Volum 17 Number 01 29 February 2024

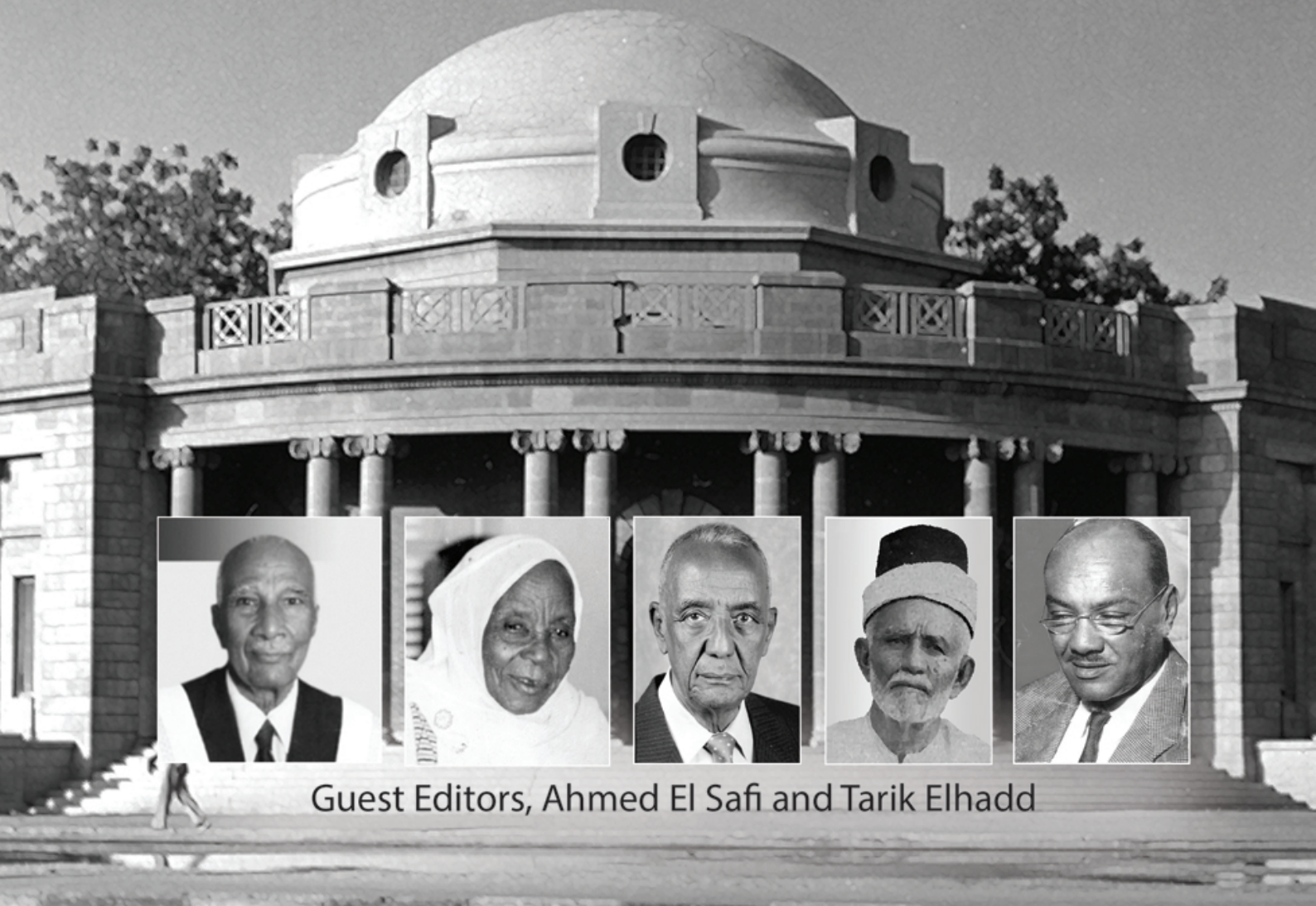
KHARTOUM MEDICAL JOURNAL

The Official Journal of the Faculty of Medicine, University of Khartoum

Supplement

Celebrates the Faculty of Medicine, University of Khartoum,

Centennial Anniversary



Guest Editors, Ahmed El Safi and Tarik Elhadd

KHARTOUM
MEDICAL JOURNAL
The Official Journal of the Faculty of Medicine, University of Khartoum

Published every four months
Supplement

Address:
P.O. Box 102, Khartoum, 11111 Sudan
E-mail:khartoummedicalj@gmail.com
E-mail:kmj@meduofk.net
Website:kmjuofk.com
https://onlinejournals.uofk.edu/index.php/kmj/issue/archive
Tel.: +249155171858
ISSN 1858-5345

