

CHIRURGIE CARDIAQUE / CARDIAC SURGERY

AMINU KANO TEACHING HOSPITAL LECTURE SERIES

OPEN HEART SURGERY IN WEST AFRICA: HISTORY, SURGICAL EXPERIENCE, AND CHALLENGES

Part 1: Africa, cradle of humanity; challenges of modern day Africa; history of cardiac surgery

By

Professor Koffi Hervé YANGNI-ANGATE, FWACS, FICS

Aminu kano teaching hospital lecture series given on wednesday, november 26th, 2008 at Kano teaching hospital auditorium,
Kano,Nigeria

1- Preamble (slide1)

I would like to thank all of you for honoring me. I always find it exciting to talk about "Open Heart Surgery in Africa". I remember that skilled and famous surgeons, including Professors E.Q. Archampong (slide 2) and O.O. Ajayi (slide 3) have delivered a speech on this platform.

Professor Ajayi, may I tell you how we are filled with admiration for you on looking at your brilliant professional career. The West-African College of Surgeons is proud to consider you among its Past-Presidents. Thank you for your presence among us. Doctor Yakabu, Head of Surgery Department of Aminu Kano Teaching Hospital, our frequent contact by letters shows your organizational ability and dedication to the promotion for surgery in your country. I have been pleased to talk with you and wish long life to your initiatives.

I find it important to bring in this homage, the Fellows of West African College of

Surgeons (slide 4) who are here with us and the hospital, university, political and administrative authorities who have given me a warm welcome.

I still remember my first contact with Nigeria Teaching Hospitals ; it took place at "Enugu Teaching Hospital" (slide 5) ; I met there devoted Nurses, competent Doctors and an administrative staff with a sense of responsibility.

I have a fresh memory of these open heart operations that Professor Martin Aghayi and myself had carried out in the Cardiac Centre of Excellence at "ENUGU Teaching Hospital".

Nigeria, your country is a Great Nation; (slide 6) it is very impressive with its inhabitants'eagerness,theirfightingspiritand great confidence in a more glorious future. I share these hopes with you because I believe in a conquering Africa, leader as formerly,

of the future world; an Africa that carries lost human values ; an Africa that forgives (slide 7), a radiant Africa, an Africa open to foreign continents. Before getting to the heart of my topic, may I recall essential truths that African people should not overlook, and to which we should go back, so that Africa could become again what it was previously. Isn't our dear Africa, the Cradle of Humanity"?; the Mother of civilization? the Cradle of Sciences? ;the Birthplace of Religions.

2- Africa, Cradle of Humanity, Civilization, Science and Religions ^{1, 2, 3} (slide 8)

a) Africa, Cradle of Humanity

Why is the African continent considered as the cradle of Humanity?

According to Günter Brauer, Paleoanthropologist at Hamburg University, the man who is "anatomically normal", the common ancestor of all human beings seems to have been born in Sub-Saharan Africa, more than 100,000 years ago (slide 9). Then, from Africa, that man is said to have conquered Asia and Europe. This information was given by mitochondrial DNA technique and researches on more than 6,000 old skulls from all over our planet. From that experiment, Sub-Saharan Africa is unanimously known as the origin of our mankind.

Another author, Dr. Leonard Jeffries, in his article entitled "African Origins of Early Humanity" (slides 10 & 11), remarks that the oldest man called "the East African" was discovered in Tanzania, he is said to be 1,750,000 years old. From his discoveries in Tanzania, the same author also maintains that Humanity seems to have started millions of years ago, from Africa and spread throughout Asia and Europe, taking with it, its tools, mathematical science and culture.

Another evidence of the African origin of Humanity is the discovery of the oldest engravings in the world, in the cave of

BLOMBOS, 200 km far from Cape Town, in South Africa (about 12,000 years B.C), which also makes of Africa the cradle of civilization.

b) Africa, Cradle of Civilization (slides 12 - 16)

Civilization is said to have emerged from Africa, at least 7 million years ago ; the use of fire and early domestic tools, fishing, hunting, astronomy, mathematics, writing, art and jewelry might have started initially from Black Africa. In other words, Africa must be the starting point of world civilization and its scientific knowledge.

c) Africa, Cradle of Scientific Knowledge (slide 17)

Throughout antiquity, for more than two thousand years, old Egypt had worldwide influence in the field of science. Egypt might be the origin of Greek-Roman knowledge; geometry, arithmetics, astronomy might come from Egyptian scholars. There are many mathematic or physic theories whose origin is said Egyptian. Greek or Roman philosophy are thought to have originated from Egyptian priests who were Greeks' and Romans' philosophy teachers. Philosophy might be African first, mathematics and their theorems as well, including geometry, the knowledge of brain, the basic laws of physics and medicine in which Hippocrate, was a famous Greek Doctor : he was taught diseases by Egyptian Doctors, for three years.

d) Africa, Cradle of Religion (slide18)

From Polytheism to Monotheism, that was the way taken by Egyptians. From the belief in many gods lived through by Egyptians, Greeks and Romans, the former might have shifted to the belief in one God, in the reign of Pharaoh Amenophis IV who is said to have changed his name for Akhenaton.

In conclusion, we will quote CHEICK ANTA DIOP : "So, Africa that Europe considers as a continent with no historic past, has

given birth to the oldest humanity guides of our civilization ; they are the ones who created arts, religions, literature, medicine, architecture, agriculture, etc... at a moment when the rest of the world (Asia, Europe, Greece, Rome) had sunk into barbarism..." (slide 19)

3- Challenges of Modern-day Africa ^{4,5} (slides 20-27)

After being the guide of the world in the past, Africa seems to be losing ground today. As Tony Blair said : "Africa is the only continent to have grown poorer in the last 25 years". It has many problems : poverty is increasing, hunger is spreading, the youth is in a desperate situation, education is eroded. The number of children with no education is disturbing, mother-and-child mortality remains worrying, the decrepit condition of the infrastructures is becoming worse, the natural environment is deteriorating continuously, pollution and soil damage are expanding significantly, the lack of drinking water in some regions is a topical question, the nonconformism of Africa in the world trade and worldwide investments and repeated wars continue.

Yet, this desperate situation of Africa can't hide the great progress which has been made: the accepted introduction of democracy, the economic changes in many countries, the greater collaboration among Pan-African institutions ; the emergence of more human efficient abilities ; the outstanding appropriation of the new information and communication technologies by Africans.

Faced with these challenges, it's important to underline the different initiatives for the benefit of Africa : for example, the committee for Africa, created on Tony Blair's initiative in 2004. Its mission is to put in place strategies of fight against poverty and conflicts in Africa, to promote policies for the improvement of education, economy, the fight against AIDS, health and environment.

The other example is that of the New Economic Partnership for Africa's

Development (NEPAD) about which Abdoulaye Wade, the President of Senegal said : «we, Africans we consider the NEPAD as a catalyst that will propel Africa to the Future»

On the whole, in Africa, the different challenges are political, economic, social, environmental, educative and medical; these challenges can't hide the great progress which is made or in hand, and the great hopes created by international initiatives.

In addition, among these challenges of Africa, we can't fail to recognize the consideration of that great number of children and young adults, the driving force of our development, who are suffering from acute or chronic heart diseases whose treatment requires open-heart surgery : a surgical speciality whose story dates back to only some decades in the world and in Africa.

4- History of Cardiac Surgery in the World and in Africa ^{6, 7, 8, 9} (slide 28)

Open-heart surgery opened on to the world since May 6th, 1953. That year, John Gibbon, by Gibbon-IBM type artificial heart-lung machine, started the period of open-heart surgery (slide 29 & 30). At that historic moment, the first surgical treatment of intra cardiac malformation was successfully performed. After him, Lillehei carried out an intra cardiac correction on March 26th, 1954. The development of this surgery became more pronounced with the contribution of John W. Kirklin, essentially thanks to a great number of continuous and technological innovations in the building of artificial heart-lung machines.

