I am pleased to be the Rahima Dawood Travelling Fellow (RDTF) this year 2006, the 19th in the series. It is also a special privilege that I have to deliver the oration in Blantyre, Malawi, which I regard and happily accept as my second home. I was here for 10 years as the Foundation Professor of Surgery in the Malawi College of Medicine from 1991 to 2001.

In the first part of this oration, I would like to share with you highlights of my own specialty, neurological surgery, as practiced in the Eastern and Central parts of Africa. In the second part, I hope to present to you what I see as the problems and challenges of the surgical specialty. The first part is fairly straightforward. The second part is a little convoluted.

It must be stated that the surgical problems identified and discussed are by no means the monopoly of neurological surgery. They feature in all disciplines of surgery. The corporate efforts of the Association of Surgeons of East Africa (ASEA) and the College of Surgeons of East, Central and Southern Africa (COSECSA) will be needed for the solution of some of these problems.

**Patterns of Neurological Surgery**

**In Prehistory**
If the earliest origin of man has been credited by Leakey to Tanzania, some form of operation on the head must have taken place in Central Africa in prehistorical times\(^1\).

**In Recorded History**
One of the earliest surgical procedures on record is the trephination of the skull for various reasons; socio-cultural, medical and religious. The hominid brain and skull were described from Southern Africa and probably trephination must have been carried out on those skulls\(^2\). What is certain is the widespread practice of trephination of the skull in various parts of the world by different people, at different times and for different...
reasons. The traditional head surgeons in Libya, Sudan and other parts of North Africa were known as *faghis*. In East and Central Tende tribes of Kenya and Tanzania. Traditional craniotomy was also practiced, albeit on a limited scale, among the Nkole and Saga tribes of Uganda and the Zulus of Southern Africa. Those African traditional head surgeons employed in their craniotomy operations materials and methods hallowed by years, indeed centuries, of tradition and customs. Thus, they organized themselves into gilds and fraternities from which women were strictly ostracized but which were circumscribed in known families. Their training was long and arduous. By the middle of the last century, African governments moved in to stop the practice, in view of the appearance on the continent of modern neurological surgery. Yet, in 1958, in Kenya there were still pockets of Omobaris still actively prosecuting the ancient art of traditional craniotomy in South Nyanza District of Kenya. In a newspaper report, one of them described himself as “a skull surgeon who never went to medical school” and claimed to have inherited the art from his grandfather. This ancient art has now virtually disappeared in East and Central Africa, consigned to the dustbin of history.

**Modern Neurological Surgery in East and Central Africa Region**

The natural beauty of this region of Africa and its international reputation as the paradise of wildlife must have attracted many holidaymakers from abroad to the member countries of the Association of Surgeons of East Africa and its College of Surgeons.

In Kenya, among such visitors were the Head and Neck and ENT surgeons, namely Jarvis and Clifford, who were the first to practice neurosurgery in Kenya. Their place in the history of the specialty was redolent of that of William Macewen of Glasgow, the ENT surgeon who brought neurosurgery to Scotland. The first professional neurosurgeon in Kenya was Renato Ruberti, an Italian graduate of Padua who came to Kenya on hunting safaris until the hunter himself was ultimately ensnared by Kenya and he decided to make Kenya his home, setting up his neurosurgery clinic at the Nairobi Hospital. Ruberti offered services not only in Kenya but also in the neighbouring countries of Sudan, Tanzania, Ethiopia and Eritrea. The fascination of Kenya continues undiminished. Under the aegis of Kenya Neurological Society, a group of top American neurosurgeons visited Nairobi in October 2006 on a safari, which combined surgical services with sightseeing.

Tanzania is home to Kilimanjaro, the tallest peak in all of Africa. Among the many interesting places, which this famous African mountain spawned, is the Christian Medical Centre which has become a training ground for many specialties in surgery.

