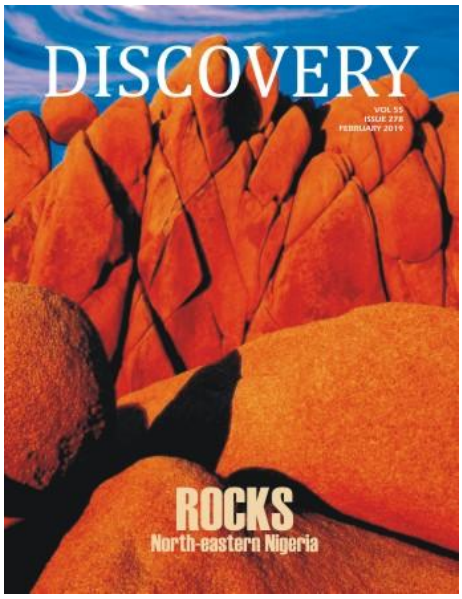
Volume 55, Number 278, Pages 40-87 1 February, 2019

DISCOVERY

About the Cover



Geological mapping of Yelwa area revealed that the area consists of Cretaceous sedimentary and Palaeogene volcanic rocks. The sedimentary rocks are represented by Bima, Yolde and Dukul Formations of the Yola sub-basin of the Upper Benue Trough. The volcanic rocks are Basalt, Phonolite and Trachyte which occur in form of outliers surrounded by older sediments. Crystalline calcite occurs within the limestone unit of the Dukul Formation in six different locations. Petrographic study indicates that, the Bima Sandstone consists essentially of quartz, orthoclase, microcline and biotite with minor iron oxides. The Yolde Sandstone consists largely of quartz, orthoclase, plagioclase and biotite with accessory iron oxide and zircon. Limestone of Dukul Formation is composed majorly of calcite and dolomite while microcline and quartz occur as minor minerals. Basalt is mainly composed of olivine, augite, plagioclase laths, and iron oxide. Olivine occurs mainly in form of phenocrysts and is irregularly fractured with inclusions of minor iron oxide in some crystals. Phonolite and trachyte largely consists of sanidine, plagioclase, aegirine and nepheline with accessory opaque ores. Sanidine show simple twinning conforming with Carlsbad law. Both sanidine and aegirine along with some plagioclase occur as phenocrysts which are aligned in a particular direction suggesting transportation of the crystals by flowing lava before solidification (Ref: Hamman Ishaku Kamale, Jalo Muhammad El-Nafaty. Geology and Petrography of the Rocks around Yelwa Area, North-eastern Nigeria. *Discovery*, 2019, 55(278), 57-72).

SOCIAL SCIENCE

Challenges of quantity surveying curriculum for construction industry practice in Ondo state, Nigeria

Oke Ayodeji E, Ayodele Tolulope D

This paper identifies the challenges of Quantity surveying curriculum in Nigeria with a view to ensuring adequate graduate of Quantity Surveyors to the industry. In Nigeria, Quantity surveying profession is studied in two tertiary institutions which are university and polytechnics but because of limited Ondo state is chosen because it can be used as a case study for the proper result. In this research, there is no need for sampling because the population is known and finite and can be met for questionnaire distribution. A total of 35 questionnaires were administered to the academic staff of the Federal University of Technology, Akure (FUTA) and Rufus Giwa Polytechnic. Mean item score (MIS) and factor analysis were used to achieve the set objectives. It was revealed from this paper that the challenges of Quantity surveying curriculum in the considered institution were insufficient materials for practical to complement the theoretical aspect, followed by lack of service training and poor condition of service affect the efficiency of teaching the curriculum, inadequate resources affect the implementation of the new curriculum, unstable government directive on vocational and technical education. Factor analysis also revealed that the two major challenges of Quantity surveying curriculum in the considered institutions are the reviewing of Quantity surveying ethics and unstable government directive on vocation. It was recommended that relevant courses should be included in the curriculum and irrelevant courses should be deleted; Quantity surveying ethics should be reviewed and revisited, and Government should have a stable directive on the vocation that will enhance the quality curriculum of Quantity Surveying in the tertiary institutions.