Designed & set: Ahmed Hussien M

Ethical policies and procedures

- Any material submitted for publication in KMJ must conform to the ethical norms as defined by the Faculty of Medicine, University of Khartoum, Research and Ethical Committees.
- Research papers must be the result of original work and should not be submitted for publication elsewhere.
- Any related previously published work must be referred to by the author(s).
- Authors and co-authors are equally and completely responsible for their manuscripts and should all be aware of contents and have substantial contribution to the work done.
- Authors should accept full legal, moral, scientific and professional responsibility for their articles.
- Authors should include an acknowledgement of data, material or assistance they obtained and used that may otherwise lead to conflicts with other papers.
- Reviewers and readers are expected to report any duplication or fraud they recognize in a manuscript to the Editor-in-Chief. The Editorial Board will investigate the matter and take the appropriate action.
- KMJ reserves the right to accept or reject any article submitted for publication.

Khartoum Medical Journal Objectives

1. Provide a forum for scientific and clinical medicine publications.
2. Serve the medical community in Sudan and the region in the field of continuing medical education.
3. Offer opportunities for the publication of service-oriented research and disseminate information aimed at the promotion of health services.
4. Encourage the development of medical and allied sciences research.

Contents

Dean, The Faculty of Medicine, University of Khartoum Address

The Faculty of Medicine, University of Khartoum: 100 years of Excellence in Medical Education, Research and Community service

Professor AlaEldin Hassan Ahmed,

Dean of Faculty of Medicine, University of Khartoum

The Faculty of Medicine, University of Khartoum, celebrates its 100th anniversary on February 29, 2024. It gives me great pleasure to congratulate all graduates and students on the centenary of our prestigious Medical School.

Lord Herbert Kitchener put forward the initial proposal to establish a medical school in Sudan on his last visit to Sudan in 1911. After his death in June 1916, an appeal for fundraising to fulfill his wish was started in 1923. It is of note that Sudanese made a significant amount of the donations. On February 29, 1924, Kitchener Medical School was opened by Sir Lee Stack, then Governor-General of the Sudan and Sirdar of the Egyptian army. It was the third medical school to be opened in Africa, only preceded by Kasr AlAiny School of Medline in Cairo in 1827 and Cape Town Medical School, South Africa in 1912.

In September 1951, the school was linked administratively to Khartoum University College. After Sudan's independence in 1956, Khartoum University College was upgraded to Khartoum University and the medical school became the Faculty of Medicine and started offering the MBBS Degree. Up to 1933, the duration of the teaching program was four years. In 1939, after the establishment of the Faculty of Science in Gordon Memorial College the study duration for the Diploma became six years. In its initial phase, teaching in Kitchener School was performed by British expatriate staff in Sudan Medical Services and the Welcome Trust Laboratory Staff. The academic departments were established in 1951. Full-time teaching staff were recruited, and Sudanese staff were chosen and sent for postgraduate studies in the United Kingdom.

It was not until April 1963 that the first Sudanese Dean, the late Professor Mansour Ali Haseeb, was appointed.

Over the years, the Faculty expanded to include 18 academic departments. Student intake was seven entrants per year in 1924 which increased progressively. The average annual intake was 40, 150, and 200 in the years 1951- 69, 1970 -73, and 1974 -1990 respectively. The annual intake now is about 340 students per year. The number of national teaching staff increased steadily, and by 1965, almost all staff were Sudanese nationals.

The postgraduate training program in the Faculty started with a Diploma in Obstetrics and Gynecology in 1953. In 1977, a medical postgraduate studies Board was established to offer postgraduate Masters and later MDs, clinical MDs, and PhDs in different specialties, including basic sciences. In 2003, the clinical MDs moved to the Sudan Medical Specialization Board. However, the Faculty of Medicine continues to have an active postgraduate program of Masters, MDs, and PhDs in different specialties.