Uganda, romantically christened by its admirers as the “*pearl of Africa*” certainly fascinated Valentine Logue, professor of neurosurgery at Queen Square London, who in his years of retirement served as Consultant and adviser of Ugandan government in neurological surgery. First, he arranged for Ian Bailey of Belfast to go out to start modern neurosurgery in Kampala. Next, Valentine Logue undertook to train the late Jovan Kiryabwire, a Ugandan in neurological surgery, to continue the work of Ian Bailey. What is currently grabbing the headlines in African neurosurgery is the landmark work on the surgical management of African children with hydrocephalus being undertaken by the American neurosurgeon, Benjamin Warf, at the Cure Hospital in Mbale, Uganda.

One of the most spectacular catches in this regard was Laurence Levy. A graduate of University College Hospital, London, England, he had studied neuroanatomy under Professor Grant in Toronto, Canada.
He had trained in neurosurgery first under Wilder Penfield of Montreal Neurological Institute; then with Hoen of the New York Postgraduate Hospital and finally under Douglas Northfield of London Hospital, England. He needed a break from mundane work to decide where to settle and practice the surgical discipline in which he had trained so extensively. He took holidays in the summer of 1956 as a ship’s medical officer of the Royal Mail Line, which visited Central Africa. He was captivated by the beauty of Zimbabwe (then Southern Rhodesia) and decided to settle there. He accepted the lonely pioneering job of Consultant Neurosurgeon to Salisbury (Now Harare) Hospital.

Levy offered neurosurgical services not only to Zimbabwe, but also to Zambia, Malawi and even to Mozambique where he trained the general surgeon Garrido in some of the basics of neurosurgery and then produced our first famous female neurosurgeon M.T. Couto. He also trained some surgeons for Tanzania. As services improved in the Old Central African Federation, Malawi and Zambia had their own neurosurgeons—allowing Levy to concentrate his services in Zimbabwe.

In Malawi, a native Malawian, George Mtafu, who trained in neurosurgery in Germany returned home in 1986 to practice neurosurgery. I also offered neurosurgical and neurological services when I was in Blantyre as Professor and Head of Surgery of the New Medical School from 1991 to 2001.

**The Pan African Association of Neurological Sciences (PAANS)**

These pioneers of modern neurological surgery were involved in the formation of PAANS, a historical event that was enacted in January 1972 in Nairobi, Kenya. It was set up to promote neurosciences in the African continent, from Cairo to Cape Town and from East to West Africa. The organization holds its biennial general and neuroscientific meetings in various locations in Africa. The places in this part of Africa, which had hosted PAANS, were Nairobi Kenya in 1981 (Renato Ruberti); Harare Zimbabwe in 1990 (Laurence Levy); Addis Ababa Ethiopia in 1994 (Redda Haimanot); Durban South Africa in 1996 (Pierre Bill) and Blantyre Malawi in 2000 (Adelola Adeloye).

**Neurosurgical Workload in East and Central Africa**

**General**

An analysis of the 142-neurosurgical operations carried out by Shako Djhnga in 1977 in the Democratic Republic of Congo exemplifies the current spectrum of the remit of the neurological surgeon in much of black sub-Saharan Africa, which incorporates East and Central African Countries. Sixty percent of Shako’s operations were cranial and intracranial procedures and the rest were for spinal disorders. The commonest cranial operation was for depressed skull fractures followed by posttraumatic intracranial hemorrhage. The second commonest group of operations was shunting procedure for hydrocephalus. The third indication was intracranial infections of which cerebral abscess predominated.

Comparatively rare were **brain neoplasms** at 2% represented by one solitary case each of glioblastoma, meningioma and pituitary adenoma. Rarer still at 1.5% incidence were vascular lesions with one aneurysm and one angioma. Spine surgery accounted for 40% of the procedures. Infection of the spine was commonest, dominated by tuberculosis of the spine. Operative repair of myelomeningocele came next, followed by removal of spine tumours and finally by surgical management of spine trauma. Herniated disc and cervical spondylosis were rare.
**HEAD INJURIES**

In East and Central Africa, where there is shortage of neurosurgical manpower surrogate surgeons and other medical attendants take part in the management of the head injured.