Discovery, 2019, 55(278), 40-48

Recruitment, Selection and Employee Commitment of Academic Staff in the Context of a Private University in Uganda

Wilson Mugizi, Benard Nuwatuhaire

This study investigated the influence of recruitment and selection on employee commitment (EC) of university academic staff in a private University in Uganda. A total of 132 academic staff completed a questionnaire survey. The findings of the study revealed that EC was moderate as well and recruitment and selection. Regression analysis revealed that recruitment had a negative and insignificant influence on EC but selection had a moderate positive and significant influence on EC. Therefore, it was concluded that EC was a challenge, recruitment practices were not pertinent as far as promoting EC was concerned but selection practices were applicable to the promotion of EC. It was thus recommended that Directorates of Human Resources should improve implementation of the recruitment and selection processes.

Discovery, 2019, 55(278), 49-56

EARTH SCIENCE

Geology and Petrography of the Rocks around Yelwa Area, North-eastern Nigeria

Hamman Ishaku Kamale, Jalo Muhammad El-Nafaty

Geological mapping of Yelwa area revealed that the area consists of Cretaceous sedimentary and Palaeogene volcanic rocks. The sedimentary rocks are represented by Bima, Yolde and Dukul Formations of the Yola sub-basin of the Upper Benue Trough. The volcanic rocks are Basalt, Phonolite and Trachyte which occur in form of outliers surrounded by older sediments. Crystalline calcite occurs within the limestone unit of the Dukul Formation in six different locations. Petrographic study indicates that, the Bima Sandstone consists essentially of quartz, orthoclase, microcline and biotite with minor iron oxides. The Yolde Sandstone consists largely of quartz, orthoclase, plagioclase and biotite with accessory iron oxide and zircon. Limestone of Dukul Formation is composed majorly of calcite and dolomite while microcline and quartz occur as minor minerals. Basalt is mainly composed of olivine, augite, plagioclase laths, and iron oxide. Olivine occurs mainly in form of phenocrysts and is irregularly fractured with inclusions of minor iron oxide in some crystals. Phonolite and trachyte largely consists of sanidine, plagioclase, aegirine and nepheline with accessory opaque ores. Sanidine show simple twinning conforming with Carlsbad law. Both sanidine and aegirine along with some plagioclase occur as phenocrysts which are aligned in a particular direction suggesting transportation of the crystals by flowing lava before solidification.

Discovery, 2019, 55(278), 57-72

AGRICULTURAL SCIENCE

Pre-harvest exogenous application of bacterial strains to assess the flower and bulb quality of cut Tulip (*Tulipa gesneriana* L.) Cv. Clear Water

Mohsin Bashir, Muhammad Asif, Muhammad Naveed, Rashad Waseem Khan Qadri, Nazar Faried, Allah Baksh

This study was planned to investigate the effect of different beneficial microbes to evaluate the quality of flower and bulb of cut tulips (*Tulipa gesneriana* L.) cultivar 'Clear Water' under the environmental conditions of Faisalabad during 2016. Sowing of bulbs was carried out in an open field according to Randomized Complete Block Design (RCBD) having five treatments, significance difference among treatments were tested by using Tukey's test at 5% level of significance among variables. Bacterial strains (treatments) were exogenously sprayed in equal quantity (10^8 CFU mL^{-1}) for treated bulbs and were replicated thrice, T_0 considered as control (no application), T_1*Burkholderia phytofirmans* (PsJN), T_2*Bacillus* sp. (MN-54), T_3*Enterobacter* sp. (MN-17) and T_4*Caulobacter* sp. (FA-13). The results revealed that tulip responded well to bacterial strains and significant improvement was observed in morphological attributes, bulb attributes and other quality parameters.T_1treatment proved to be the best one regarding morphological and floral traits from commercial point of view. The highest values of plant fresh mass, leaf chlorophyll content, leaf area, flower diameter, scape length, vase life, no. of bulbils and bulbils diameter were observed maximum as compared to control.

Discovery, 2019, 55(278), 73-80

PHYSICAL SCIENCE

Thermodynamic Properties of Quantum Mechanical Gravitational plus Harmonic Oscillator Potential using the Proper Quantization Rule

Benedict I Ita, Nelson A Nzeata, Hitler Louis

We obtained by using the proper quantization rule, the analytical solutions of the Schrödinger equation for the Deformed Harmonic Oscillator potential. The energy levels of all bound states as well as the normalized wave-functions are obtained. The vibrational entropy, heat capacity, partition function, mean free energy and, chemical potential were analyzed to further investigate the behavior of the mixed potential under investigation.

Discovery, 2019, 55(278), 81-87