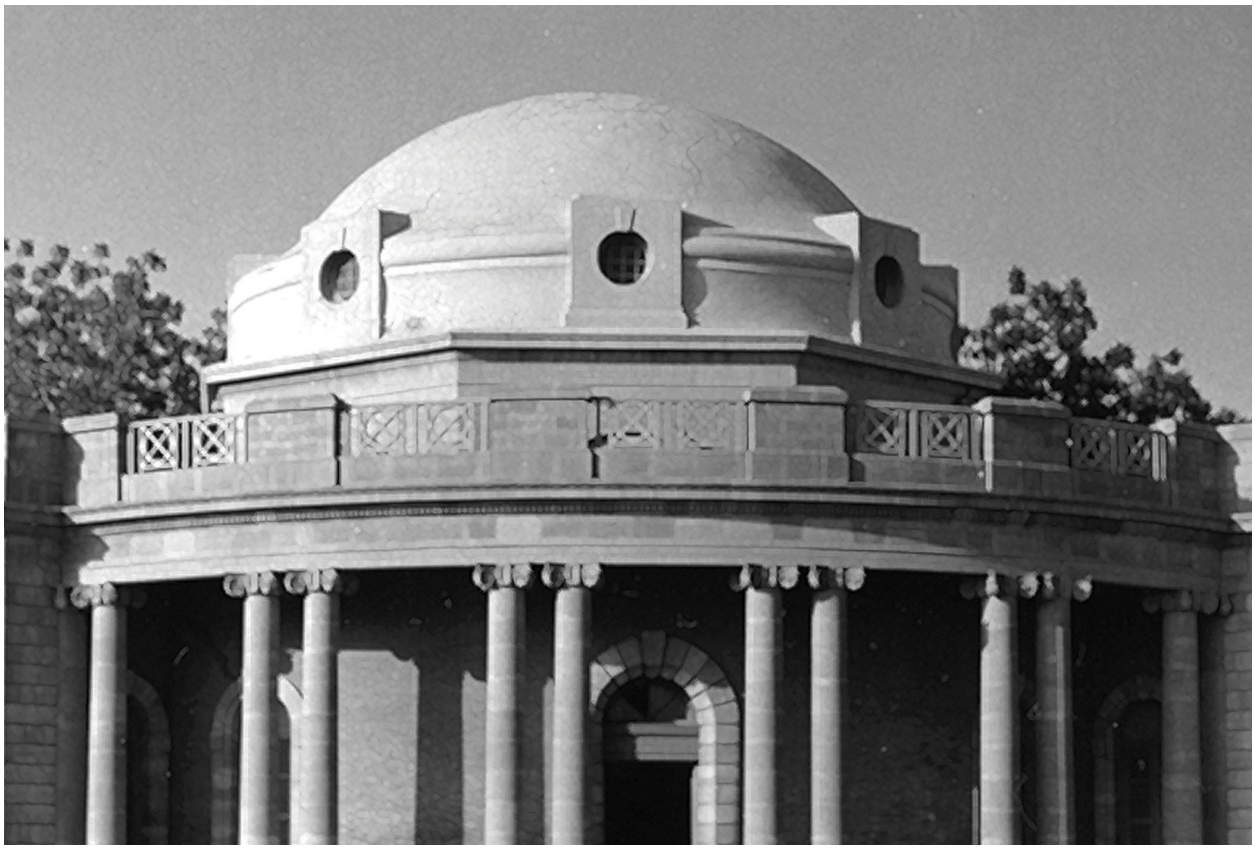
The mission of the Medical School from the day of its inception to the current date is the education of medical students, medical research, and the provision of medical services to its community. The students of the Faculty of Medicine are selected on academic excellence alone, irrespective of other factors such as socioeconomic status, ethnicity, religion, or sex. The curriculum at the Medical Schools evolved over the years to cater to the changing epidemiology of disease and embraced contemporary issues in medical

education, such as medical ethics and professionalism. The current curriculum was launched in 2008. The salient points of the current curriculum are relevance to the health and social needs of the Sudanese society; longitudinal implementation of Community-Based Learning, active students' participation and independent learning; continuous evaluation of learning; emphasis on the scientific methods and critical thinking; maintenance of religious, cultural and ethical values of society; and upholding the values and traditions of the Faculty of Medicine, University of Khartoum. The rigorous adherence to excellence in medical education has culminated in that the Faculty of Medicine was internationally accredited by the World Federation of Medical Education (WFME) on May 29, 2018.

During these 100 years, the Medical School has eloquently delivered its goals of excellence in medical education, research, and social accountability that translates into service to its community. Since its foundation in 1924, the Faculty has graduated 93 patches. Students were offered high-quality medical education. These graduates have made significant contributions to healthcare delivery, medical education, and research in Sudan and abroad.

Graduates of the Faculty of Medicine have exceptionally high pass rates for licensing exams in different countries all over the globe. It comes as no surprise that graduates of The Faculty are working in different parts of the world. This success includes the UK, the USA, Saudi Arabia, the Gulf region, and recently as far apart as Australasia.

It is with great sadness that the centenary of the Faculty of Medicine comes at a time when Sudan is in a state of a very painful war. We planned to celebrate the centenary of the Faculty of Medicine as a national event, but the raging war in Sudan has prevented this. We hope and pray that our beloved Sudan sees and enjoys peace very soon.



Editorial by the Guest Editors

Ahmed El Safi, *Woodbrige, Virginia, USA*

Tarik Elhadd, *Endocrine Section, Department of Medicine, Hamad Medical Corporation, Doha, Qatar*

The Faculty of Medicine, University of Khartoum, is celebrating its centennial in sadness instead of jubilation and joy. The current situation in Sudan is critical. The war that raged on April 15, 2023, and is still ongoing (February 2024) destroyed the country's infrastructure, weakened the marketplace and industrial base, arrested the educational and academic institutions, and suspended life wholly or partially.

