondary and tertiary levels

CURRENT MITIGATION PROGRAMMES

Mitigation programmes are being conducted across the island, even though the policy is not completed. Some of the programmes being pursued are

- ? The construction of new drainage systems to accommodate the change in the land use patterns. The repair and maintenance of retaining walls, bridges, coastal defense works, drainage and flood control systems. This is being conducted by the National Works Agency.
- ? The review of the Building Code – this is almost complete and some sections of the Building Code are available to the public. The current Building Code consists of six volumes/12 books and incorporates the standards as outlined in the Caribbean Uniform Building Code (CUBIC). This is spearheaded by the Bureau of Standards
- ? The use of the Risk Maps the planning process. Leaders – The ODPEM, and the Mines and Geology Division
- ? The amalgamation of the Town Planning Department with the Natural Resources Conservation Authority - This agency is now known as the National Environmental Planning Agency
- ? The continued development and review of a number of Response Plans e.g. the Damage Assessment Plan, the National Oil /Hazardous Material Spill Plan. Leader – the ODPEM and the respective sub-committee of the National Disaster Committee
- ? Training for members of the National Response Team
- ? The encouragement of safe building methods for the informal housing sector – Lead Construction Resource Development Centre

SUMMARY

One of the core concepts underlying the Policy is that hazard mitigation is an on-going process. Hence, the draft Policy as presented here contains past and present mitigation activities, in addition to mitigation activities to be completed in the future.

In closing, I would like to summarize the process of building the Policy.

- ? Recognition of the country's increasing need to reduce its vulnerability to hazards
- ? An examination of current policies and operating procedures
- ? Review of international standards and mitigation practices
- ? Consultation with industry leaders
- ? Identification and incorporation of sustainable development practices required to ensure the process of continued mitigation works. This refers to the

identification of safe practices at the community level and the incorporation of these practices into the fabric of the community

- 7 The identification of a time frame in for the completion of some defined mitigation activity. This is perhaps the most important part of the Policy, as it acts as the benchmark point against which the success or failure of the Policy can be ranked.

Contributed by Anestoria Shalkowski

TREMORS

GSJ



(L-R) Ian Brown (GSJ President), Trevor Jackson (UWI) and Franklin McDonald (NEPA) at the Opening Ceremony for ESW 2002.

The GSJ hosted Earth Science Week 2002 under the theme "Geology and the Environment" from November 20 – 22 at the Old Dramatic Theatre, UWI. The exhibition was visited by as many as 600 students and teachers from across the island. Mr. Franklin McDonald, CEO of NEPA opened the exhibition and delivered the main address. Public and private sector agencies participating in the exhibition included NEPA, PCJ, Mines & Geology Division, WRA, Earthquake Unit, ICENS, UWI/GSJ, Spatial Innvision, JBI, CARDIN and ODPEM. A major feature of ESW 2002 was a Poster Competition which received seven entries from four schools. The winning entry came from the American International School of Kingston (AISK). They received a Dell Multimedia Computer as their prize. The winning poster was entitled "Wagwan Wit Da Roads?". ESW 2002 was sponsored by the Environmental Foundation of Jamaica.

GEOGRAPHY & GEOLOGY DEPARTMENT – UWI

A new exhibit featuring the fossil remains of a legged sea cow was found *Pezosiren portelli*, from Eocene rocks (about 45 million years old) of Jamaica, was opened at the Geology Museum, University of the West Indies on 31st January, 2003. *Pezosiren* (from the Greek meaning "walking sirenian") was found in St. James, some 15 km south of Montego Bay. The site was discovered by Roger Portell of the Florida Museum of Natural History. Excavations at the St. James site began in 1994 and have been carried out under the direction of Daryl Domning (Howard University), in collaboration with the University of the West Indies, the Florida Museum of Natural History, and the American Museum of Natural History, New York. As many as one thousand bones have now been collected from the site in St.

James. Amongst these, manatee fossils are by far the most abundant. Other vertebrate remains include a primitive fossil rhinoceros, an ear bone from a primitive primate, the bones and teeth of crocodiles, turtles and lizards, and the teeth of sharks, rays and bony fish.

The finds come from the Yellow Limestone Group that consists of impure limestones, mudstones and sandstones that were deposited in estuaries. The presence of terrestrial mammals similar to those of the then North American continent (the rhinoceros) amongst the fossil remains, suggests that 45 million years ago Jamaica had a land connection to North America via the Nicaragua Rise and the Yucatan Peninsula.



(L-R) Prof. Trevor Jackson, Trevor Jackson, Prof. Ronald Young (Dean- FPAS), Prof. E. Thomas-Hope (Head-DOGG), Mr. Ian Brown (Curator), Prof. Edward Robinson and Dr. Simon Mitchell at the launch of the exhibit of *Pezosiren portelli*.

