

The Hammer

Newsletter of the Geological Society of Trinidad and Tobago 2Q 2000

P.O. Box 3524, La Romain, Trinidad and Tobago W.I

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Letter from the editor

Mike Milliken

This is the second edition of the GSTT newsletter I have been involved with. I would like to take this opportunity to thank the authors and recognize that without the support of the membership of the GSTT, excellent articles like the ones enclosed would not be possible and hence the newsletter would cease to exist. I encourage every member to consider what you have to offer the broader geoscience community in Trinidad. It may be a short article on your area of expertise, your field, your company, an outcrop, a technical challenge or a commentary on a recent article. The newsletter is in the progress of evolving and content is what you, the members, make it. I encourage you to consider submitting ideas for the next GSTT newsletter, THE HAMMER.

Notice that there is no field trip article in this newsletter. This is due to the fact that we are splitting the newsletter into technical and non-technical issues. Hence another technical newsletter will be coming out soon with field trip notes and some other interesting items. We are also trying to limit the size of the electronic file we email (a PDF) to one megabyte.

The following are notes on formats for articles. The Hammer is written in MS Word and converted to a pdf file, but any digital text file will work (within reason) for the text. Photos are encouraged and need to be digital JPG files if possible. Non-digital photos can be scanned if necessary. Articles need not be formatted in any specific manner (columns, font, etc.) as that all gets modified once pasted into the newsletter. All submissions can be emailed to me via the GSTT web newsletter email address at newsletter@gstt.org Thanks again.

On the Calendar – Details to be Announced

September the 9th there will be a Family day Barbeque for members and their families at Point-a-Pierre Yacht Club. Details to be announced.

September there will be a field trip to Soldado Rock led by Laurent De Verteuil, Details to be announced.

Executive committee met on July 5th and approved moving the GSTT offices to Trinidad and Tobago institute of Technology (TTIT) in Central Trinidad. Details to be announced.

Technical Sessions

Keith Bally

The technical sessions sub committee (K. Bally and C. Dougdeen) have been very active since March in facilitating monthly technical talks to the society members. The aim has been to have at least one talk per month, however in May and June we have been indeed very fortunate to have 2 talks in each month. The following speakers presented talks at the society:

March - Dr Jim Pindell

April - Joseph Finneran (sponsor BPTT- East Business Unit)

May - 2 talks

-Dr Carol Prentice

-AAPG Distinguished Lecturer Dr. C Ando (sponsor Exxon-Mobil)

June - 2 talks

- Iain Campbell (sponsor British Gas)

- Dr Tim Harper (sponsor Venture Production)

BPTT will be sponsoring talks in July and August 2001 as follows:

July 25 - Reservoir Management - Focusing On What Really Matters - Mike Smith (Head of Discipline, Reservoir Management, BP Upstream Technology Directorate).....Time 6:00pm, location will be announced in circular.

On August 15 Stanley Wharton (Exploration Geologist BPTT) will give a talk that he presented at the AAPG international conference in June 2001. Details will follow in a circular to the membership.

The society would like to thanks the presenters, and recognize their effort and time taken in putting the talks

together. Special thanks to the respective sponsors of the talks as indicated above. Without the sponsors, the GSTT would not be able to host all these talks.

The technical talk committee is making a plea to the membership and corporate sponsors to encourage sharing of information via these monthly talks. If you would like to give a technical talk, please contact Keith Bally at BPTT, 623-2862 ext 5405.

[GSTT Volunteer Appreciation Dinner](#)

On Saturday 2nd June, approximately 12 GSTT members and spouses enjoyed a cruise “down de islands” on the party boat “Soca Samba”, followed by supper and drinks at Peter delaRosa’s house on Gasparee. This event was hosted by the GSTT to express its appreciation to the executive and committee volunteers for the time that they dedicate to keeping the GSTT running. Krishna Persad and Mahendra Nath, both founding members of the GSTT, gave their views on where we have come on this, our 25th Anniversary, and Larry Tiezzi spoke about where we are going as an organization.



Figure 1- Roxanne Lawrence and husband on "Love Boat"



Figure 2 - Larry Tiezzi explains the meaning of life to Roxanne Lawrence.