**Incidence**

Head injuries (HI) account for 40 percent of all neurosurgical admissions in developing countries\textsuperscript{15} with the following figure applying to East and Central Africa\textsuperscript{16}. In all hospital admissions, HI incidence ranges from 20 percent in Kenya\textsuperscript{17} through 25 percent in Uganda\textsuperscript{18} rising to 30 percent in Zambia\textsuperscript{19}. In Tanzania, eleven percent of all surgical admissions are for head injuries (20). In Zimbabwe, HI accounts for 28 percent of the neurosurgery workload among Africans compared with 15 percent in Europeans\textsuperscript{21}.

**Aetiological Factors**

**Gender and Age:** Like in most series worldwide, males predominate, with most of the patients aged from 21 to 40 years.

**Alcohol:** In Zambia, alcohol consumption predisposes to RTA among drivers and pedestrians, the latter group being the most susceptible to have RTA associated head injuries\textsuperscript{22}. Binge drinking in Zambia’s Copper Belt city of Kitwe in October 2006 caused an alcohol stampede in which Zambian students died and some had severe head wounds\textsuperscript{23}. Malawi, alcohol intoxication causes falls from heights leading to HI amongst workers at construction sites. While the bottle stores (the local name for drinking houses) are safe places where brawls rarely happen, the drunken pedestrian is at great risk to have RTA associated head injuries\textsuperscript{24}.

**Time Factor**

**End of the week:** In Kenya, head injury incidence appears fairly constant during the week and reaches a peak at the weekend\textsuperscript{17}.

**End of the month:** There was once the impression that HI may occur at the end of the month when alcohol consumption is likely to be more. Close study in Zambia did not confirm this impression\textsuperscript{19}.

**Causes**

The main causes of head injury all over the world are RTA, assaults, falls from heights, occupational injuries and domestic accidents in order of commonness. The relative importances of these factors are different in East and Central Africa. Assaults constitute the leading cause of HI in most countries in the region. By contrast, this is not so in West Africa where assaults account for less than 10 percent of HI and occurs mostly in male as opposed to females in East Africa.

In Uganda, more than 50\% of head injuries result from assaults inflicted by the *Panga*, a large slashing knife used in the garden and on the farms. For every 3 cases of HI associated with RTA, in that country, there are 4 of assaults\textsuperscript{18}. In Malawi, RTA and assaults claim almost equal share in causing head injuries\textsuperscript{24}. Assault tends to occur during domestic altercations when knives and sharp instruments are freely wielded. In Zambia, the ordinary knife is the weapon used most on the women by their irate husbands\textsuperscript{19}.

In Zimbabwe, 72\% of all RTA casualties have HI\textsuperscript{25}. Nevertheless, assaults still account for considerable number of cases among the Matabele people who use the club-like knob kerry sticks to settle quarrels. As a result of the preponderance of assaults in East and Central Africa, *compound depressed skull fractures are very common* in the region\textsuperscript{26}.

**Infantile hydrocephalus**

This is an area in which East and Central Africa has made landmark and significant contribution to neurological surgery. The two major aetiological varieties are the
congenital and the meningitis, each predominating in two series from Malawi\textsuperscript{27,28}. In Zimbabwe, the congenital type is associated with neural tube defects of encephaloceles, myelomeningoceles and aqueductal stenosis. In that country, the congenital variety is twice as common as the postmeningitic.

In the rest of Central Africa, in Uganda and in Kenya, the postmeningitic is the most frequent\textsuperscript{13,29}. In Zambia, in addition to the two common forms, a special variety, the haemorrhagic hydrocephalus is recognized.

**Local Shunts**

Shunting procedures dominated the surgical treatment of hydrocephalus in these countries, starting with imported shunts which soon became unavailable on account of their high cost. Ingenuity of neurosurgeons and adaptation to the Third World needs came to the rescue with the production of local, home-made shunts.

The first of these local shunts was the Harare shunt produced in Zimbabwe by Laurence Levy and his colleagues\textsuperscript{30}. It replicates the original Pudenz. It has a slit valve system at its lower and has no pump or antisiphon mechanism. The piece connecting the ventricular and abdominal parts is made from stainless steel needle. The longer the lower end slits, the faster the shunt empties the CSF from the ventricle. Hence, beware in the child with very thin cortex or one with posterior fossa tumour as the valve may drain so fast and cause subdural fluid collection.