Pezosiren was a pig-sized animal with a length of 2.1 m. It had a short neck, a barrel-shaped trunk, a moderate-length tail and four short legs. The robust nature of the limbs and joint surfaces are comparable to similar-sized land animals, and indicate that it was capable of supporting its body out of water. The nasal opening on the skull was retracted and it had thickened ribs for ballast indicating it spent much of its time in water. *Pezosiren*, therefore, shows a transitional phase in the evolution of the sea cows between its fully-terrestrial ancestors and its fully aquatic descendents. *Pezosiren* probably swam like an otter, forcefully extending the spine and kicking backward and upward with the hind feet.

This research was made possible through funding by the National Geographic Society and Barbara and Reed Toomey of Florida. *Pezosiren portelli* was described by Daryl Domning in the journal *Nature* in 2001.

TRIBUTE TO GLENN A. GOODFRIEND

The small community of palaeontologists who work on the Jamaican fossil record has lost a distinguished member following the death of Professor Glenn Allan Goodfriend on 15th October, 2002, at the early age of 51. Glenn's areas of expertise included the systematics, palaeoecology and evolution of Quaternary land snails, and the use of amino acid racemization to determine accurate dates from their shell carbonate when calibrated with radiocarbon data. The latter technique was successfully applied to marine bivalves in high-profile projects regarding the late

Holocene history and evolution of the Nile and Colorado deltas (Goodfriend & Stanley, 1999; Kowalewski *et al.*, 2000). Glenn and I had communicated over the years, but did not meet until the Annual Meeting of the Geological Society of America in Seattle, Washington, in October 1994.

Glenn's doctoral research on the Jamaican land snail *Pleurodonte lucerna* led to a number of publications on the terrestrial gastropods of the island (for example, Goodfriend, 1983, 1986; Goodfriend & Mitterer, 1993; and references therein). The modern fauna of land snails on the island is unusually diverse, with about 500 nominal species, making them a magnet for the malacologist. Sedimentary successions accumulated within caves are the preferred fossil sites for the land snail worker and Glenn collected from many of these localities.

Despite his contributions to palaeontology, Glenn's background was in zoology, graduating from the life sciences departments of the universities of Rhode Island (B.S.), Chicago (M.S.) and Florida (Ph.D.). He worked at the Weizmann Institute in Rehovot, Israel during the 1980s, the geophysical laboratory of the Carnegie Institution, Washington, D.C., from 1988 to 1998, and was a research professor at the George Washington University, also in Washington, D.C., at the time of his death.

The factual content of these notes was strengthened by reference to the obituary published in the *Washington Post* on Friday, 1st November, 2002, on page B06.

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by Stephen K. Donovan, Nationaal Natuurhistorisch Museum, Leiden

16TH CARIBBEAN GEOLOGICAL CONFERENCE

The 16th Caribbean Geological Conference held in Bridgetown, Barbados June 16th -21st 2002, provided an opportunity for geologists throughout the Caribbean, and in fact the world, to share research carried out in the region. The conference highlighted five broad areas: Oil and Gas; Petrology and Volcanics; Paleontology and Stratigraphy; Cultural, Educational & Economic Aspects of Geology and Caribbean Tectonics.

Several members of the Department of Geography and Geology, U.W.I. Mona, both Staff and Postgraduate students, made presentations on various aspects of Jamaican Geology. These included: "Stratigraphy of the Eocene Chapleton Formation at Dump, Central Jamaica" by Ms. Ennika James and Dr. Simon F. Mitchell; "Marine Terrestrial Transition in a Volcaniclastic Braid Delta-Jamaica" by Dr. Simon F. Mitchell; "Reef Crests of the Upper Pleistocene of Jamaica; Size Abundance and Distribution of the Coral *Acropora Palmata*" by Dr. Thomas A. Stemmann; "Modern and Pleistocene Gravel Beach Systems in Eastern Jamaica" by Ms. Sherene James and Dr. Simon F. Mitchell; "Comparison of Grain Composition on Two White Sand Beaches in Jamaica" by Ms. Shakira A. Khan and Dr. Simon F. Mitchell; "Larger Foraminiferal Biostratigraphy of the Cenozoic Rocks of Jamaica: proposal for a zonal scheme" By Professor Edward Robinson and "Jamaican Agates" by Mr. Damian Williams. These papers were well received by the conference attendees and prompted much discussion to promote collaboration amongst Caribbean geologist.

COMING EVENTS

May 2003; 2day Field Trip trip to Western Jamaica to view Cretaceous successions and the famous Seven Rivers vertebrate locality. Trip will be led by Gavin Gunter and Simon Mitchell.

DATES TO REMEMBER

April 22; Earth Day

May 22; International Day for Biological Diversity. The theme is "**Biodiversity and Poverty Alleviation – Challenges for Sustainable Development**". For more information, visit their web site at <http://www.biodiv.org/doc/notifications/2003/ntf-2003-22-bday-en.pdf>.

June: Diasaster Preparedness Month

June 1-7: National Environment Awareness Week

June 5: World Environment Day. The theme is "**Water – Two Billion People are Dying for It**". Visit their we site at <http://www.unep.org/wed/2002/WED2002/Default.asp> for more details.

June 8: World Oceans Day.

The United Nations General Assembly
Declared
2003
as the
I nternational Year of Freshwater

Visit their website at

<http://www.unesco.org/water/iyfw2>