Figure 3 – Mr. and Mrs. Curtis Archie and Mr. and Mrs. Victor Young On



Figure 4 - "Oh Gosh! You tellin' me all dis for free?"



Figure 5 - "Ah really tink dis food betta an TGI's"



Figure 6 - Part of this year's GSTT Executive and the real executives... their wives.

[Rocking to a Different Tune](#)

This article was written for non-geoscientists and printed in an internal BP publication. Feel free to share this article with friends and family, particularly with respect to the safety tips during an earthquake

By Stanley Wharton

The recent incidence of earthquake activity in Trinidad has spurred the curiosity of many interested persons. However, the incidence of earthquake activity has baffled scientists around the world for many centuries. Earthquakes occur every day in narrowly defined areas around the globe and often have resulted in death and destruction as we have read lately from reports in India. These narrowly defined areas are related to positions on the earth where there is interaction or movement between different plates, plates being the upper parts of the earth's crust which "floats" upon more fluid layers of the upper mantle in the earth and are driven by heat flow. Seismic activity or earthquakes, and sometimes

volcanism, accompany the resulting movements. We may wonder therefore about where Trinidad and Tobago fit into this overall plate interaction and why earthquakes occur over so many different parts of both islands. Even though small earthquakes occur every day around Trinidad and Tobago, a brief synopsis of high intensity recent earthquake activity experienced in Trinidad and Tobago is as follows:

- Magnitude 6.2 – December 1954 - located just north of Las Cuevas
- Magnitude 5.6 – April 1997 – located north west of Tobago
- Magnitude 5.9 – April 1997 – located south of Tobago
- Magnitude 6.2 – March 1988 – located south east of Trinidad in the Columbus Basin

By far, one of the largest earthquakes occurred offshore the Columbus Basin in 1988. Prior to 1988, not much activity was recorded in this area, which indicate, that other areas were probably becoming active around the islands. Normally, the highest frequency of earthquake activity recorded has been in the vicinity of northeast Venezuela and northwest Trinidad. Generally these quakes are less than magnitude 5 and may be felt only by a Seismograph which is the instrument used for recording earthquakes. The question arises as to what is actually controlling the areas where earthquakes occur and what effects would earthquakes have on our daily lives?

Trinidad and Tobago is unique in regard to their location on plates. The plate interactions and the plate's relationship in this part of the world are known as a triple junction, a region where three plates interact. These interacting plates near the islands comprise the Caribbean Plate, the Atlantic Plate and the South American Plate. The result of this plate interaction, which started millions of years ago, was the development of major stresses in the earth crust, which resulted in a complex pattern of faults. It is along faults that earthquakes occur as the movement of plates release stress. Related faults from plate interaction also created opportunities for oil and gas exploration in both Trinidad and Venezuela.

So how do these earthquakes affect us? Well, we all know that we have been made to feel helpless at times during an actual quake by the uncontrolled swaying of buildings (and hence our bodies) generated by seismic waves. This has nothing to do with Carnival however ("get something and wave"). Rather, we have found ourselves literally "ducking" for cover any which way in order to save ourselves from this unseen force. Well, there are do's and don'ts in the way we respond to an earthquake. Some actions to consider are:

- Get under a desk or bed, protect head and face

- Stay away from glass windows, mirrors, bookcases and heavy objects
- Do not rush to exits
- Stand in a strong doorway
- Do not use elevators
- On the street move into the open away from building
- If driving pull aside vehicle to clear spot and remain inside

What is known about earthquakes is that the nature of the ground and the design of building structures are important in determining the effects of the shaking motion, which could ultimately lead to death and destruction. An example of this is the marina district in San Francisco, which was built on fill dirt. Even though there is no record of earthquakes that killed scores of people in Trinidad, it is on record that earthquakes in Guadeloupe in 1843 killed about 5000 people. Areas in Trinidad that have been built on unconsolidated land and buildings built on stilts with overloaded tops are prone to destruction by high intensity earthquake activity.

What is the scenario for T&T? Some scientists believe that the big one hasn't hit us as yet because many stresses are still locked up in large faults. This may or may not be in our lifetime, which highlights some of the difficulties in predicting earthquakes. From this viewpoint much like the San Andreas and other areas in the world we just need to prepare ourselves, build wisely and take proper action.

