SPECIAL ARTICLE

CLINICAL GENETICS: GHANAIAN GRATITUDE FOR BRITISH AND HUNGARIAN CONTRIBUTIONS
A Personalized Historical Perspective

FELIX I. D. KONOTEY-AHULU

Kwegyir Aggrey Distinguished Professor of Human Genetics, University of Cape Coast and Consultant Physician Genetic Counsellor in Sickle & Other Haemoglobinopathies, Ten Harley Street, London W1G 9PF

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E-mail:*felix@konotey-ahulu.com*

There is, surely, a place for expression of gratitude by an African for British and Other Contributions in Acquired and Genetic Disease Research in his country of birth. Professor Stephen K Addae has comprehensively documented, with expressions of gratitude here and there, the "Evolution of Modern Medicine in a Developing Country: Ghana 1880-1960".[1] Wellcome Witnesses to Twentieth Century Medicine has already published "British Contributions to Medicine in Africa after the Second World War" [2] but these contributions majored on Acquired Disease, with little said about Clinical Genetics.

ACQUIRED DISEASE

For the former (Acquired Disease) my greatest gratitude goes to Dame Cicely Williams who, as a colonial medical officer working in the Gold Coast (Ghana) learnt the name *kwashiorkor* in my tribal language of the pathological condition she described when I was a toddler.[3, 4] Years later in Medical School in London I read textbooks which said kwashiorkor meant "red hair in the African tribe". Not true, I found myself whispering in class. In Krobo/Dangme-Gã 'Kwashiorkor' is a "sibling positional word" which describes the symptomatology that a child born very close to an elder sibling develops.[5] I met Dame Cicely Williams in person on September 1 1986 at Somerville College, Oxford University where the Vice Chancellor of the University of Ghana, Professor Akilagpa Sawyerr, went to visit in order to confer on the 93 year-old an honorary degree of Doctor of Science. I thanked Dame Cicely for making our tribal word known world-wide. She let me take a photograph with her which was later published in Lancet.[6]

CLINICAL GENETICS

In Clinical Genetics my gratitude to three expatriates knows no bounds. Two were British, G M Edington and Hermann Lehmann, and one was Hungarian, Bela Rigelhann who was for many years my laboratory backbone at the Korle Bu Teaching Hospital, Accra Ghana. The achievements of Edington and Lehmann were enormous. They were the first to describe sickle cell haemoglobin C disease outside the USA [7] the first to show that Upper Ghana and Burkina Fasso (then called Upper Volta) had the highest incidence of Haemoglobin C in the world [8] they were the first (with our own Bill Laing) to show that 1 in 3 healthy Ghanaians (and indeed West Africans) were either sickle cell trait ('AS') or Haemoglobin C trait ('AC') [9] as my own parents were; they were also the first to describe the phenomenon of Hereditary Persistence of Foetal Haemoglobin ($F_{Hereditary}$) mistaking it initially for beta thalassaemia.[10, 11] When I visited Professor George Edington on his death bed at University College Hospital in Gower Street he was still able to discuss the pathology of sickle cell disease. Remarkable man he was, whom I had once visited in Zaria, and who had given me a copy of his MD University of Glasgow thesis, enabling me for the first time to see how an MD was written. No less remarkable was Professor Hermann Lehmann of Cambridge University who not only joined Professor Bela Ringelhann and me in Ghana for countrywide surveys and lectures in Ghana but he also sent his trusted laboratory technician Pamela Kynoch to us to standardize our techniques.