In Malawi, we started the operation of shunting procedures for hydrocephalus at the Queen Elizabeth Central Hospital, Blantyre, the teaching hospital of the new College of Medicine University of Malawi, which opened in 1991. When we ran out of the few Harare shunts we had, we improvised our Malawi shunt. It is similar to the Harare valve. It was made from silastic tubing. The shoulder was a curved metal tube made from a wide bore needle of stainless steel inserted between the upper ventricular and lower abdominal sections. The lower end of the abdominal tube was ligated and longitudinal slits made above the occluded lower end. Near the tip of the ventricular catheter are two fine holes.

We used this shunt in over 100 cases before I left Malawi in March 2001. The commonest sequelae encountered were over-drainage, blockage and cranial collapse\textsuperscript{31,32}.

In Zambia, there was the University of Zambia shunt. It had a pumping device but was found too complicated and unsuitable, causing scalp necrosis in the children. It was soon given up and Zambia reverted to the use of Harare shunt.

**Shunting Procedures**

A few questions need to be answered on this subject in connection with East and Central Africa.

1. Which patient gets the operation?
2. Which shunt is to be used?
3. Who performs the operations?
4. Any other considerations?

**ZAMBIA**

As the Association of African Universities (AAU) Visiting Professor to the University of Zambia and its Teaching Hospital in 1990, I found out that the patient selection for shunting procedure practiced in the other countries of Central Africa did not happen in Zambia. Parents of children who were declared unfit for surgery turned round to levy unfair socio-political accusations at the hospital authorities. As a result, almost every child with hydrocephalus is shunted according to the Dean of Medicine, Professor Munkonge himself a paediatric surgeon.

Zambia started out with the Harare shunt. They switched to the university of Zambia shunt, which was given up for the Harare valve.
The procedure was performed by the neurosurgeon, Dr. Lambert, the paediatric surgeon, surgical registrars and a number of cases by clinical officers alone or with assistance. The special variety of haemorrhagic hydrocephalus was treated by external drainage of the blood-laden CSF using ordinary intravenous infusion set for continuous ventricular washout.

ZIMBABWE
The Harare shunt is used. It costs about 17 dollars as opposed to the 230 dollars the price of a Hakim – Codman and the equivalent of the monthly salary of a medical doctor in Zimbabwe.

Patient selection is closely practiced and the operation is performed by doctors. Long-term postoperative outcome was found to be favourable among children of better-educated parents who know, and therefore quickly report, the warning signs of clinical deterioration to their doctors. The overall results have elicited reactions among the neurosurgeons involved, which vary from philosophical pessimism to pragmatic optimism. One view wonders if the effort put into shunting procedure was worth it; another advocates the inclusion of training mothers to participate in follow-up to maximize the benefits of surgery.

MALAWI
Selection of children for shunting is actively and objectively practiced. A protocol was put out in 2001 for the detection and management of infantile hydrocephalus at the three tiers of Malawi healthcare pyramid. We used our local Malawi shunt in most cases. Parents who wanted the expensive conventional shunts, usually Hakim-Codman, bought them from South Africa. Neurosurgeons and paediatric surgeons performed the operations.

In the last year of my ten-year tenure, I trained a clinical officer who was on my unit the technique of the operation. He, and a nursing sister on the paediatric ward teamed up to look after our children who had shunts under the supervision of the paediatric surgeon who was also Head of the Department of Surgery.

Visit of International Federation for Spina Bifida and Hydrocephalus (IF).

Early in year 2001, members of IF visited us in Malawi. They showed interest in the work we were doing with children with hydrocephalus. They suggested that our Malawi shunt should be compared with another inexpensive shunt and also urged us to have more people performing shunting operation. They later supplied us with Chhabra shunts, which were used in the comparative study.

The Chhabra shunt is made by Surgiwear Ltd of India. It has a ventricular catheter with 28 fine holes, a slit-in-spring valve and a peritoneal catheter with two slit holes at the end. Starting from March 2001, 157 children were treated with the Chhabra shunts in Malawi. No complications were found in 115 (73%) of them. The Indian shunt was found to perform better than the home-made Malawi shunt.