[GSTT field trip, Saturday 26 May 2001](#)

John Chambers, Venture Production Company

John Weber (GVSU) and Carol Prentice (USGS) have been studying the paleoseismology of the Central Range fault under Ministry of Energy support over the past month. Their current study follows up on recent geodetic results (Weber et al. 1999, 2000, 2001) showing that of the 20 mm/yr total ~east-west Caribbean-South America plate motion, 12 +/- 3 mm/yr of is taken up along this fault. This on-going study seeks to determine whether or not the fault has generated large prehistoric earthquakes and is capable of generated large future earthquakes. Four paleoseismology trenches were dug, three in the Samlalsingh valley near Bonne Aventure, where deflected streams and shutter ridges were observed on air photos, and one near Tabaquite along a fault-bounded, bedrock-cored shutter ridge.

The Central Range fault is well exposed in the most recent Samlalsingh trench, which remains open for viewing. In this trench, the fault is a several meter wide, subvertical zone of ductile shearing developed in Quaternary sediments, overlain by folded gravels, possibly of Holocene age (14 C ages pending from charcoal collected). Sand-filled clastic dikes or fissures,

and intense fractures are developed in the Quaternary sediments in the fault walls. A dextrally offset ridge can be examined a short walk from the trench. These features demonstrate that the Central Range fault is geologically youthful, and in fact, probably active today.



Photo 1 – West looking view of the south dipping fault in the trench. Note knife-edge contact and contorted zones on either side.

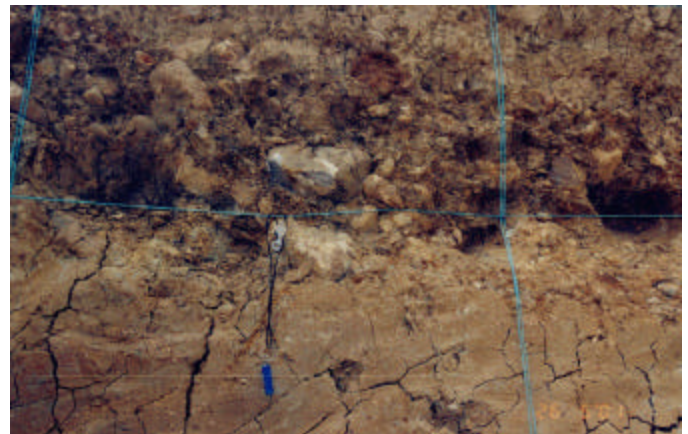


Photo 2 – East looking shot of recent streambed channel fill. Clasts include rounded boulders of Central Range lime mud limestone in glauconitic shelly sand matrix of Montserrat Member appearance.

[GSTT Hosts UWI Field Trip to Mayaro](#)

A field trip to the Mayaro Fm. coastal outcrops was held on Saturday 31st March 2000, for the benefit of UWI students in Ricardo Clarke's Environmental Physics course. The trip was put on by the Physics Department in conjunction with the GSTT. GSTT members, Dr. Laurent de Verteuil, Mr. Vishram Rambaran and Dr. Roland Hoag co-lead the outing, each giving the students a different perspective on the sections, namely, strat- sed, geophysics, and hydrogeology. Four members of staff including the class coordinator, Mr. Ricardo Clarke, accompanied the Environmental Physics class comprising thirty-five (35) second and final year B.Sc. physics students. All present were furnished with field

trip manuals prepared by the GSTT. These manuals included field notes and photographs of the different features of the Mayaro coastal outcrops, courtesy Dr. John Frampton, Mr. Winston Ali and L. de Verteuil.

The Department of Physics runs four 4-credit courses in Environmental Physics at the undergraduate (B.Sc.) level. These courses include components such as Earth Materials and Earth Processes, Seismology, Introduction to Geophysical Prospecting (which includes seismic reflection, refraction, electrical methods, gravity and magnetic methods), Oceanography, Climatology, Meteorology and Hydrology.

