

the Association is embarking on this campaign does not mean that it wants to urge developing nations to adopt birth control or population limitation as such. Countries must decide their own population policies, but an increasing number are adopting family planning: some because they have a serious abortion problem, others because their economic development is greatly hampered—indeed sometimes prevented—by population increases which rapidly absorb the results of all attempts to raise the standard of living. Lord McCorquodale of Newton has agreed to become chairman of the Campaign Committee, which is composed of a number of prominent social, industrial and scientific workers. Details of its work are set out in the thirty-second annual report, which also describes the remarkable increase in clinics and services which the Association is providing throughout Britain (Pp. 22. London: The Family Planning Association, 1963). At the end of April, 1963, 163 clinics were prescribing oral contraceptives; 51 clinics are able to offer facilities for taking cervical smears.

Prehistoric Cultures of North-east Angola

Prehistoric Cultures of North-east Angola and their Significance in Tropical Africa, by Prof. J. Desmond Clark, is the title of a monograph published through the Dundo Museum by the Companhia de Diamantes de Angola (Diamang) (*Publicacoes Culturais*, No. 62. Part 1: Pp. 222; Part 2: Pp. 225–385 (80 plates). Lisboa: Companhia de Diamantes de Angola, 1963). It is a serious study of the prehistory of North-east Angola by one of our foremost prehistorians. For many years, Prof. Clark was the curator of the Museum at Livingstone and is now professor at Berkeley University in California. The volumes start with an interesting table giving the radiocarbon dates and pollen analyses for the various cultures and the climatic stages during which they occur. Thus, the Sangoan of the early Gamblian is dated as far back as 38,000 years, while the Makalian (Tshitolian culture) can be fixed at about 6,830 years ago. In the preface, Prof. Clark pays tribute to the late J. Janmart, formerly head of the prospecting department, whose intense interest in the cultures of the area largely started these cultural studies. He also mentions, among other colleagues, Mrs. Clark, who has made the excellent line drawings of the implements which illustrate the work. A short outline of the relevant geology is given, and this is followed by a note on the raw materials used by prehistoric man. The various climates then come under review. Chapter 3 describes the stratigraphical and cultural succession in Lunda, the terminology in general use in the Congo being used. There are numerous maps and sections given, which illustrate the sequence. Chapter 4 continues the story given in Chapter 3, but is concerned with more recent times. There follow chapters describing in greater detail the industries produced by the various cultures present. These are, of course, of very great interest to the specialist. Angola has from time to time been a refuge area when climate changes elsewhere have become such that human existence became difficult. As a result, the typological studies of the various industries compared with those from other localities are a matter of great interest. Volume 2 is devoted to illustrations of tools and photographs of a number of sites: having a separate volume for these illustrations makes close study of the different cultures very much easier. The two volumes will be of great value to anyone wishing to know about the prehistory of this interesting region of Africa. Prof. and Mrs. Clark are to be congratulated on the result, and the Companhia de Diamantes de Angola for financing these publications.

Barnard's Star

BARNARD'S STAR is the second nearest known stellar system, with apparent visual magnitude 9.5, a parallax of

0".55 and a proper motion of 10".3 per annum. It has been investigated at the Sproul Observatory of Swarthmore College by P. van de Kamp (*Astronomical J.*, 68, 515; 1963) on photographs taken over a period of forty-five years; 2,413 plates with 8,260 exposures obtained on 609 nights by many observers. Barnard's Star has the largest known secular perspective acceleration in proper motion. This was determined ($-0".0014$ in R.A., $+0".00118$ in declination). The residuals of the observations from the predicted positions allowing for proper motion, secular acceleration and parallax were investigated. The residuals showed a periodicity of about 24 years, and indicate the presence of a companion. A semi-axis major of $0".0245$ and an eccentricity of 0.6 for the main star fit the observations. If the mass of Barnard's Star is 0.15 solar mass, the companion has an orbit with semi-axis major of $2".4$, or 4.4 astronomical units, and from the displacements of the main star it can be shown that the mass of the companion is 0.0015 solar masses, or 1.6 times the mass of Jupiter. Its apparent visual magnitude would be perhaps 30, far below the reach of existing telescopes.

Modern Instrumentation in Science and Industry

ON January 17, 1964, the London Sections of the Institute of Biology, the Institute of Physics and Physical Society, and the Royal Institute of Chemistry will hold a one-day symposium on "Modern Instrumentation in Science and Industry" at the Institution of Electrical Engineers, Savoy Place. This is the latest of a series of successful joint symposia held by the London members of three Institutes, and will deal with some general (morning session) and some specific (afternoon session) aspects of the use of instruments and automated plant in biology, chemistry and physics. The chairman of the symposium will be Sir John Cockcroft. Of special common interest will be a lecture by G. Malcolm Dyson, research director of the Chemical Abstracts Service, on "The Correlation of Chemical, Physical and Biological Properties of Substances by Mechanized Programmes". Other speakers are W. Grey Walter (Burden Neurological Institute, Bristol) on "Some Aspects of Instrumentation in Experimental Physiology", R. S. Medlock (George Kent, Ltd., Luton) on "Automatic Control in Chemical Industries", P. H. Hammond (Autonomics Division, National Physical Laboratory) on "Self-Optimizing Control Systems", J. M. Hirst (Rothamsted Experimental Station) on "Measurements of Foliage Infection by Fungal Pathogens", V. S. Griffiths (Battersea College of Technology) on "Automatic Control in the Chemical Laboratory", and S. Arnett (Medical Research Council Unit, King's College, London) on "Recent Developments in Molecular Biology". The lectures will be followed by discussion. There is a registration fee of £1 for members of the participating societies and £3 for non-members, which will include refreshments and pre-prints. Tickets can be obtained from the Finance Officer, Royal Institute of Chemistry, 30 Russell Square, London, W.C.1.

The American Geographical Society: Elections

THE following have been elected Honorary Fellows of the American Geographical Society: Dr. George Wüst, director of the Kiel Oceanographic Institute, Kiel, Germany, now visiting professor of oceanography at Lamont Geological Observatory, Columbia University; Dr. John Quincy Stewart, associate professor emeritus of astrophysical sciences at Princeton University; and Dr. Gilbert F. White, former president of Haverford College, now professor of geography at the University of Chicago.

Gairdner Foundation Awards

THIS year's Gairdner Foundation awards have recently been announced. The Foundation was established in 1957 by J. A. Gairdner, the Toronto industrialist. Annual