UGANDA
At Mbale, Uganda, the CURE Children’s Hospital opened in January 2001, and served as the referral hospital for paediatric neurosurgery. The conventional Hakim-Codman shunts were first used to treat children with post meningitic hydrocephalus. Early in 2001, the International Federation for Spina Bifida and Hydrocephalus supplied the CURE hospital with Chhabra shunts to be used in a comparative study with Codman shunts. At the end of one year study, Dr. Warf found that the inexpensive Chhabra shunt performed just as well as the expensive Codman shunt.

The observation that he would safely and efficiently treat 20 children with the Chhabra shunt for the same price that will be expended on treating only one child with the expensive Codman shunt was a big fiscal lesson for those who manage the health care
budget of the developed countries of the western world. Perhaps other areas of the world can benefit from the dividends of what has been enacted here in East Africa, a good example of what Michael King referred to as “low cost surgery”\textsuperscript{37}. The important finding from the works in East and Central Africa is that there is no perfect shunting system. That observation supported the stance of Ausman of \textit{Surgical Neurology} of 1998 who in a questionnaire asked paediatric neurosurgeons all over the world “shunt: which one, and why”?\textsuperscript{38}.

The conclusion was that we are still very far from obtaining the ideal shunt. We should get away from shunting procedures and perform instead third ventriculostomy. Warf in 2005 used endoscopic third ventriculostomy (ETV) as the primary treatment for hydrocephalus in Uganda\textsuperscript{13}. Unfortunately the operation was not successful in some patients. More importantly, the expertise and equipment to perform ETV was not available for some children.

The manifold activities of Dr. Warf soon made the CURE Children’s Hospital of Uganda the Mecca for the surgical treatment of infantile hydrocephalus. Many doctors visited the center not only to see his shunting procedures but more importantly to learn the technique of endoscopic third ventriculostomy.

\textbf{Intracranial tumours and vascular diseases}

\textbf{Brain Neoplasms}

Intracranial neoplasms were once thought to be rare in Black Africa. The publications of series of brain tumours from the recently established neuroscientific centers on the continent have dispelled this notion\textsuperscript{4}. A few features peculiar to sub-Saharan Africa and countries in East and Central Africa have been noted. First, there is preponderance of large chronic tumours like meningiomas, pituitary tumours and well-differentiated gliomas; 45\% of brain tumours in the Sudan are meningiomas\textsuperscript{39}. Secondly, since there are relatively few centers with the adequate manpower and machinery to deal with brain tumours, patients still present late for management when their disability and symptoms are advanced, throwing us back to the surgical era before Harvey Cushing. In Tanzania, for example, between 1980 and 1982, more than 50\% of the patients seen at Muhimbili Hospital, Dar es Salaam with pituitary tumours were totally blind on presentation and more than a quarter blind in one eye\textsuperscript{40}. Thirdly is the rarity of acoustic neuroma in Black Africa. Although by using immunohistochemistry, more cases can be diagnosed nevertheless, the rarity of this tumour continues, among blacks\textsuperscript{41}.

\textbf{Aneurysms and A-V Malformations}

The rarity of these lesions famously demonstrated in the Africans in many publications has been found in East and Central Africa.

\textbf{Infections and Infestations}

\textbf{Tuberculosis}

This disease is of special interest in East and Central Africa from the historical perspective and its management. Many cases of tuberculosis were recorded by Albert Cook at the Mengo Hospital, Uganda from 1897 to 1916\textsuperscript{42}. To the surgeon of today two lesions of special interest are tuberculomas of the brain and spinal tuberculosis.

\textbf{Tuberculomas} which previously constituted nearly 20\% of intracranial space occupying lesions in this part of the world\textsuperscript{42} have fallen in incidence to almost zero percent\textsuperscript{43}. With improvement in community control of tuberculosis in Zimbabwe, no brain tuberculoma has been resected in that country in the last two decades\textsuperscript{43,44}.