Public services, namely healthcare services, collapsed. Almost all hospitals and primary health networks in the country were thrown out of service. A few functioning pharmacies have no medicine. Seven million Sudanese, namely professionals, were dispersed between displacement, emigration, and forced deportation between the cities and villages of Sudan, neighboring countries, and the rest of the world.

Over 3,000 Sudanese were killed in the first four months; the rest suffered from poverty, unemployment, hunger, imminent famine, disease, frustration, and despair. Thousands of refugees are under dismal conditions in the Chadian and Egyptian-Sudanese borders. Public employees have had no salaries for ten months, and household coping strategies have been taxed to the limit.

Fatal diseases are taking their toll due to the dismal sanitation and hygiene. The anopheles mosquitoes are spreading nationwide; 13,000 malaria cases in Darfur, three hundred cases of Cholera with 14 fatalities, and Dengue hemorrhagic fever is spreading. 1,200 children died of measles-like infections in refugee camps in White Nile state, and one and a half million babies are threatened by death for lack of vaccines (August 2023).

The conditions of patients with chronic diseases worsened. Because of the severely depleted food, potable water, life-saving drugs, medical supplies, consumables and equipment, blood, anesthetics, medical gases, painkillers, detergents, and nursing aids, admission in the few ghost hospitals became an unaffordable luxury.

The national emergency medical system collapsed. Ambulances and civil defense vehicles were notably absent from the streets during the armed conflicts due to insufficient petrol, the lack of staff, and central command.

Lack of fuel and electricity halted all dependent services, including imaging, medical laboratory services, dialysis, intensive care units, blood banks, elective surgery, medical laboratories, emergency services, and morgues. Power outages and the lack of gasoline for the hospital's generators tipped the delicate balance and threatened safety.

Sooner or later, the war that started on April 15, 2023, and the armed conflicts that ravaged the outskirts of the country for decades would end, and at that time, we would need an integrated plan to help rehabilitate what the armed conflicts destroyed and build and develop a modern, democratic, civil state.

The dilemma we are in now, the more difficult it is, the more getting out of it makes us stronger and purified. We shall develop strategies, plans, and policies that are informed, refined, and improved by the ideas and opinions of the broadest spectrum of audiences possible. We shall build on the rich Sudanese legacy, tapping and harnessing the capabilities of the Sudanese intellectuals through the ages.

Together, we advance Sudan from the dark abyss of poverty and underdevelopment and elevate it to the ranks of the most prestigious and prosperous countries and a cradle of freedom, peace, and justice. Let's do it.

On the Eve of its Centenary: The Kitchener School of Medicine, an Unprecedented Feat (A Historical Overview)

Tarik Elhadd

Endocrine Section, Department of Medicine, Hamad Medical Corporation, Doha, Qatar

The story of how the KSM came into existence dates to the time when Lord Kitchener, by then the British Special Envoy to Egypt, visited Sudan in 1911. While he delivered a speech at the Governor Council Palace to an audience of some Sudanese notables and dignitaries, he called for the establishment of a medical school in Khartoum to educate Sudanese students who could take over the task of health care delivery in their homeland. After Lord Kitchener was killed in a submarine explosion during the Great War while on his way to Russia in 1916, an appeal to establish the School in his memory was made. After the Great War, the appeal was reactivated, and it was ironic that subscription for the School in Kitchener's memory came mainly from the Sudanese themselves (1). in contrast to the money raised to establish the Gordon Memorial College that Kitchener himself led at the turn of the twentieth century. A sum of £13,000 was raised, all but £2,000 of it by Sudanese subscribers (2). However, it was not until 1923 when more efforts were made with an appeal in England to raise more funds for the School, when a total sum of £54,264 was raised, of which £30,416 was used for capital development of the School and the remainder was used to establish an endowment fund, in addition to an annual donation from Kitchener National Memorial Fund which continued until 1951 (3, 4) The Fund continued to provide regular financial donations up to the contemporary time, including the Lord Kitchener prize Much of the credit behind the lobbying for fundraising both in Sudan and England goes to Dr. Oliver Francis H. Atkey, the last director of the SMD and first director of the SMS (5). Later, in 1926, after the School had been established for nearly three years, the Iraqi-born Sudanese businessman Ahmed Mohamed Hashim Bey Baghdadi started to take an interest in the establishment and began subscribing a sum of £300 towards the upkeep of the students. This subscription later merged into the general accounts of the School. By the time of his death in 1933, all his wealth had been formed into an endowment trust known by his name, Waqf [(1)] Al Baghdadi, which was devoted exclusively to the School (the faculty) up to the present time. It is interesting to note that many of the properties that were left by Al Baghdadi as "Waqf" for the School proved over the years to be crucial to support the establishment at times of economic downturns (6).