So, in the late 50's, many university training programs for open-heart surgery developed so well that so far more than one million open-heart operations have been made in the world.

In front of the growing quality and security brought by artificial heart-lung machines, the surgeons are achieving more and more

frequently malformations corrections, with growing difficulty and satisfactory results among younger patients. These surgical operations involve ischemic heart diseases, cardiac rhythm disturbance, cardiac malformations or even heart transplant. Acquired valvular heart diseases.

It is in 1967, in South Africa that Christian Barnard (slide 31) successfully performed the first heart transplant in the world, marking the beginning of open-heart surgery in Africa.

In West Africa, many great surgeons did a pioneering work in open-heart surgery: Professors Easmon Charles (Ghana) (slide 32), Udekwu (Nigeria) (slide 33), Anyanwu (Nigeria) (slide 34), Adebajo (Nigeria) (slide 35), Metras Dominique, Ouezzin-Coulibaly Andre and Ouattara Kouame (Côte d'Ivoire) (slides 36-37). In this West-African region, the first open-heart operations took place in the 70's : January 1974 in Enugu (Nigeria) (slide 34), March 1978 in Abidjan (Côte d'Ivoire) (slide 36), December 1978 in Ibadan (Nigeria). Later in the 90's, new cardiac centres were built, namely in Ghana and Senegal.

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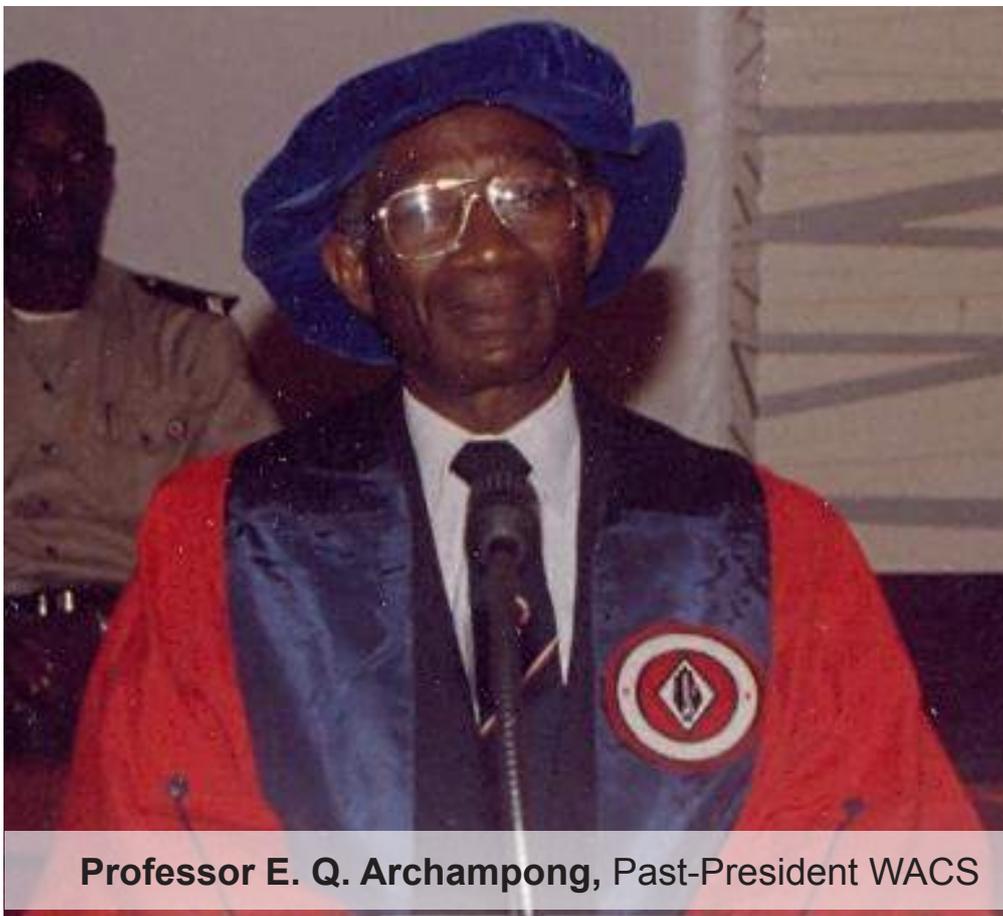
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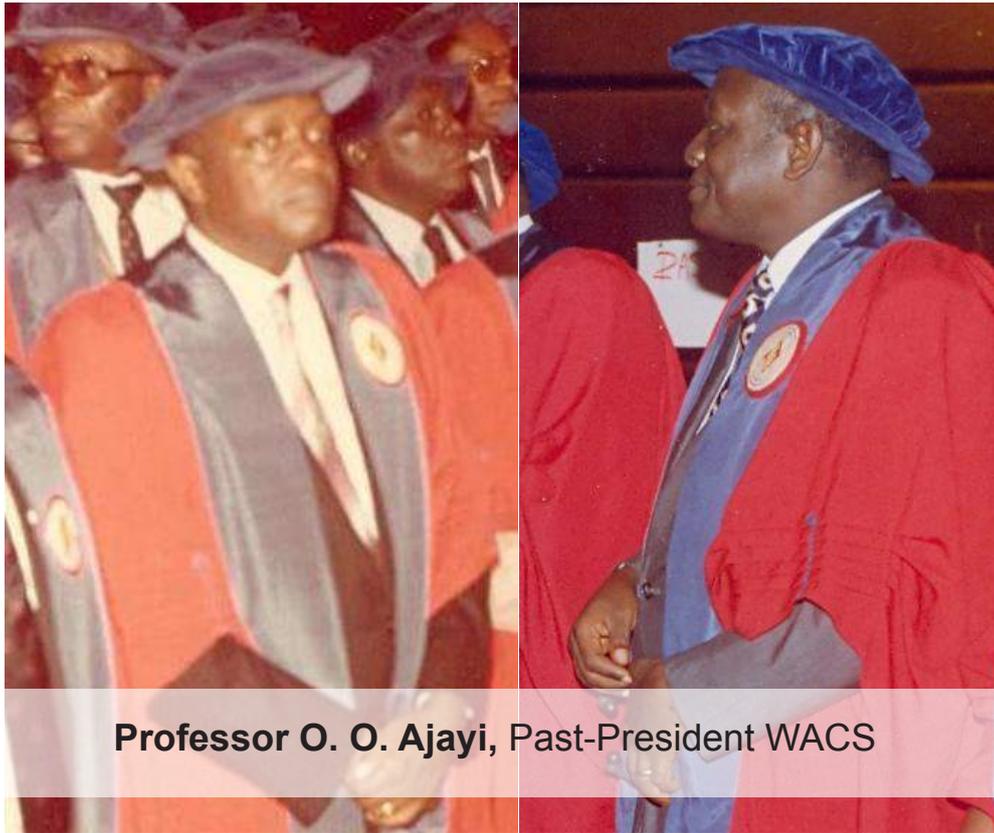
APPENDIX 1: Slides / Diapositives