\textbf{Tuberculosis of the Spine}

The incidence of tuberculosis has gone up due to rise in HIV incidence\textsuperscript{45}. In Zambia, 60\% of adults with TB spine are HIV
positive. A lot of work on management of TB spine had been done in sub-Saharan Africa.

In Ibadan, Nigeria, Konstam, his wife, Sheila and his senior surgical registrar, Blesovsky have succeeded in treating cases without neurological features with rest and drug therapy46,47,48. This was extended successfully into the ambulant treatment regime which a Medical Research Council Party in Bulawayo, Zimbabwe confirmed in 1974 as the standard treatment of spinal tuberculosis49,50. Nevertheless, good public measures must be sustained to control tuberculosis. A breakdown in this area has been offered as the cause of a recent rise in the incidence of TB spine among children in Tanzania51.

Schistosomiasis of the Spinal cord

It is rare, with occasional report of cases in Kenya and in Uganda52. The last case encountered in Uganda before the latest couple reported was 20 years ago53.

Cysticercosis of the brain

This condition is also seen. The cysts may reach alarmingly high numbers on presentation44.

Human Brucellosis

In Kenya, brucellosis caused by Brucella melitensis, has been reported to have a predilection for the spine54.

THE SPINE

Congenital Disorders

Spina Bifida

Analysis of neonatal admissions of Muhimbili Hospital in Dar es Salaam and comparison with Liverpool and other parts of the world showed that the incidence of spina bifida in Tanzania is much lower than the rest of the world55. The occurrence of neural tube defects has been further reduced by the recommendation of women in the child-bearing age taking folic acid before getting pregnant56, 57.

Acquired Disorders

In a prospective study of 100 patients who underwent spine radiography at Nyeri Provincial Hospital in Kenya, spondylosis was the commonest ailment found followed by fractures, neoplastic disease and infection58.

Cervical Spondylosis

This disease in Malawi has equal gender distribution. Anterior osteophytes were three times as common as the posterior. Brachial neuropathy was the dominant presentation. Treatment was largely conservative, with laminectomy being used only in presence of cervical myelopathy59.

Porter's Neck

Levy in 1968 had commented on the anatomy of the neck of professional porters who carry loads on their heads in Zimbabwe60. Degenerative changes occur in C3 to C7 due to the axial strain of the load on the head61. When the porter with load on the head-trips and falls, hyperextension injuries occur atSurgery of

Spinal Cord Tumours

In 1996, Kalangu of Zimbabwe and Couto, female neurosurgeon from Mozambique introduced their “two stage” technique for the removal of intramedullary cord tumours. It was unique in that they carried out this surgical feat in the absence of CUSA and CO2 laser62. Their innovation was hailed as an example of what Imre Loefer called “surgery in an austere environment”63. Here also is the triumph of surgical ingenuity over the limitations of technology.

Herniated Intervertebral Disc Disease

This used to be rare, but not so in Harare where in 1994 nearly 20 discs were removed44.

Manpower in Neurosurgery
In year 2005 the World Directory of Neurosurgeons recorded 23 neurosurgeons for the 140 million people in East and Central Africa, a neurosurgeon to population ratio of one to 6 million. That was a far cry from the required world optimum of one to 100,000 people. The situation here nevertheless was slightly better than the West African ratio of one to 6.5 million but much poorer than the one to 338,000 of North Africa and the one to 400,000 of the Republic of South Africa.

In the course of my present peregrinations in East and Central African countries, I found that Kenya has 13 neurosurgeons for its 25 million people, Tanzania has 5 neurosurgeons for its 17 million and Zambia also has 5 for eleven million people. Malawi has one neurosurgeon for 12 million people and the neurosurgery lectures in its teaching hospital are given by a professor of neurosurgery from Tanzania.

In 1999 when we formed the Neurosurgical Society of East and Central Africa, the young society qualified only for affiliate membership in the World Federation of Neurosurgical Societies because of our modest and inadequate number. The story of the distribution of neurosurgeons in Africa has been told in detail by El Khamlichi64.

Problems and challenges

The revelation of the poor neurosurgical manpower status of East and Central Africa provides the appropriate genesis of our discourse of the problems of this specialty. These problems are not the monopoly of our specialty; they touch every branch of surgery. The challenges of neurosurgery in Africa in our 21st century are manifold, encompassing the problems of materials; machines; manpower and money.