The building of KSM was designed by Mr. Gordon Brock Bridgman (b.1884–d.1971)[(2)] of the Public Works Department, hence the Government Architect. The building of the School commenced in March 1922 and was completed by the time the School was inaugurated on February 29, 1924, by Sir Lee Stack, the Governor General. The original buildings of the KSM consist of a main dome-shaped entrance hall with two wings at right angles. It hosts a lecture theatre, a library, a tutor's room, plus separate laboratories for physics, chemistry, physiology, pathology, and a large dissecting room. A similar dome-shaped identically designed building to the eastern part of Victoria Avenue (Al Kasr Street) was later built and named the 'Stack Research Laboratories', which was completed in 1927 in memory of Sir Lee Stack, who was assassinated in Cairo a few weeks after he had inaugurated the School.

In the words of the first lecturer of Medicine at KSM, and one of those who had first laid the foundation and principles of its syllabus and curriculum, Dr. Paul Squires asserted that

"[t]he objective in Khartoum was to give the Sudanese students a complete medical education and to fit them in due course to undertake all kinds of medical work in their own country. But it was not felt necessary to follow too closely the British

(1) Wagf : Arabic means endowment
(2) Gordon Brock Bridgman.

model as there was no suggestion that the graduates of Kitchener School would wish to undertake higher qualifications or diplomas in the U.K." (7).

The School was initially proposed to be part of GMC, but it functioned as a separate institution, and despite that it had the same trustees and Executive Committee in London, it had its own separate School Council, General Board and Executive Committee. The School was born with a special relationship with the SMS, and it retained that special relationship for decades. Hence, the director of the service bore a special responsibility for the School (8). The objectives laid down for the School were to (i) build up a cadre of Sudanese doctors who would be in a particularly favorable position to combat the epidemic and endemic diseases that were wasting and debilitating the population of the country and preventing their natural increase; (ii) afford an opportunity to educated Sudanese to take part in the development and betterment of their country; and to (iii) provide postgraduate courses for doctors trained at the School and to provide opportunities for special study and research (9).

The KSM was the third in Africa among the medical schools. It was preceded by Qasr Alaini of Cairo and the Medical School of Cape Town in South Africa. In Uganda, a medical school was established in 1917 in the Church Missionary Society (CMS) Mengo Hospital, but that School did not last beyond graduating the first batch of students in 1921, and it was not until 1927 when the Mulago Medical School there was successfully established (10).

The School came into existence when inaugurated by the then Governor General, Sir Lee Stack, who delivered a speech to an audience of British and Sudanese elites to witness its official opening on February 9, 1924, asserting that:

The establishment of the School marks an important step forward in the medical organization in this country. You are all aware of the great progress that has been made in the research work by the Wellcome Tropical Research Laboratories under their successive directors and by the extension of medical knowledge and assistance to the people of the country through hospitals and dispensaries under the administration of the Egyptian Army and the Sudan Medical Service. You, students of the School, are natives of Sudan, and it therefore falls to your lot to play an important part in helping to extend the benefits of good administration in your own country (11).

Students

The KSM students were carefully selected from the most successful graduates of GMC. Admission was free of charge, and weak students were weeded out before in the preliminary and intermediate parts of the study. The original plan was to reinforce the SMS by an average of six newly qualified doctors each year. The short-term plan was for the number of recruits not to exceed ten students at a time, and this continued for some time until the late 1940s when the number was gradually increased to meet the demands of the expanding health services and the looming Sudanization. There were regular dropouts each year; thus, according to Squires (1958), from 1928 until 1952, the number of graduates never exceeded seven students except on a few occasions (12). In the early years, the number of the intake actually swung to lower numbers, and also, for one reason or another there was no intake of any students at all. Those years were 1926, 1937, 1941, 1945 and 1947. It was felt at the time when the School was established that the students should be housed, fed, and receive a "bursary" of about £E1 per month (13), which was considered the equivalent of a salary (14). The philosophy behind such a decision was related to the fact that those students were "mature students," as by those days' standards, their GMC counterparts would already have been in the employ of the Sudan Government.

The first batch of students who were accepted in early 1924 were ten; however, only seven graduated by December 1927 after they completed the four years course. The first batch of graduates included Dr. Ali Bedri[3]. Who went on in 1948 to become the first Minister of Health and the first Sudanese to hold a prestigious appointment during the Anglo-Egyptian administration. The second was Dr.

(3) Ali Babiker Bedri was the son of the notable Sudanese pioneer and icon of girls' education in Sudan.