Slide / Diapositive 1

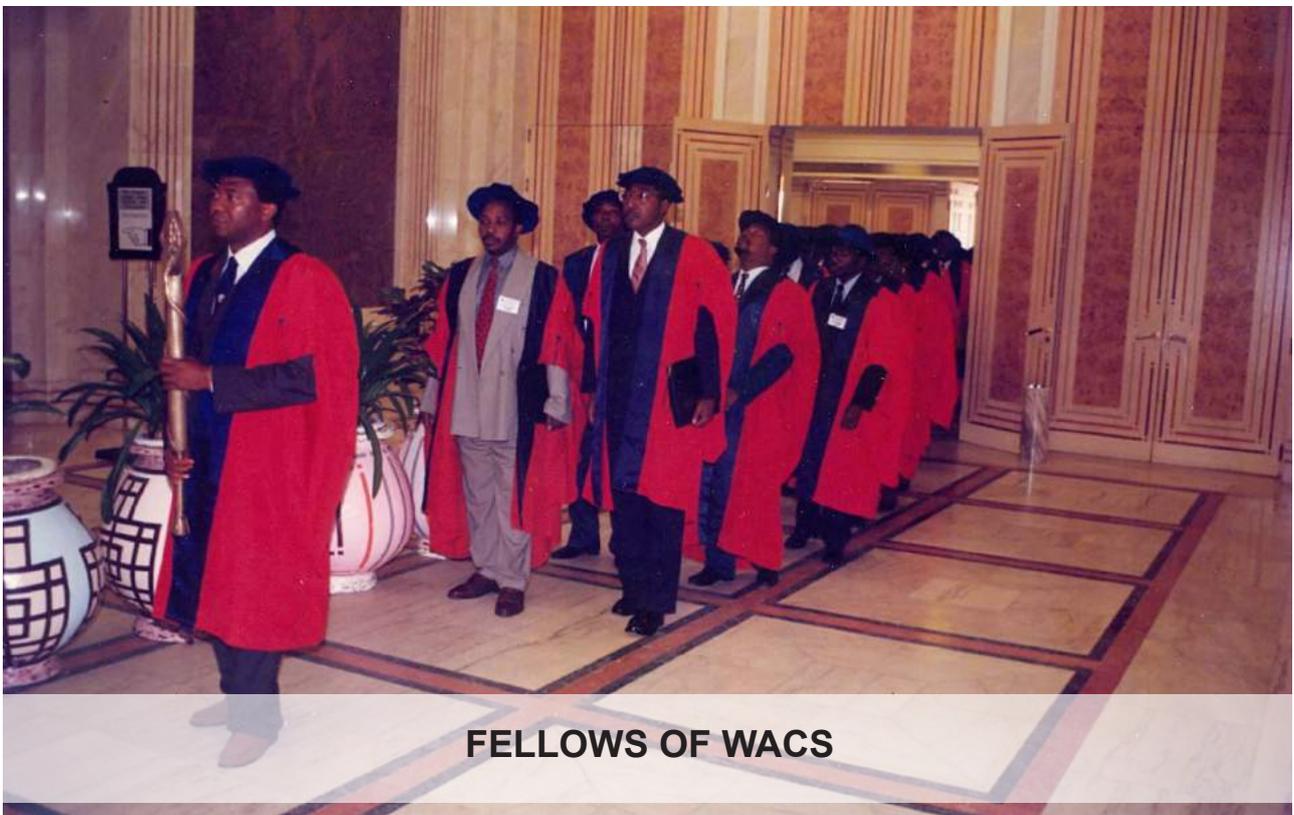


Slide / Diapositive 2



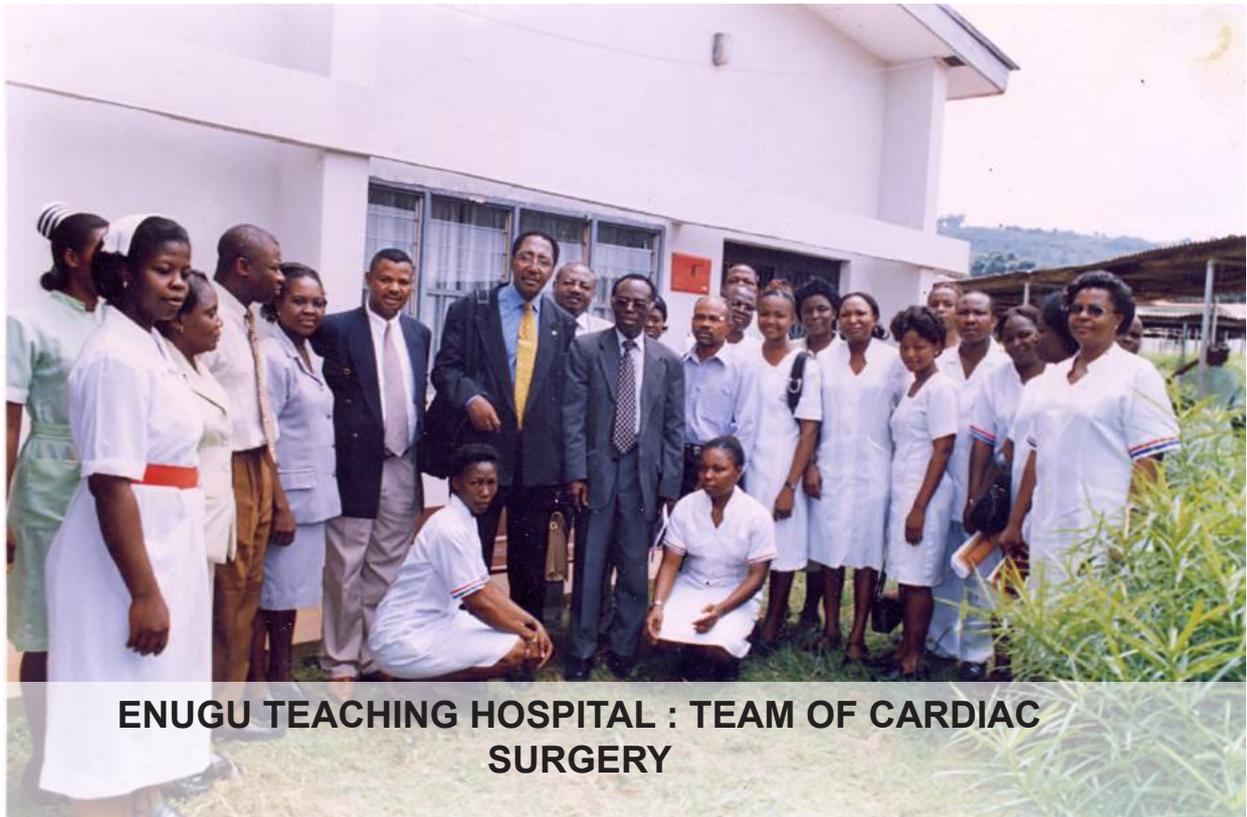
Professor O. O. Ajayi, Past-President WACS