Materials

The right materials to perform surgical procedures are not always available in this region of Africa. As shown in our treatment of childhood hydrocephalus shortage of conventional shunts led to the improvisation of local and homemade devices. Other branches of surgery have more or less similar story to tell.

Machines

The machines and tools required for diagnosis and surgical treatment are also in short supply. In neurological surgery, the up-to-date neuroradiological diagnostic equipments are limited and sophisticated tools for operation such as the cavitron ultrasonic aspirator (CUSA) and radiosurgery are available only in few centers.

Procedures in the growing frontiers of brain tumour management such as molecular neurosurgery and intracranial neuronavigation are outside the ken of our neurosurgeon in sub-Saharan Africa. Amando Basso accentuated the parlous picture when he commented that the cost of new technology is almost impossible to bear in developing countries5. Jonathan Peter of South Africa on the opposite side raised our hopes that it is not all gloom and doom when with Chris Adams of Oxford, he reassured us that “excellent neurosurgery can still be performed with a microscope, micro-instruments and a sucker66.

Manpower

The burden of surgery in every one of the disciplines is enormous, but the “labourers are few”. In neurological surgery, as we have related, the manpower deficit is painfully stark. The obvious answer to the deficit is to train more neurosurgeons, a goal that might take several years to attain. A number of short term and long term solutions have been suggested. The use of surrogate surgeons has been suggested as short-term solution. In the past we had general surgeons who handled cases of head injury. Technological advances and emergence of surgical specialties had seen off the breed of surgeons-in-general.

An important surgical surrogate of which this part of Africa can rightly be proud is the Paramedical staff comprising medical assistants and clinical officers. These health workers had been the backbone of medical services in Malawi since 1926 when medical
assistants were placed on the Medical Register of that country. Without them, the orthopaedic services, anaesthesia and management of district hospitals in Malawi will collapse. When I was leaving Malawi in 2001, the care of our hydrocephalic children was taken up by a clinical officer who had worked with me for nearly a year and until he could competently and safely perform a shunt operation.

A long-term solution has been worked out by an Education Committee on Neurosurgical Education sponsored by WHO and the World Federation of Neurosurgical Societies (WFNS) chaired by EL Khamlichi with the assistance of Basso and Brotche, Presidents of WFNS. The suggestions were local training of neurosurgeons, promotion of neurosurgery through national societies of neurosurgery; integration of neurosurgery into the health care pyramid of the country affected and the prosecution of clinical research in the discipline.

Neurosurgery can be readily integrated into the well-established health care pyramid of Malawi. Then, the moderately equipped district hospitals in the middle tier of the pyramid can deal with more simple pathologies like neurotrauma and hydrocephalus leaving the central hospitals which are better equipped to handle more difficult cases.

All accept that local training of young neurosurgeons is best for Africa, but with some qualifications. The World Federation programme, which has worked in the developed countries, may not be appropriate for Africa. It did not work in Ghana and Zimbabwe. Hence, Huw Griffiths of UK some years ago suggested that Africa might need its own unique type of neurosurgeon different from the one practicing in Europe, America and Japan. Kalangu recently summed up our attempt to develop African neurosurgery by suggesting using local resources first, then turning to what is available in Africa and finally turning to the world at large.

OUT OF AFRICA

The drain of doctors from sub-Saharan Africa to other parts of the world has negatively impacted on surgery and its specialties. African doctors in droves desert their countries where they trained to work in the United Kingdom. Without them the NHS would collapse. The appellation for Malawi is a country that has more Malawian doctors in Manchester, England than in the whole of Malawi. A recent publication revealed that Malawi has no qualified surgeon in any one of its 21-district hospitals. A similar situation exists in Tanzania where the M Med programme in surgery had been on for about a quarter of a century. Most doctors who trained in Zimbabwe had relocated to South Africa and elsewhere.