The trip mainly dealt with the sedimentology and depositional environments of Mayaro coastal outcrops. The outcrop geology and geotechnical assessment of the Mayaro formation were the main focus. On the journey to the east coast, Dr de Verteuil and Mr. Rambaran gave the students short talks on the geology of Trinidad. At Brigand Hill, which was the first stop, short interesting lectures were well received by the students. These lectures were on the geology of Trinidad & Tobago by Dr. de Verteuil, the use of geophysical techniques in water resources by Dr. Skip Hoag, and deep seismic prospecting as used in the oil and gas industry by Geophysicist Mr. Vishram Rambaran. The walk along the Mayaro beach from the Coastguard station to the north of the BP/AMOCO Galeota Complex, was most enlightening and exciting, in that the many different features of the Mayaro coastal outcrops were identified and discussed.

Thanks to the management of the British Petroleum (BP) complex for providing access to their facilities, as well as refreshments for all, after the walk along the beach viewing the outcrops. Many thanks also to the GSTT for providing refreshing drinks on this hot day in the dry season.

The students were able to relate the classroom material to the actual field trip features. They were also exposed to new material and techniques, which were of practical benefit to them.

The Department of Physics looks forward to this continued collaboration with and support from the Geological Society of Trinidad and Tobago on the practical aspects of Environmental Physics. This type of collaboration certainly helps in the development of the student and his appreciation of the course material.

[On The Web](#)

Our web page is up and running. The web page is at www.gstt.org. To contact any member of the executive committee or the editor use the appropriate emails as follows:

president@gstt.org
secretary@gstt.org
treasurer@gstt.org
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techsess@gstt.org
webmaster@gstt.org

[From the UK](#)

UK oil industry launches £1.5 million technician recruitment drive

By the OGJ Online Staff

LONDON, June 25 -- The UK oil and gas industry Monday moved to head off a major skilled labor shortage in the UK North Sea by launching a recruitment drive to increase the number of technicians being trained over the next decade.

Through the UK Offshore Operators Association, exploration and production companies and the government-industry body Pilot will contribute £1.5 million over 3 years toward the Engineering & Construction Industries Training Board's apprenticeship programs.

UK Energy Minister Brian Wilson said the initiative was "both vital and urgent" at a time when the industry needed to recruit and train around 150 technicians/year to replace those leaving the sector through retirement or to take jobs elsewhere.

"Pilot is all about investing in the future success of our industry," said Wilson. "A skilled workforce is a key component to continued success, and this initiative will help us to achieve the challenging targets set for the industry."

The extra funding is expected to allow ECITB to provide 38 apprenticeship places on top of the 42 production technician traineeships already offered. The cost of technical apprenticeships over the next 3-4 years is expected to be £7-8 million.

These 80 apprenticeships will be in addition to 72 technician training places that UK operators have committed to fund this year through schemes managed on behalf of the industry by OPITO Ltd., the sector's national training organization, or by individual companies.

The additional ECITB apprenticeships aim to make up the shortfall to deliver the 150 training places needed this year.

"This new funding will boost the industry's recruitment and training effort and expand the pool of trained, skilled labor," explains Michel Contie, managing director of TotalFinaElf Exploration UK PLC, which coordinated the issue for UK operators with Pilot. "The oil and gas industry has collectively recognized that the risk of a technician skills shortage was a strategic issue which might have affected its overall performance and reputation if not managed by some sort of centralized approach.

"ECITB involvement, as well as alignment of contractor and operator communities, was critical to a successful outcome in ensuring that the target of 150 trainees for this year was achieved," he added.

Mike Salter, chairman of Pilot's national training organizations, said the recruitment drive resulted from the UKOOA-funded Skills Foresight Report, launched in February 2000, and would be a first step in addressing the skills shortage in the UK North Sea.

Salter said that report provided a framework for an annual review of future training requirements and the funding of that training. "During the coming months we will be developing a longer term strategic approach in order to continue to address this problem in 2002 and beyond."

[Naming the Newsletter](#)

Selected members of the executive committee and myself have chosen a winner in the name the newsletter contest. And the winner is...

The Hammer

Congratulations Alan De La Bastide on the nomination. We will get your prize to you as soon as we can.

[New Executive](#)

Just in case you missed it last time the new Executive Committee is:

Dr. Lawrence Tiezzi - President
Dr. Krishna Persad - Vice Pres
Bruce Eggertson - Treasurer
Dr. Laurent de Verteuil - Secretary
Derek Smith - Companies Rep
Alain Moonsie - Assistant Secretary
Vishram Rambaran - Past President