Slide / Diapositive 3

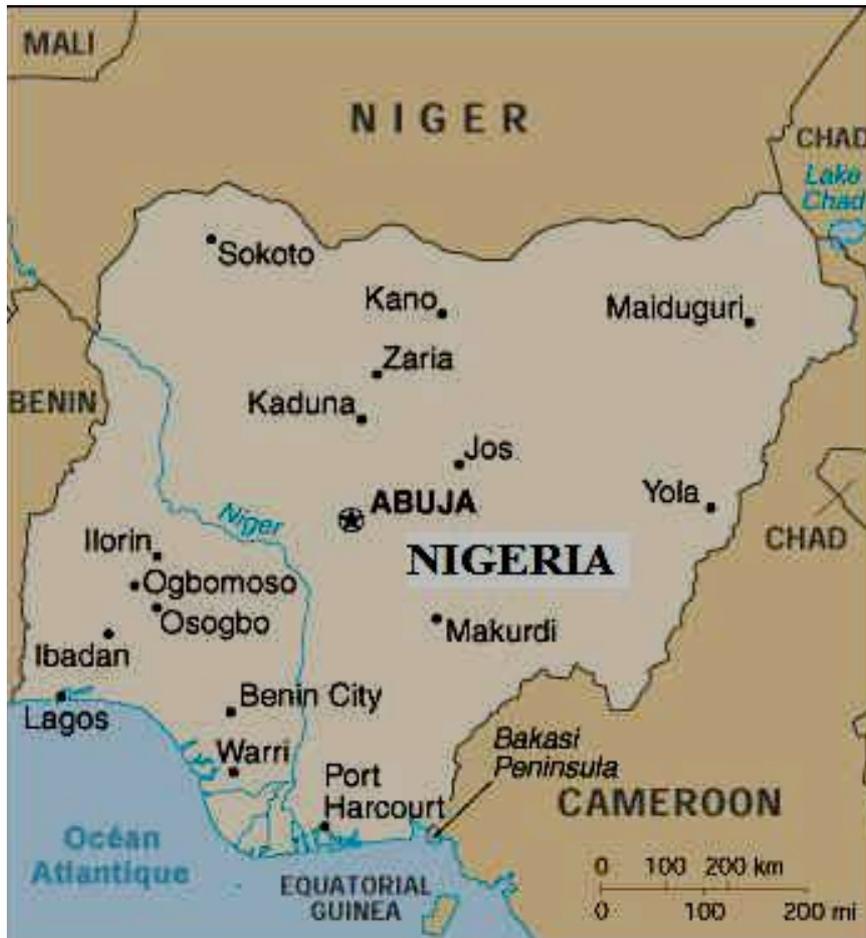


FELLOWS OF WACS

Slide / Diapositive 4



Slide / Diapositive 5

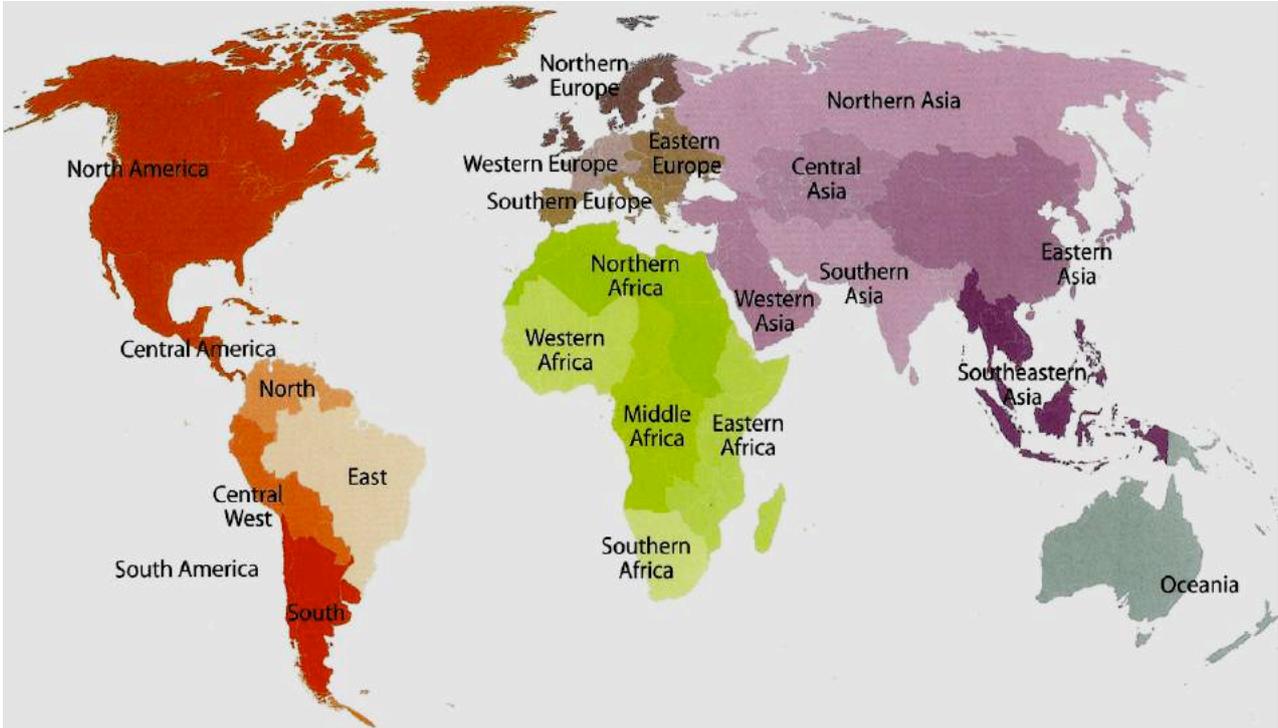


Slide / Diapositive 6 Map of Nigeria

AFRICA THAT FORGIVES



Slide / Diapositive 7



Slide / Diapositive 8

AFRICA, BIRTHPLACE OF HUMANITY CIVILIZATION, SCIENCES AND RELIGION

THE ORIGINS OF MAN

How has modern man conquered the world ?

Tout d'abord, l'Homo habilis, notre plus vieil ancêtre identifié (3 millions d'années), est situé dans le berceau africain.



Il est suivi de l'Homo erectus qui a émigré une première fois de l'Afrique vers l'Asie. Autrement dit les Homo erectus évoluent vers l'homme moderne. Il y a 100 000 ans, c'est en Asie et au Moyen Orient que l'on trouve ce type d'évolution vers l'Homo sapiens