Mohamed Amin El Sayed[4] (who succeeded Dr. Ali Bedri as Minister of Health from 1954 to 1958. The third among these graduates was Dr. Daoud Skander, a Sudanese Copt who became the first Sudanese Lecturer in Obstetrics and Gynecology at KSM, succeeding Mr. Hovell. The last four graduates were Dr. Ahmed Akasha, Dr. Elfadil El Bushra, Dr. El Nour Shams Eldin, and Dr. Tahir Yousif.

In 1929, the examiners for the first-year students were selected from the biologist and chemist staff of the Agricultural Research section of the Sudan Government. Early in 1928, after the graduation of the first batch of students, the School asked for the help of an external assessor for the subject of anatomy and physiology.

By 1950, the selection of candidates followed the requirement to have passed the 'Leaving Certificate of Cambridge University or its equivalent', with credit in at least five subjects which should include English, Mathematics, Biology, and General Science (15). A list of graduates of the School up until the year of Independence (1956) could be reviewed in the supplement to this article.

Courses, Curriculums and Syllabuses

At the time when the KSM was inaugurated in 1924, the course for the first year was deemed to be a continuation of what students had already done at GMC but at a higher level.

The second-year course comprised a carefully designed course in basic medical sciences, including anatomy, physiology and histology. It was a fact that the small size of the class allowed a high level of individual tuition and attention. The school year was divided into two terms of 15 weeks each, with a long vacation of three-and-a-half months. At the commencement of the second term, an intermediate examination was usually held by the teaching staff to ascertain how much had been absorbed and to ensure that careful reading had been carried out during the vacation. The small size of the student class provided maximum supervision and teacher input.

The third-year curriculum was the start of clinical training and professional work at the Civil Hospital, and I attended the School of Medicine for lectures in medicine, surgery, pathology, and public health (16). Attendance at outpatient clinics was daily from 7:00 to 8:30. For the clinical work, the students were divided into two sections. Section 1 students would be dressers and they attended the patients in the surgical wards. Section 2 students became clinical clerks in the medical wards. After six weeks, the two sections crossed over. The students received instruction in the clinical laboratory and postmortem room. The curriculum also had extra work designed to take place during the annual vacation. Here, half of the third-year students (four to five students) remained at the hostel and carried out clinical work at the hospital for the first part of the annual vacation. In the second half of the vacation, the student would swap with those on vacation who returned to their residence and resumed hospital clinical work.

The curriculum for the fourth year mirrored that of the third year, which culminated in the final graduation examination in December. Since the graduation of the first batch, the School has had the habit of getting an assessor (examiner) from the United Kingdom. That became a tradition. The first assessor, Mr. Robert Dolbey, who was a senior surgeon at Qasr el-Aini, was joined by Sir Robert Philip, President of the Royal College of Physicians of Edinburgh, as an examiner for medicine (17). Assessors usually set the papers for the examinations in medicine and surgery, and they normally submit a comprehensive report covering various aspects, including the standards of the students.

By early 1929, there were already two batches of young Sudanese doctors who had graduated with a total of fourteen young doctors joining the SMS (18). In early 1931, the total number of graduates jumped to nineteen, and for the first time since the establishment of the School, there was a full establishment of four classes.

The curriculum then underwent major changes

(4) Mohamed Amin Elsayed of the first batch of KSM graduates left the medical profession to join political parties just prior to Independence.

in 1934 when the length of the period of training was increased to five years, with the students spending four years at the KSM and one year at GMC studying science. Two-and-a-half years were devoted to clinical training and one-and-a-half years to anatomy and physiology. The first students who studied in this system graduated by the end of 1938. In 1939, further changes to the curriculum were introduced; an additional year was added to the clinical training. Two years at the preliminary level were to be spent at GMC and four years at the KSM. This change coincided with the newly organized School of Sciences at GMC. The reason for this change was related to several reasons. The first was the fact that the School celebrated 15 years since its establishment and that it was time for it to be compared with other colleges and schools in the region, and in other parts of the world. It was the time when KSM had to rise to the challenge of the 'peer review' process.

The second reason was the fact that it was a time when graduates of the School were starting to go out and obtain further training and diplomas from other universities, so the School had to be benched marked against its peers. In 1940, a further change was introduced when the length of the preliminary year at GMC was reduced from one-and-a-half years to one year, with six months added to the preclinical sciences. The six years were divided into three years studying preliminary sciences (one-and-a-half years studying in the preliminary year and one-and-a-half years studying anatomy, physiology, and histology) and three years devoted to clinical courses (19). In 1946, further and final changes were made to the design of the curriculum, where the time spent at GMC was reduced to only one year and five full years spent at KSM. Of these, one-and-a-half years were spent studying anatomy and physiology, and six months on bacteriology, parasitology, pharmacology, and introductory medicine. A full three years were now devoted to clinical courses in medicine, surgery, and pathology, among others (20).

