Cambridge Peruvian Andes Expedition 1981

Patrons

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Director of the English National Opera
Fellow in History of Medicine at
University College London

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The Master, Gonville and Caius College, Cambridge

Members

Simon C Garth, F.R.G.S., 21, Leader
2nd year Engineering student, St. John's College
Treasurer Cambridge Himalayan Snow Algae Expedition 1980
Extensive rock and ice climbing experence in Britain,
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Rory A O'Conor, 20, Medical Officer
2nd year Medical student, Gonville and Caius College
Member of "Operation Drake" 1979
Member of Scientific Exploration Society
First aid instructor for John Ridgeway Adventure School
Extensive rock climbing experence in Europe

Claire Hobbs, 20, Treasurer
1st year Medical student, New Hall College
6 months travelling in Egypt 1980

Ian N Whitehead, 20, Food Officer
2nd year Engineering student, St. John's College
Backpacking in Bighorns, U.S.A. 1979

Gareth H Evans, 21, Equipment Officer
2nd year Engineering student, St. John's College
Backpacking in Swiss Alps 1979

Margaret Johnson, 21, Interpreter
2nd year Modern Linguist, Girton College
Member of "Operation Crusader" 1980

Introduction

The Cambridge Peruvian Andes Expedition will be travelling to the remote Quelccaya ice cap in southern Peru during the summer of 1981. The expedition has two main objects: we will be surveying part of the glacier, taking temperature and ice density measurements to contribute to an overall climatic survey of the Andes. The second project involves taking blood samples from the expedition members to investigate the effect of altitude on blood composition. The expedition has the support of the Cambridge Expeditions Committee.

Location

Objectives

1. Glaciological study

A great deal of research is being carried out into global climatic trends. Of particular interest is mean annual air temperature and annual precipitation and the variation of these with altitude and latitude. John Reynolds of the British Antarctic Survey is interested in results from the Andes to extend the line of existing data from the South Pole up to Central America.

The investigations will involve drilling a series of bore holes, 11cm in diameter to a depth of ten metres. From temperature measurements at the bottom of these holes it is possible to work out the mean annual air temperature of the location. In addition yearly precipitation rates may be obtained from density measurements of the ice core removed from the holes.

The Quelccaya ice cap was chosen because considerable research has been carried out there by Lonnie Thompson of Ohio State University and our work will tie in with his investigations.

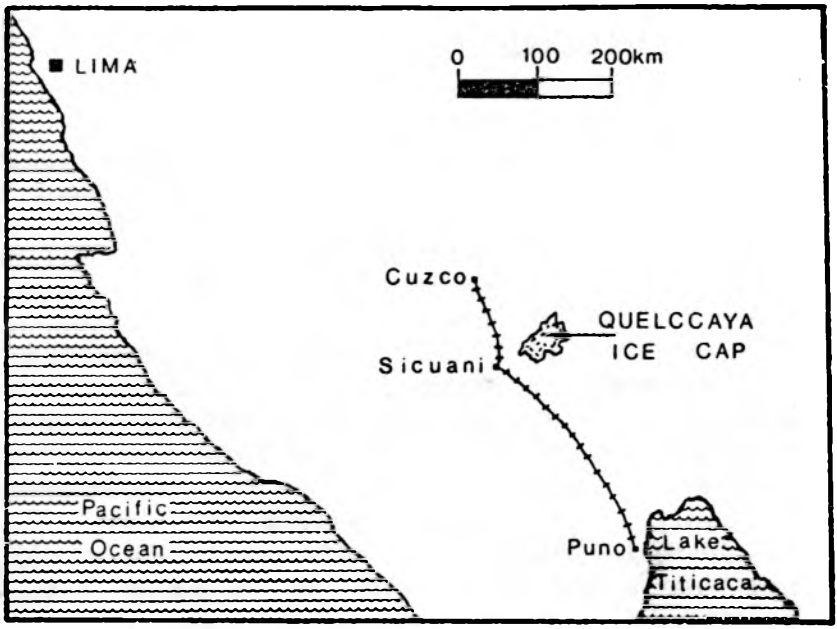
2. Medical project

This is an investigation into the effect of high altitude on haemoglobin, the oxygen carrying component of blood. A modified form of haemoglobin, fetal haemoglobin exists and is more efficient at carrying oxygen than adult haemoglobin under conditions of low oxygen pressures. Such conditions occur in the womb and at high altitude. The genetic mechanism which codes for fetal haemoglobin persists after birth while fetal haemoglobin levels fall to background values. We intend to investigate whether the low oxygen pressures at high altitude will trigger the production of fetal haemoglobin. In the opinion of Dr Paul Edwards of Canterbury Hospital, if this were to occur it would have considerable medical significance. The project requires a prolonged stay at altitude and is ideally suited to this kind of expedition.

Subsidiary projects

1. As with any scattered population there is a considerable variation in dialect amongst the Spanish speaking inhabitants of Peru. Margaret Johnson will be studying the nature of these variations with particular emphasis on the differences in articulation between highland and lowland speech. As well as on the spot observations tape recordings will be made for further analysis back in England.

2. Paul Williams of Trinity College has asked us to make a collection of high altitude bees, particularly bumble bees. These will be brought back to Britain to complement his extensive collection which it is hoped will form the basis of a Ph.D project starting in 1982.



Logistics

The expedition will leave Britain on 20th June 1981 and fly, via Miami, to Cuzco in southern Peru. Cuzco is a bustling tourist town and the last major stop before the mountains. Here we will buy supplies for our time on the glacier and make preparations for the journey. Our destination, the Quelccaya ice cap, is located in a remote area 60km north east of the town of Sicuani. Access is by truck along a seasonal road to within 40km of the ice cap and then a 3 day walk-in with pack horses. A steady ascent is essential to allow for acclimatisation as our base camp will be at a height of about 5000m. The next 8 weeks will be spent conducting the scientific investigations on the glacier. These will involve taking blood samples from each member of the team once a day and storing them on microscope slides, and continuing the glaciological experiments. We expect to arrive back in the U.K. on 19th September 1981.

Finances

Estimated expenditure

	£
Flights to and from Peru	3500
Travel in Peru	500
Food	400
Equipment	400
Insurance	400
Film	100
Administration	200
Contingencies	500
TOTAL	6000

Income

Personal contributions of £250 each will be made.

Donations

Cheques should be made payable to :
Cambridge University Explorers' and Travellers' Club
Charitable file No. U3163 Z

Please address all correspondence to :

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