Slide / Diapositive 9

AFRICA, BIRTHPLACE OF HUMANITY



Dr. Leonard Jeffries

Slide / Diapositive 10

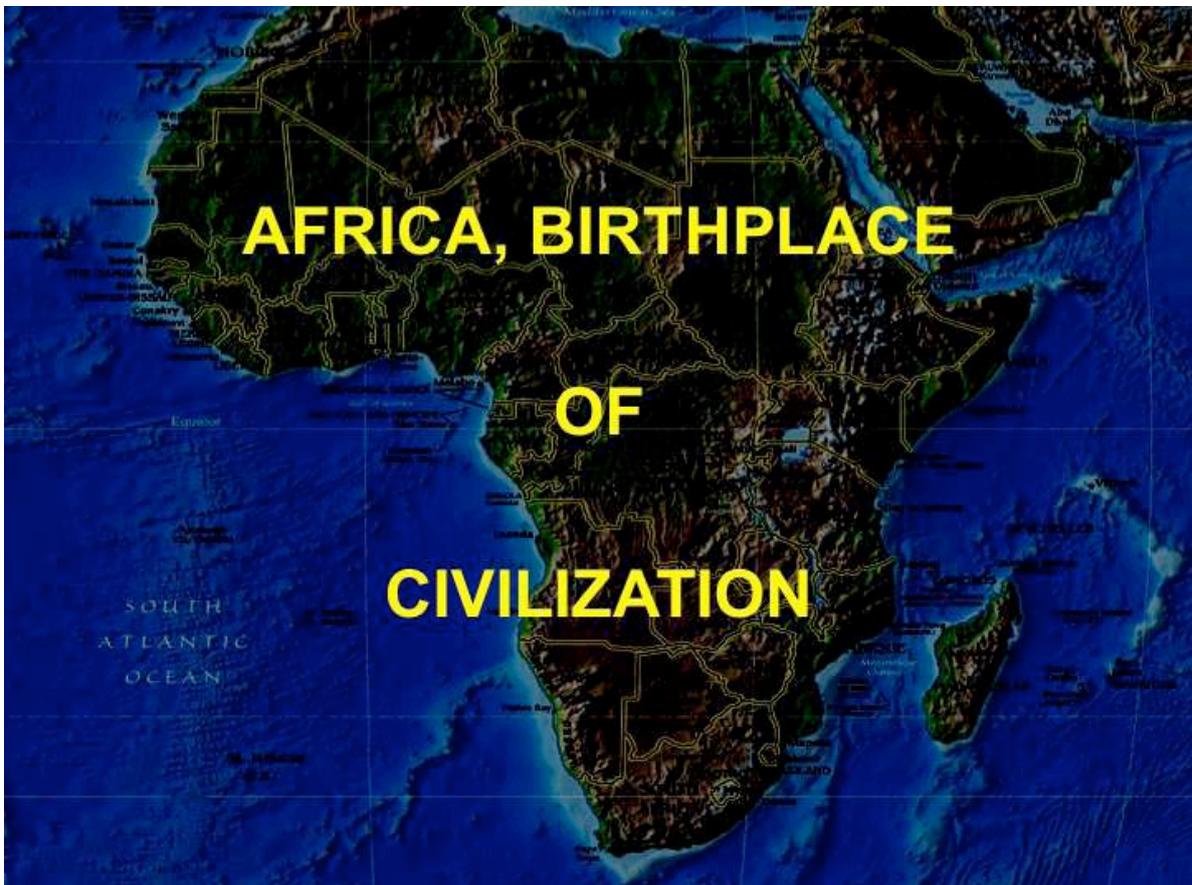
AFRICAN ORIGINS OF EARLY HUMANITY

by Dr. Leonard Jeffries

One of the oldest fossil finds of early man was made in Africa in 1960 by archaeologist L. S. B. Leakey. He named his find Zinjanthropus, meaning Eastern Man. It was found in Olduvai Gorge in northern Tanzania which is an archaeologists paradise.

Scientists at the University of California tested Zinjanthropus and believe that this early man was 1,750,000 years old.

Slide / Diapositive 11



Slide / Diapositive 12

AFRICA THE HOME OF HUMAN CIVILIZATION



Africa provides a comprehensive and contiguous time line of human development going back at least 7 million years. Africa gave humanity the use of fire a million and half to two million years ago. It is the home of the first tools, astronomy, jewelry, fishing, mathematics, crops, art, use of pigments, cutting and other pointed instruments and animal domestication. In short Africa gave the world human civilization.

Ishango Bone
World's First Abacus

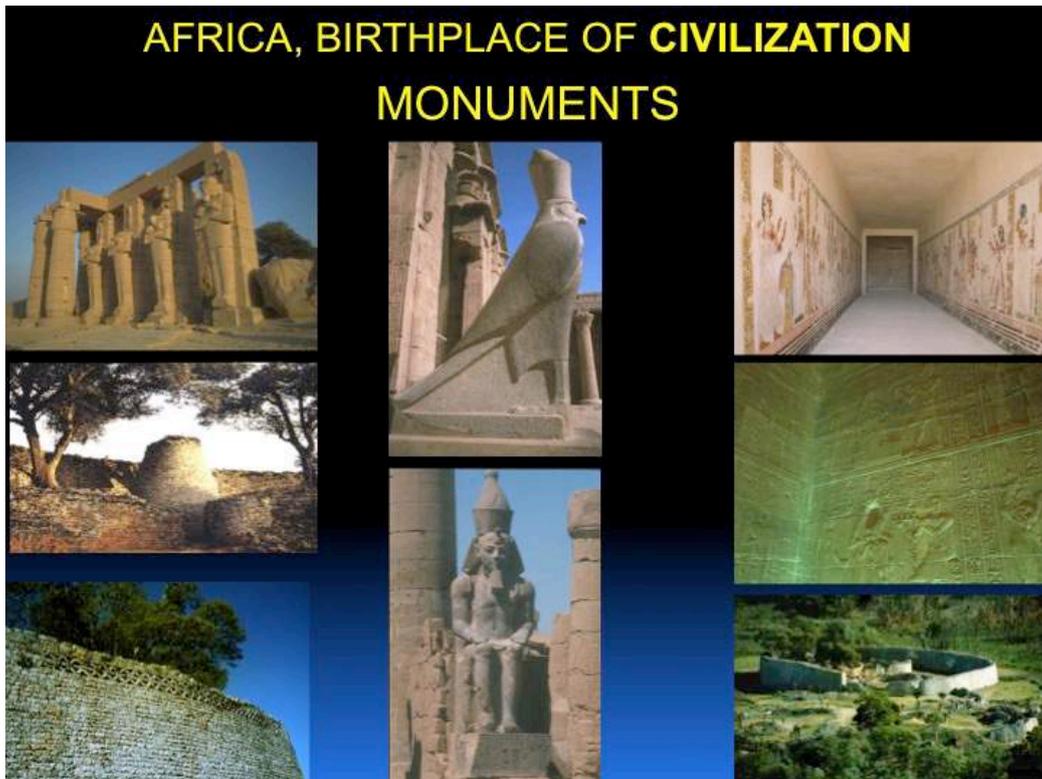
Slide / Diapositive 13

ARTWORK & ARTIFACTS

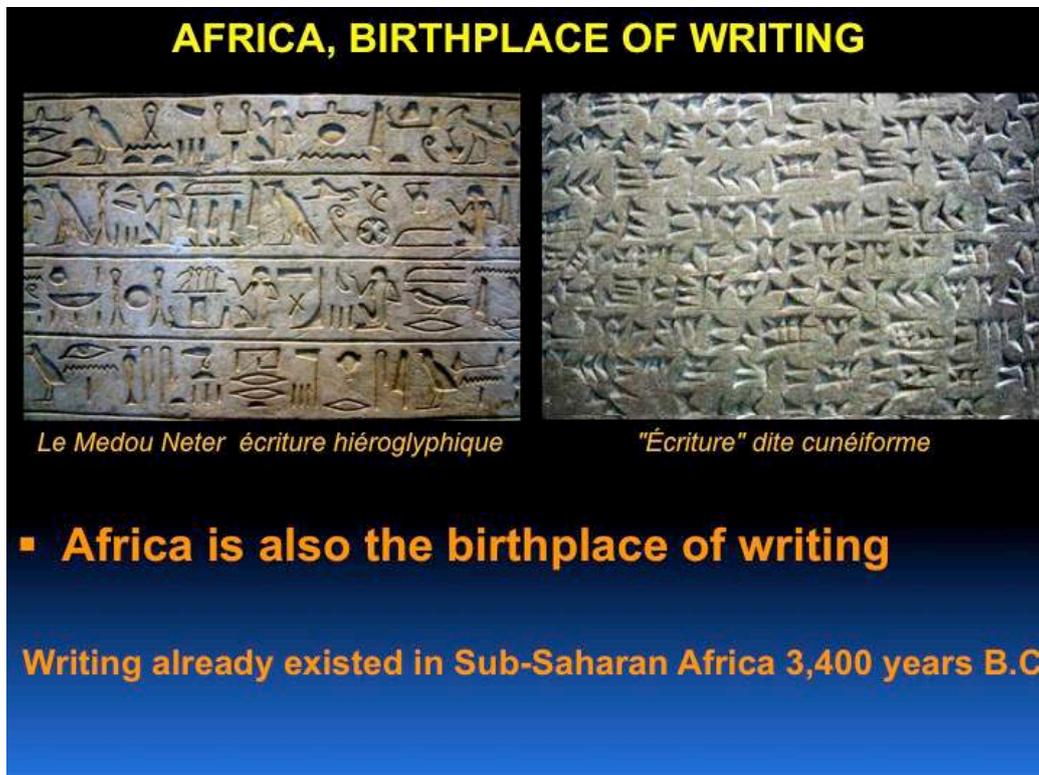
African art and artwork is among the most beautiful of the ancient and the modern world. The sculptures, masks and statues shown here speak to the glory of ancient African and the untapped potential of African people today.