Reactions to the Doctor Drain

A Moral Issue: The late Prof. W.W Davey, famed for his Companion to Surgery in Africa in a letter to me saw the problem with surgery in Africa is more of a moral issue than one of limited technology. He believed that the moral strength and conviction of the African doctor should make him stay in Africa and pay back part of what the country had invested in him. He disagreed with the African Kenyan neurosurgeon who came from Canada to practice in Nairobi only to soon return to Canada because he had no equipments with which to operate.

A monetary issue:

The young contemporary Africans who are directly involved in surgical training Programmes and conundrum of surgical manpower think otherwise. They emphasize the financial component of the problem. When the young African surgeons find it difficult to meet their financial needs personally, domestically and socially, the moral issue of their profession pales into insignificance, overshadowed by monetary
considerations. Adequate financial reward will certainly help to keep our African doctors at home.

In the Good Book, the Samaritan who took a victim of assault to a place for medicare deposited money (two shekels of silver), and promised to pay more when he returned\textsuperscript{71}. He earned the epithet of the “Good Samaritan” for backing up his compassion and first-aid treatment with money.

**Research and Publication**

Clinical research should be encouraged and the results published. The findings will help to illuminate the local pathologies encountered to show the place of neurosurgery in the health care programme of the country. That should help to demystify neurosurgery as an expensive super-speciality.

This region of sub-Saharan Africa has succeeded in running medical journals reputed to be in continuous production for several years. The East African Medical Journal of Kenya has been in circulation since 1923; the Central African Journal of Medicine of Zimbabwe since 1955 and the African Journal of Neurological Sciences of Nairobi, Kenya since 1982. It is our hope that the newly launched East and Central African Journal of Surgery will follow the good example of its predecessors.

International journals have also promised to continue to promote neurological surgery from this part of the world. K.V. Slavin, Assistant Editor of *Surgical Neurology* in 1995 wrote the following about the subject:

> “We will continue to encourage writers from developing countries, rewarding them for not giving up and for their continuous effort to participate in the world of neurosurgical information”\textsuperscript{72}.

**Thanks**

I end this oration with the theme on which I started it, viz, my deep debt of gratitude to the Trustees of Rahima Dawood Travelling Fellowship, the officers of the Association of Surgeons of East Africa, the Royal College of Surgeons of Edinburgh and the College of Surgeons of East, Central and Southern Africa for giving me the opportunity to serve them as the Rahima Dawood Traveller for 2006. The experience has shown me again that traveling is very much part of education from the benighted days of the peripatetic scholars of medieval Europe to the diligent students of latter day information technology. During the last three weeks, I have seen a lot, shared a lot with my surgical colleagues and learnt a lot during my travels. This region of Africa has contributed significantly to the practice of surgery on our continent, not only in neurosurgery but also to surgery in general. Firstly, the Pan African Association of Neurological Sciences was born in Kenya over 30 years ago. Second, when you encountered the adversity of shortage of conventional shunts for treating hydrocephalus you responded by the improvisation of local shunts. Adulations for those local shunt crusaders must have been anticipated by the English Bard, Shakespeare, when he mused in Richard II that “wise men do not sit down (in idle self pity) and wail their woes”\textsuperscript{73}. Thirdly, this region has become the veritable paradigm of what paramedical staff can contribute to the practice of medicine.

In 1926, the medical assistants were listed in the Medical Register of Malawi. Today, 80 years later the clinical officers remain the backbone of medical practice in much of this region. In Malawi, these officers feature in many branches of surgery and anaesthesia is handled almost entirely by them. Lastly, the latest phenomenon to appear on the surgical landscape of this region is the surgical facility for disability being provided by the network of CURE Hospitals in Uganda, Malawi and Zambia. These hospitals are presently making landmark contributions in neurosurgery, orthopaedics and they promise more in the surgical treatment of disabled children.

One other important observation: It is to your eternal credit that you have maintained unbroken dissemination of surgical information in the major internationally recognized medical journals published from this part of Africa since their inception.
So,

To the Traveler in Africa,
Questing for Adventure in Surgery
And Tales of the Travails
Of its Labourers.

My Advice is simple:
Go to the East,
Consider their Ways,
And be wise.

THANK YOU.

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