

As reply to the letter by F. Janouch, Prague concerning «Unemployed physicists to assist developing countries?» we received the article given below.

The University of Zambia

A. H. Ward, Lusaka

Introduction

The University of Zambia was established in 1965, following the Report of an Anglo-American team headed by Sir John Lockwood, which visited the country in 1963. The University is dedicated to the task of responding to the real needs of Zambia. At the same time, as a member of the Association of Commonwealth Universities, it is determined to earn the respect and proper recognition of the international university community.

The University campus is situated on the outskirts of Lusaka. The Physics Building, which was occupied in 1968, presently houses Physics, Mathematics, the Computer and Data Processing Centre, the office of the Dean of the School of Natural Sciences, and small machine-tool and electronics workshops. As further buildings come to operation Physics will take over more of the Physics Building - there is ample room for expansion for many years to come.

Degree/Courses

Entrance to the University is at GCE 'O' Level, and the duration of the degree course for the B.Sc. degree or the B.Sc. (ed.) is four years. Degrees are offered in Physical sciences and in Physics with mathematics; it is hoped to offer a degree in Physics in the future. One year of Physics is also taken by students studying engineering, medicine, agriculture, or the biological sciences. The major part of the teaching effort in Physics is therefore at introductory level; the main 1st-year course for 280 students is being developed on a self-paced modular basis, and we would particularly welcome colleagues with experience in 'Keller-plan' or similar mastery-learning introductory courses. Limited opportunities also exist for teaching courses in geophysics and materials science, to both engineers and scientists, and for developing and teaching 'Applied Physics' courses.

Teaching and Research

The University Council regards twelve formal contact hours a week (32 weeks p.a.) as a fair teaching load. This leaves adequate time for staff

members to pursue their own research work. Financial provision for research has been very generous, by African standards, and the laboratories are well equipped. In addition to physics equipment, the University possesses an IBM 1130 computer, electron microscope and electron diffraction camera, a range of materials-science and metal-physics and geophysics research equipment, and houses nmr and Packard Tricarb-Autogamma spectrometers and a 400-channel Laben spectroscopy.

In physics, metal-physics research developed well in 1967-1968 and a request to the RCM (RST) group of mining companies in 1968 for substantial support was successful. An RCM Research Fellow was appointed in 1969, and further equipment purchased. The three small research laboratories now house an Instron TM tensile testing machine, Philips X-ray generator with powder cameras and Universal flat-plate camera, micro-densitometer, Servomet spark machine, 4" electromagnet, Pye precision decade potentiometer, Hille rolling mill, Zeiss metallurgical microscope, and a range of furnaces, polishing, and ancillary equipment. In addition, RCM provides technical

support in its own 'Copperbelt' laboratories, e.g. with metal working and analysis. Investigations include the recrystallisation of wirebar copper, an assessment of the spring-elongation test currently used in copper quality control, work on the theories of recrystallisation and of the annealing behaviour of the point defects in metals; two important research papers have been published.

This successful metal-physics work is being expanded with a 2nd Research Fellow and with further backing from industry and mines to a broader 'materials-science' research effort, including ceramics and refractories; new colleagues with relevant interest would be particularly welcome.

The geophysics research team started in 1970 and has support from NCCM (AAC) and RCM groups of mining companies and from other outside firms and departments. It has made a strong start in four fields - seismic and seismic-refraction, geothermal, gravitational and geoelectrical research. It is working in close co-operation with professional colleagues in Government departments and the mining companies. There are two small research labs, the seismological observatory, and a geophysics Land-



University of Zambia, Lusaka - Second year student, A. Muneka on electronic equipment.

rover. Major equipment includes a new Huntect FS-3 for shallow seismic refraction/reflection surveys, Varian proton-precession magnetometer, four Goerz XY/YT recorders, and Compu-corp 425/88 desk computer; in addition, the members of geophysics research team have designed and built 'Geo-Zam 1000' geo-electric resistivity instruments (an sold two to Government departments). A magnetic observatory is planned, and applicants with interest and knowledge to build up and run this observatory would be specially welcome.

The School of Natural Sciences has made a modest start in M.Sc. work, and this will develop. Our first two 'staff development Fellows' are working here towards M. Sc. in geophysics. Two doctoral-students from abroad joined us this year as geophysics Research Affiliates.

A smaller physics research team is assisting other scientists in diverse applications of radioisotopes, and has good equipment.