Slide / Diapositive 14



Slide / Diapositive 15



Slide / Diapositive 16

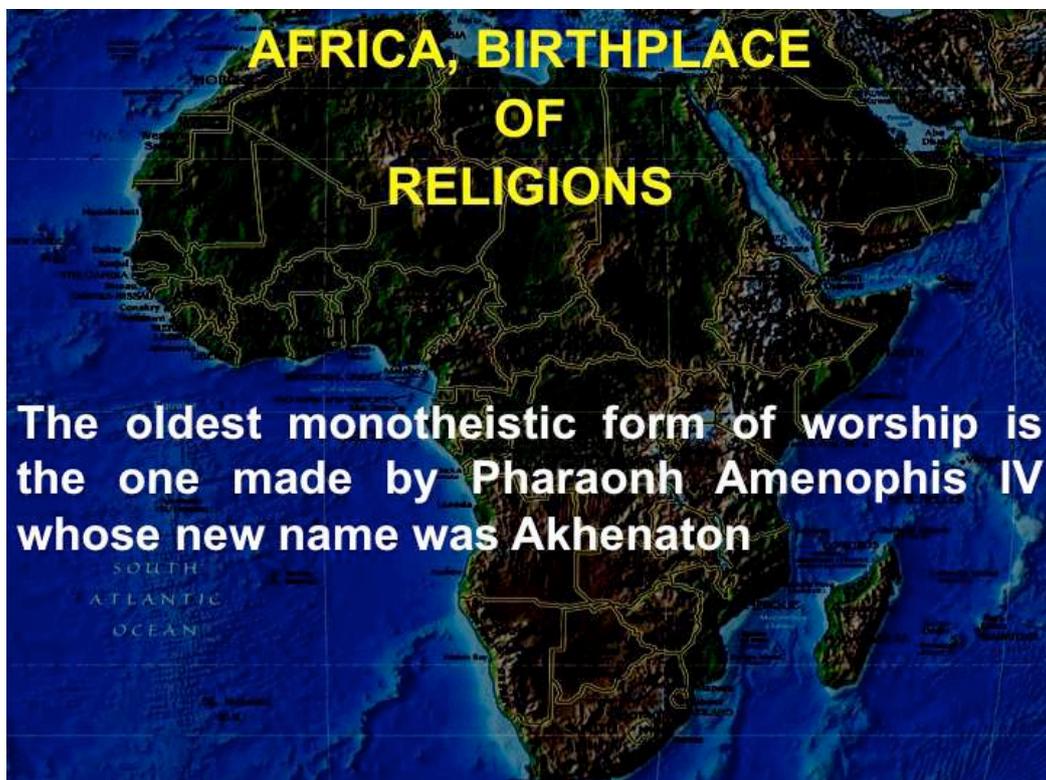
AFRICA, BIRTHPLACE OF SCIENTIFIC KNOWLEDGE

« *Egypt has also been the birthplace of mathematical arts* »

Aristote, *Métaphysique*, A,1, 981, b23

Il n'est un secret pour personne que l'Egypte ancienne a su se constituer un savoir scientifique qui a rayonné pendant plus de deux millénaires sur le monde et notamment durant la période de l'Antiquité franchissant aisément le bassin méditerranéen pour influencer le savoir greco-romain

Slide / Diapositive 17



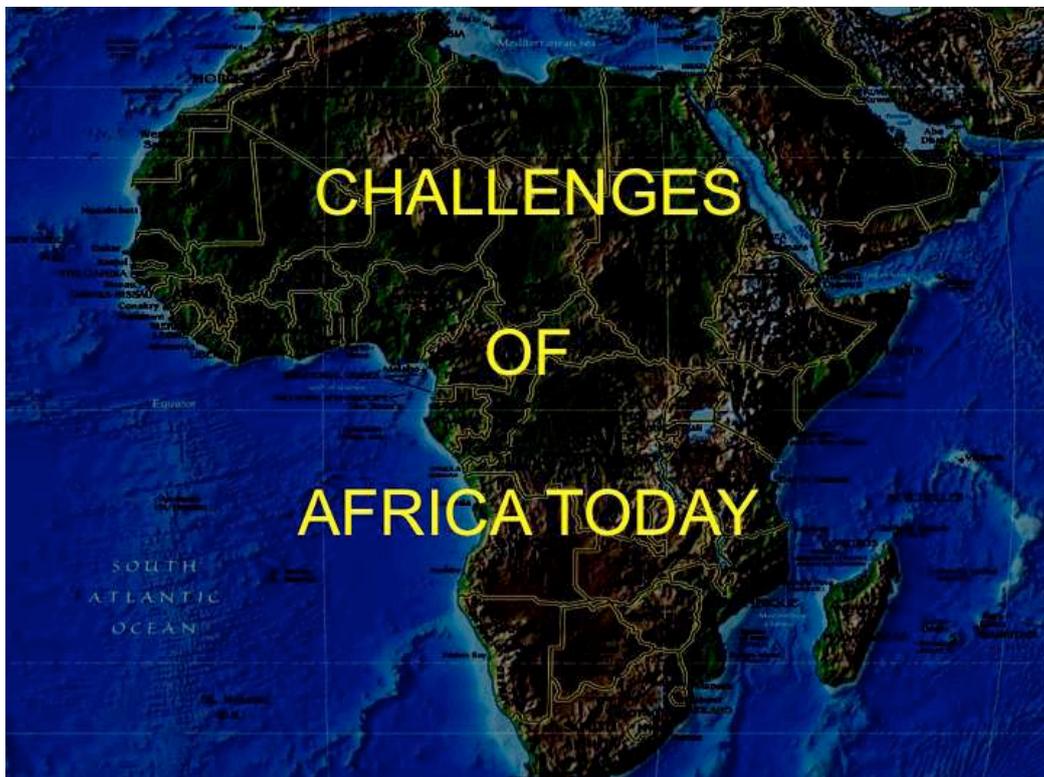
Slide / Diapositive 18

AFRICA, BIRTHPLACE OF HUMANITY CIVILIZATION, SCIENCES AND RELIGION

« So, Africa that Europe considers as a continent with no historic past, has known the oldest humanity guides on the civilization level ; they are the ones who created arts, religions, literature, medicine, architecture , agriculture, etc... at a moment when the rest of the world (Asia Europe, Greece, Rome) had sunk into barbarism... »

CHEICK Anta Diop

Slide / Diapositive 19



Slide / Diapositive 20



Fonds canadien pour l'Afrique

**DEUXIÈME ÉDITION DE NOUVELLE VISION,
NOUVEAU PARTENARIAT**

▪ **Africa takes over the controls**

« Sur tout le continent, les Africains déclarent qu'ils ne se laisseront plus conditionner par les circonstances. Nous déterminerons notre propre destinée et nous ferons appel au reste du monde pour compléter nos efforts. »

Slide / Diapositive 21



Fonds canadien pour l'Afrique

**DEUXIÈME ÉDITION DE NOUVELLE VISION,
NOUVEAU PARTENARIAT**

▪ **Challenges of Africa**

- One African out of two lives with less than \$ 1 us per day.
- 45 million African children don't attend school.
- More than 26.6 million people are VIH carriers.
- One African out of five is affected by a conflict.
- 14 countries are suffering from a lack of water, so will 11 others from now to 2025.
- About 500 million hectares of which 65 % are used for agriculture have been suffering from damage since 1950.
- Africa represents 13% of world population. Less than 1.6% of world trade and less than 1% of world investments.

Slide / Diapositive 22



Fonds canadien pour l'Afrique

**DEUXIÈME ÉDITION DE NOUVELLE VISION,
NOUVEAU PARTENARIAT**

- **Le défi**
Pour la plupart des Canadiens, l'Afrique est un paradoxe : un continent en crise, mais un continent qui possède un énorme potentiel humain et en ressources naturelles qui pourrait, si on le cultivait, être la plus grande histoire de réussite du xxie siècle.
- **Une nouvelle forme de partenariat**

« We, African, consider the NEPAD as a catalyst that will proped apricats to the futur.»