Bela Ringelhann and I described the remarkable work British researchers did in the 20th Century in West Africa and the Mediterranean [12] mentioning among others the discovery of Haemoglobin Korle Bu [13] assumed to be the first known example of intragenic cross-over, and confirming the fairly high prevalence of the African type of alpha-thalassaemia interacting with abnormal haemoglobins [14] and G6PD Deficiency.[15]

Secret of Success of the work in Ghana was the way these expatriates encouraged full Ghanaian participation in the research process with contributions from Alexander Bruce-Tagoe, George Yawson, Koblah Gbedemah, George Bonney, C T Acquaye, Silas Dodu, Reginald Addae, Frank Djabanor, Carl Reindorf, Ann Rudwick, Eunice Kuma, Francis Nkrumah, and the Nursing Staff including Mary Walker.[15-37] Professor Lehmann arranged for me to join him in Christ's College Cambridge as Schofield Fellow to enable me complete writing my MD Thesis.[38] It was there I first met Professor Max Perutz. Later (on 31st May 1972) in Philadelphia, I considered it a great privilege to be asked to deliver the Keynote address at the Martin Luther King Jr Award Ceremony for Sickle Cell Disease with other recipients on the same platform as Linus Pauling, Max Perutz, Hermann Lehmann, Roland Scott, J V Neel, Graham Serjeant, A C Allison, James Bowman, Samuel Charache, Charles Whitten, etc. Quite honestly, I suspected it was because I was a black African that the Black Foundation chose me for the keynote address with such Nobel laureate heavyweights on the platform! Reading my speech in advance the organizers decided I needed 4 bodyguards for the short period I was in Philadelphia [39] because I revealed the injustice of sickle cell traits who won Gold Medals at the Olympic Games at Mexico City (8000 ft plus) and who came down to sea level to be charged 150% for health insurance cover because they were supposed to die at 4000 feet while exercising.

British Encouragers: I list below the names of British Clinical Geneticists who have also been an encouragement to me and other Africans. (i) Sir David Weatherall to whom I and others referred difficult problems of beta-thalassaemia phenotypes (ii) Professor Alan Emery who was the first to reassure me at an international Genetics Conference in Hungary that my Male Procreative Superiority Index (MPSI) [40 41] which linked male procreation to gene proliferation in Africa was not 'rubbish' as some at the conference had implied. My own family forebears where polygamy was the norm going back nine generations, was replete with beta-globin gene variants [42] Professor Emery also invited me to give the MacArthur Postgraduate Lecture at the University of Edinburgh (iii) Professor George Fraser travelled to Ghana to study hereditary deafness in the Deaf Village Adamorabe where almost the entire village was deaf. Unfortunately while sightseeing in Accra, George disappeared down a hole and had a Pott's fracture.[43] While in a hospital bed George had time to look at my MPSI concept, and also said it was "not nonsense".

When The Lancet announced my appointment as Director of the Ghana Institute of Clinical Genetics (May 25 1973, page 1064), thanks to The Managing Trustees of The VALCO Fund and The Ministry of Health, with Dr Michael Baddoo as Director of Medical Services, the following British Specialists promptly wrote to me encouraging me: Professor Hermann Lehmann, Professor Paul Polani, Professor Alan Emery, Professor Peter S Harper, Professor Alan Fleming, Dr Andrew Stevenson, Mr David Patey, and from the USA Professor Roland Scott, from Hungary Professor Bela Ringelhann, and from the African Continent Professor B O Osuntokun, Professor Kofi Duncan, Professor G M K Kpedekpo, Professor F T Sai, Dr Saakwa-Mante, Mr Edward Akufo-Addo who later became President of the Republic of Ghana.

Clinical Genetics without Ethics is Eugenics. The two living British Clinical Geneticists who hardly write major texts without mentioning Ethics in some detail and who proved a great encouragement to us Africans were Professor George Fraser [44] and Sir David Weatherall.[45] We want, if possible, to place on the record Africa's gratitude to these expatriates. The World Health Organization (WHO) and International Atomic Energy Agency (IAEA) supplemented with generous research funds the maintenance funds of the Managing Trustees of the VALCO Fund, enabling the then Ghana Institute of Clinical Genetics to pursue successfully its aim of SERVICE, EDUCATION, RESEARCH, in that order, rather than reverse that order as often happens in most research institutions. [46 47]

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