Other inclusions and changes continued to be made to the curriculum. In 1932, the students were enrolled for the first time in a midwifery course at the MTS in Omdurman. The students had to attend to a total of 20 normal deliveries over one month. At the inception of the KUC in 1951, the curriculum became more elaborate and more detailed, especially with the establishment of academic departments for the first time. The subjects taken during the first year were English, chemistry, and physics, which were studied at the Faculty of Science at GMC (21). The remaining five-year course was divided into first and second terms. In the second and third years, basic medical sciences were taught, and introductory medicine and forensic medicine were taught in the second term of the third year. In the fourth year, the subjects of pathology, bacteriology, pharmacology, and pharmacy were taught in the first term, in addition to forensic medicine, applied physiology, medical radiology, medicine, and surgery.

In contrast, clinical medicine, surgery, surgical radiology, and nursing were taught in the second term (22). There was some overlap in teaching clinical sciences in the fifth and sixth years, with medicine, surgery, and introductory obstetrics mainly dominating the first and second terms of the fifth year. Applied pathology and public health mainly featured in both terms, whereas anesthetics, tuberculosis and dental diseases were taught in the second term of the fifth year. In the final year, the subjects of obstetrics, gynecology, and pediatrics dominated both terms, with ophthalmology, applied anatomy, and orthopedics featuring in the first term, and psychiatry and operative surgeries were taught in the second term of the sixth year (23). The above curriculum was set up for the years 1952–1953, and it was left to the Academic Board of the KSM to make whatever amendment deemed necessary (24).

For a student to be eligible to qualify for the Diploma of KSM, they were made to satisfy the examiners in a set of four professional examinations. The first professional examination was to be taken at the end of the first year. The second and third professional examinations consisted of two parts each. Part One of the second professional examination took place during the second year, and Part Two at the end of the first term of the third year, whereas Part One

of the third examination (pathology, bacteriology, pharmacology, and forensic medicine) was taken at the end of the first term of the fourth year. Part Two of that examination (public health) was taken at the end of the fifth year (25). The final professional examination was to be taken at the end of the sixth year and included the subjects of medicine, surgery, obstetrics, and gynecology (26). In 1939, one assessor/visiting examiner wrote: the KSM students were of very high caliber, and they showed the highest levels of competency and excellence of standard:

The answers in the viva voce parts of the examinations were clear, straightforward, and to the point, and the candidates were quick and ready for discussion. The students were obviously well-trained in clinical methods; they examined patients very thoroughly and methodically. They displayed a refreshing reliance on careful clinical examination of the patient instead of making an immediate demand for X-ray and laboratory assistance before attempting a diagnosis. They gave the impression that they would bring ready help to patients in the provinces without demanding aid to diagnosis, which would be impossible to supply in some isolated districts. (27).

Such design of the curriculum continued throughout the colonial era and beyond and persisted for decades after that.

Teaching and Academic Staff

In the beginning, the KSM received its teaching staff and registrar (equivalent to the dean) from the SMS. Despite the registrar originally being an employee of the SMS on delegation, he would be working full-time as an academic staff member and administrator. The registrar also had the task of teaching physiology and anatomy (28). The staff of the SMS, apart from basic sciences of the first year, were involved in teaching all subjects in the first few years of the School, including midwifery. The scientific staff of the Wellcome Tropical Research Laboratory took to teaching basic medical science subjects to the second-year students, and histology and pathology (29). To meet the demand for teaching medical students by the SMS staff, Dr. Oliver Atkey proposed the idea of a Senior Physician and Senior Surgeon. Such arrangements helped to devote specific time for teaching by two dedicated SMS doctors who were, at the beginning, general-purpose doctors. The beds of the Khartoum Civilian Hospital were divided between them, and the Senior Physician would teach medicine in addition to gynecology and obstetrics.

The Senior Surgeon would teach in addition to doing surgery, diseases of the ear, nose, and throat, and diseases of the eye (ophthalmology). In 1930, Mr. A.R. Mckelvie, who was recruited in 1927 to the SMS, took over the teaching of ophthalmology (30). Dr. J.S. Hovell was the first SMS doctor to become a Member of the Royal College of Obstetrics and Gynaecology (MRCOG) in 1933. Miss Elaine Hills-Young, matron of the KCH, started teaching a nursing course to medical students for the first time (31).

At the inception of the School, the two main departments were medicine and surgery. Surgery included obstetrics, and medicine included pediatrics, dermatology, and public health. Basic sciences were taught at GMC and later at the School of Sciences[5], which was later established as a separate college within GMC. The first lecturer of medicine was Dr. Paul Squires[6], who served from 1926, and he handed over the reins to Dr. Roy Mervyn Humphreys in 1930. Humphreys held the post until 1944 when he retired from service in Sudan. He was succeeded by Dr. Alexander Cruickshank, who served from 1944 to 1948. Dr. R Buchanan followed him up to 1952 when Dr. W F Townsend-Coles (who also had a special interest in pediatrics) took up the post. In 1954, Dr. Abdel Halim Mohamed[7] took over as the first Sudanese to hold the post (32). It was a tradition for the

(5) School of Science was an integral part of GMC, where the pioneering teachers were staff from the scientists who were recruited to work at Wellcome Tropical Research Laboratory at Khartoum, established by H. S. Wellcome in 1902.