Abdoulaye Wade,
président du Sénégal et l'un des architectes du NEPAD

Slide / Diapositive 23



Slide / Diapositive 24



Slide / Diapositive 25



Slide / Diapositive 26

BLAIR UNVEILS 'AFRICA ACTION-PLAN'

The British government has launched an ambitious plan to analyse Africa's problems and submit potential solutions.

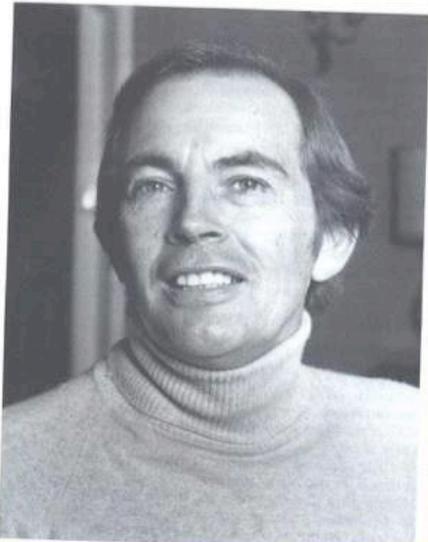
" Africa is the only continent to have grown poorer in the last 25 years " **Tony Blair**



Officials said the themes of the commission report are likely to include the economy, education, conflict resolution, health, the environment and HIV/Aids.

Slide / Diapositive 27

HISTORY OF CARDIAC SURGERY



Christian BARNARD (South-Africa)

Slide / Diapositive 28



Brief History of Open Heart Surgery World-Wide



➤ On May 6, 1953 Gibbon performed the 1st successful open heart surgery with heart lung machine on an 18-y.o. girl with ASD. The patient was kept on the heart lung machine for 26 minutes and survived the operation.

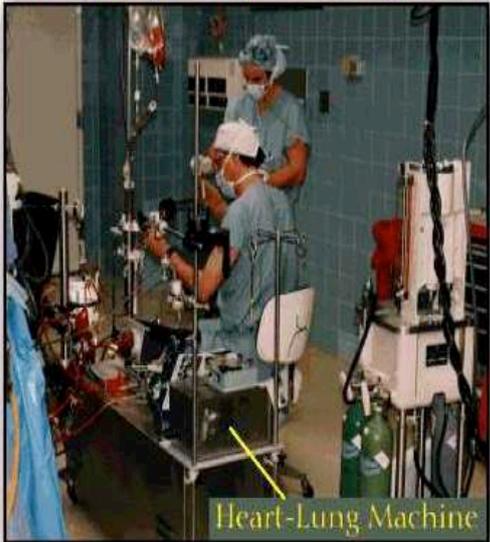
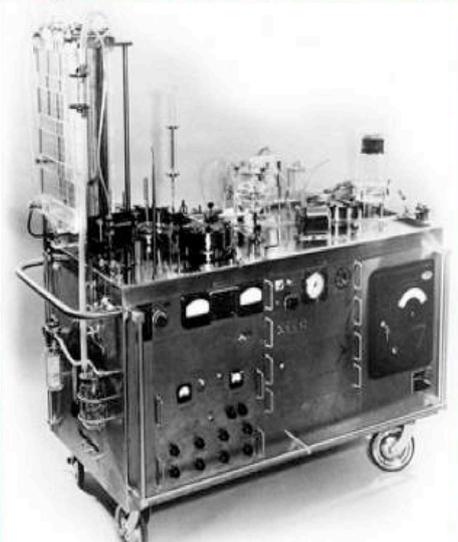
Slide / Diapositive 29



The 21st Century Heart Lung Machine



Mayo-Gibbon Heart-Lung Machine, 1953. The 21st Century Rolls Royce Heart Lung Machine

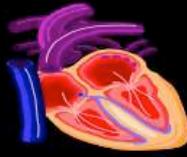


Heart-Lung Machine

Slide / Diapositive 30



Brief History of Open Heart Surgery World-Wide



- On December 3, 1967, Christian Bernard performed the first human-to-human heart transplant on Louis Washkansky at Groote Schuur Hospital, Cape Town, South Africa. The pt. died on the 18th post-op day of organ rejection.
- Since then, open heart procedures have become daily operation world wide.
- In 2004 over 500,000 coronary artery bypass grafts (CABG) were performed in the United States.
- About 300,000 open heart procedures are performed in UK every year.
- Today, more than 5 million open heart procedures are performed annually world wide.

Slide / Diapositive 31



Professor Charles O. Easmon

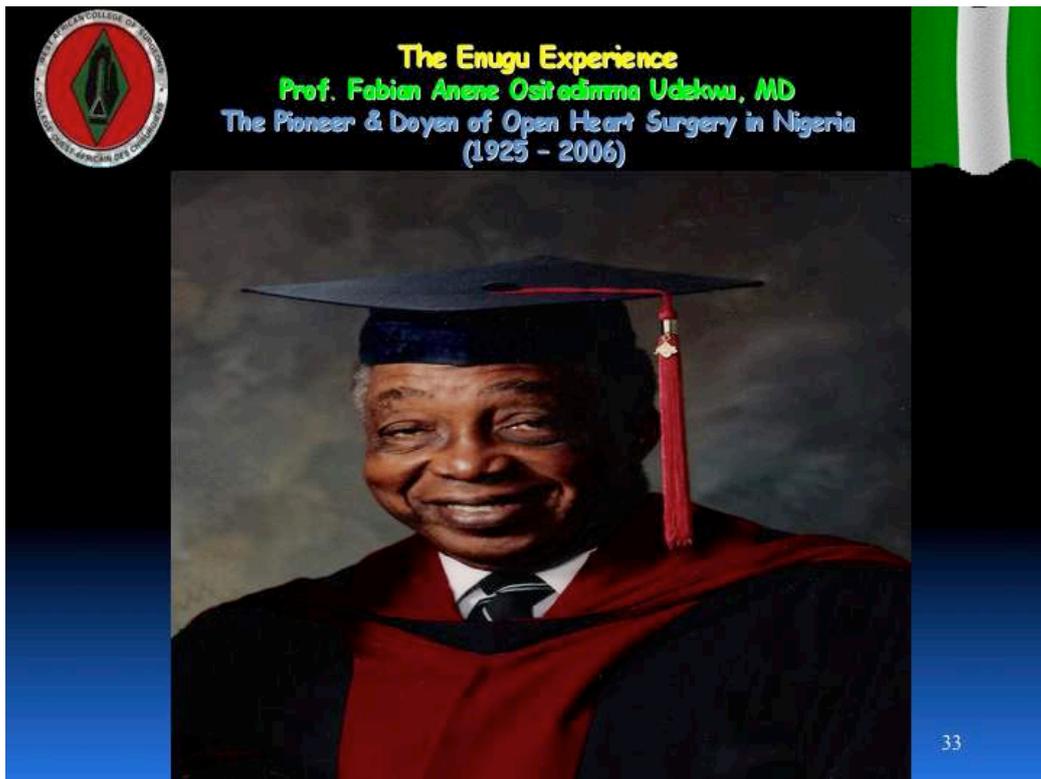
2nd Past President of WACS (63-65)