Workshop

The main University workshop is attached to the School of Engineering and is well equipped. The physics workshop is adequate for most small jobs. The electronics workshop is excellent.

Library

The University operates a centralized library system, which currently subscribes to a wide range of periodicals.

Staff Establishment

The physics academic staff establishment for 1974 is 13, plus the two Research Fellows; there are at present 2 Professors, 1 Reader, 2 Senior Lecturers, 8 Lecturers and 1 Research Fellow. Three colleagues leave soon at end of contract. The supporting staff establishment is one Chief technician, one senior technician, and 5 technical/laboratory assistants. Part-time help is used in the first and second-year laboratories.

Estimated students numbers in 1974 physics courses are:

1st year : 300 + 100
 2nd year : 130
 3rd year : 25 +
 4th year : 10

Vacancies in physics

Application are invited for lecturer and senior positions in Physics, in the School of Natural Sciences. Prefer-

ence will be given to physicists with experience of self-paced type introductory courses, and with research experience in geophysics or metal-physics/materials science or applications of radioisotopes.

SALARY SCALES

Professor	K 7400 × 200	—	K 7800
Senior Lecturer	K 5600 × 200	—	K 6600
Lecturer	K 4000 × 200	—	K 4400 × 150
	— K 4700 (promotion bar)	K 5000 × 200	— K 5400

Rank and entry point on the salary scale will be determined on the basis of qualifications and experience; normally, only PhD applicants are considered. Non-Zambians will normally be appointed for between three and five years, but shorter appointments may be negotiated.

Other conditions include: passages and baggage allowances for transport of effects on appointment and on completion of contract; installation allowance of K 200; house with hard furniture provided at a sub-economic rent; car allowance of K 180 p.a.; home leave of 90 days in respect of each two year period of contract; children's allowance of K 100 p.a. for each minor dependent child resident in Zambia, and up to K 400 educational allowance for each minor child receiving education outside Zambia; voluntary contributory Medical Aid; compulsory superannuation; terminal gratuity.

Duties of Appointee

The Professor/Senior Lecturer/Lecturer will be responsible, under the general direction of the Head of Subject, for a course as far as possible in accordance with the appointee's special interests. Other duties are to assist with first-year teaching and laboratory demonstrating, and to assist the Head of subject in the general administration and development of the subject. It is expected that the appointee will join physics staff engaged in metal physics/materials science or geophysics research. Every encouragement will be given to persons interested in developing new teaching methods or teaching aids, whether for use in the University or in Schools; also to persons interested in linking careers for our graduates to our undergraduate courses.

Details of the physics courses, the last Annual Report of the School of Natural Sciences, and further information, will gladly be supplied by the Registrar or the Dean of Natural Sciences or physics staff, University of Zambia, P.O. Box 2379, Lusaka, Republic of Zambia.

Letter to the Editor

Sir,

About a year ago I was elected as delegate to the EPS Council representing Individual Ordinary Members of our society. After this period which has included much contact with member and non-member physicists and also the attendance at one Council meeting (Nov. 27/28, 1973) I feel bound to give an account of my activity and to call for support on several crucial issues.

(1) At the last Council meeting I voted, on behalf of a large number of Individual Members, to raise the unit fee. I felt justified in doing this because the Executive Committee was not only counting on an increase in income but were sufficiently responsible to take measures to cut expenditure. Most important of the measures considered were a reduction in the staff of the secretariat and, according to a suggestion of CERN, reconsideration of a transfer of the offices to one of the CERN buildings. Hopefully, the executive will report soon on the efficacy of the measures actually taken.

(2) I feel that there is not sufficient planning in order to mobilise our society in worthwhile activities. For instance, one would imagine that any society purporting to represent European physicists would be able to marshall together most facts pertinent to Physics in Europe today, something not only of interest to members but also to industry and government. Surveys of jobs and job opportunities (which I suggested at the Wiesbaden EPS meeting) could be made and would be of benefit to physicists in Europe. This and similar activities, which I believe could be done at relatively little expense, would offer something positive to members.

This is important as it is particularly difficult to enrol new members in a society which doesn't offer them much.

I wish to initiate a discussion on ways of making it more attractive to join our society as Individual Ordinary Members. This includes recruiting people who are already members of national societies (c.f. Jansen's commentary on the difficulty of dual membership, in his retrospective