Father of Cardiac Surgery in West Africa

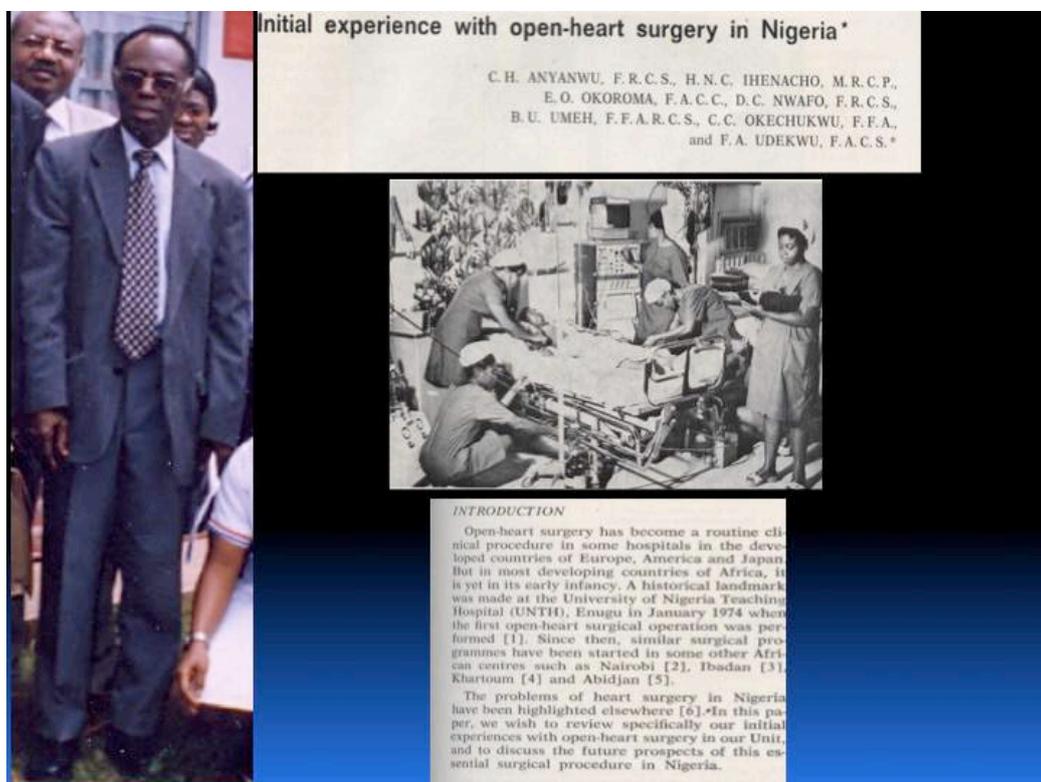


First West African to perform closed mitral commissurotomy in Ghana in 1960

Slide / Diapositive 32



Slide / Diapositive 33



Slide / Diapositive 34



Development of Open Heart Surgery in West Africa: A Historical Perspective



Guest Lecture

By

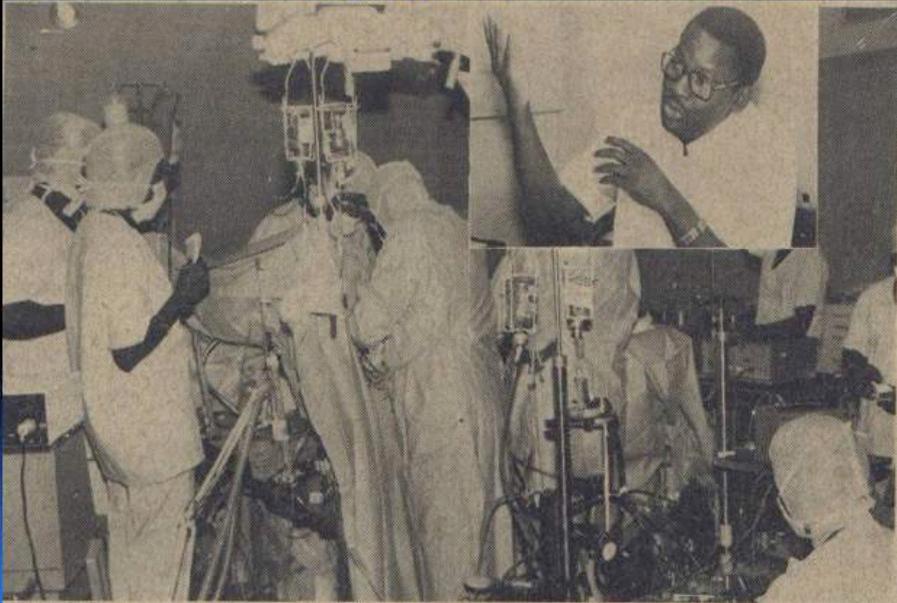
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48th Annual Scientific Conference
West African College of Surgeons
Freetown, Sierra Leone

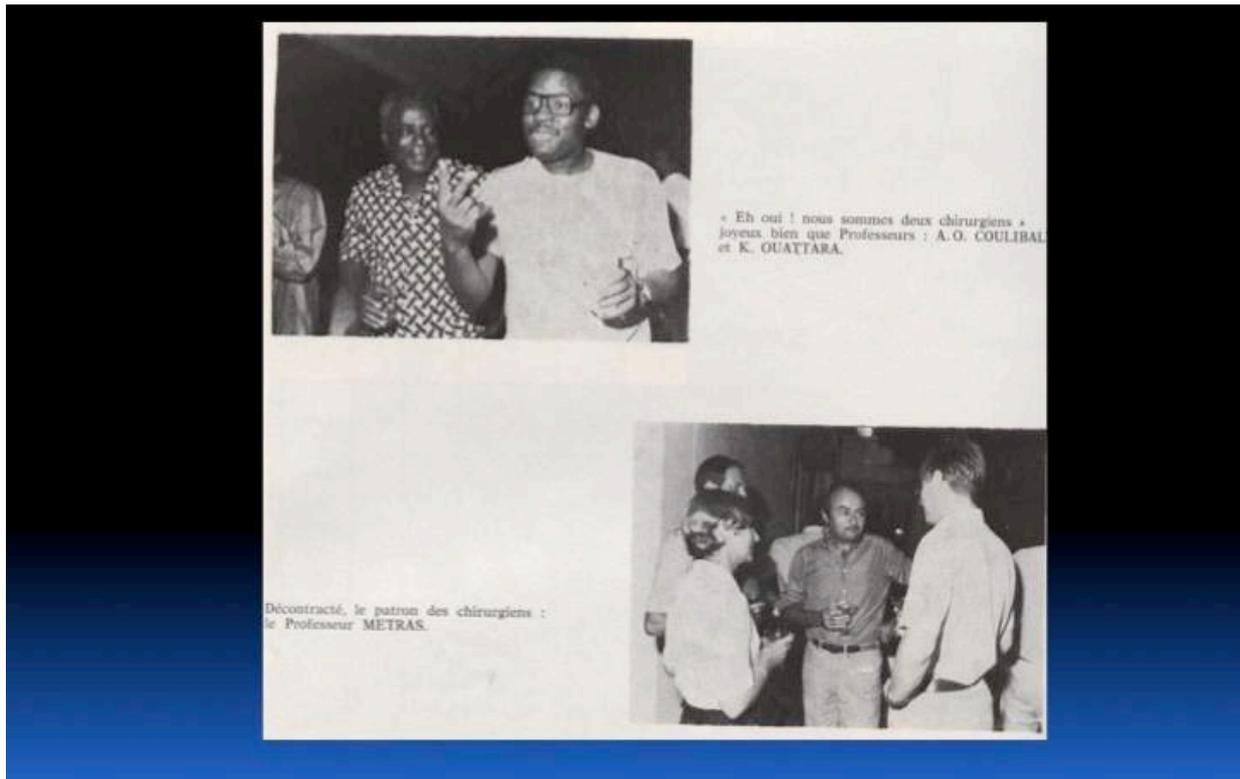
Slide / Diapositive 35



The 1st Open Heart Surgery in Cote D'Ivoire March 16, 1978



Slide / Diapositive 36



Slide / Diapositive 37