(6) Herbert Chavasse Squires, famously known as 'Paul,' was born in Bombay in 1880. He was educated at Oxford and St Thomas'. He joined the SMD in 1908.

(7) Herbert Chavasse Squires, famously known as 'Paul,' was born in Bombay in 1880. He was educated at Oxford and St Thomas'. He joined the SMD in 1908.

lecturer of medicine to serve as the senior physician and the director of the KCH. This tradition began at the inception of the posts of senior physicians and senior surgeons in KCH in 1927/1928 to give more dimensions to the School.

The first lecturer of surgery was Mr. G.R. Footner (1924–1926), followed by Mr. C. Grantham-Hills and then Mr. Finlay S. Mayne. Mr. E.W.T. (Tom) Morris was to follow, and Mr. F Bartholomew succeeded him after suffering protracted ill health, he was forced to retire. Mr. Fleming took over as the last senior British surgeon who handed over to Mr. Abd al Hamid Bayoumi[8] (33). Obstetrics did not emerge as a separate specialty until later when the academic departments were established in the wake of the formation and merger of UCK with the KSM in 1951. Nursing was taught as part of the general syllabus, but this was not included until 1934. In 1930, Mr. McKelvie taught ophthalmology as the first ophthalmologist in Sudan. He continued to lecture at the KSM until Dr. Hussein Ahmed Hussein joined him.[9] Dr. Hussein became the first Sudanese lecturer of ophthalmology at KSM in 1947 (34).

The first registrars (equivalent to dean) of the KSM were employees of the SMS, and they were chosen from within its ranks. The first registrar was Dr. Norman F. Smith, who served for two years (1924–1926), followed by Dr. E.A.H. Grylls, who had a similar tenure, and in 1928, Dr. F.E. Anderson assumed office until 1930, when he was transferred to work in Kordofan and was succeeded by Dr. Donald McDonald. McDonald served from 1931 to 1937. During the war years, Dr. J.S. Aldridge took charge (1938–1945). After that, Dr. R.M. Buchanan served for the subsequent two years (1946–1947), followed by Dr. R.B.U. (Pat) Somers in 1948 (35). Pat Somers was the last of the old registrars of the KSM, as the title of 'registrar' was changed to 'dean' during his tenure in 1948/1949 before the inception of UCK. The creation of UCK was accompanied by the creation of the academic departments and the recruitment of its corresponding heads and the beginning of the 'era of professors' in 1951/1952.

(8) For biography of Abdelhamid Bayoumi see above reference.
(9) Dr. Hussein Ahmed Hussein, (Biography, see Elhadd, The Evolution of Modern Medicine, ibid).,

Examinations and Assessment

During the initial years, at the end of their first year, the students were examined in basic sciences, usually by the registrar and those involved in teaching from the SMS. In 1929, these examiners were selected from the government staff of biologists and chemists involved in agricultural research (36). In the first two years of the School, the system, which was designed by the teaching staff and the School Council, comprised annual examinations organized by competent assessors with sound knowledge of the subjects, but "they were alien to the school" (37). Furthermore, an outside skilled assessor was included at the suggestion of Dr. Atkey to the School Council (38).

After 1939, the examination system took the format of four professional examinations. The first professional examination was taken at the end of the basic science course at the School of Science of GMC. The second professional examination comprised three parts. Part 1, taken at the end of the first term of the second year at the KSM, involved only biochemistry. Parts II and III were taken at the end of the first term of the third and fourth year, respectively. These examinations involved anatomy, physiology, and pharmacology for Part III (39). The third professional examination involved two parts. Part 1 would take place after the second term of the fourth year, and it involved tests in pathology, bacteriology, and forensic medicine. Part 2 would take place at the end of the second term of the fifth year and would involve tests in public health. The final professional examination was scheduled for the end of the second term of the sixth year, and it involved tests in medicine, surgery, and obstetrics/gynecology (40).

With the advent of the UCK, the system of examination was transformed into a more elaborate and detailed process to conform to the attainment of the status of a university college according to the British system (41).

As the School began to attract interest for more recognition by the British medical hierarchy, the tradition of external assessors to be selected or

nominated by the Royal College of Physicians and Surgeons in London became as established annual enterprise from 1940 onward (42). Hence, these assessors, over the years, notably included important medical figures such as the President of the Royal College of Physicians of one of the colleges, either London College or one of the Scottish Royal Colleges.

In 1938, the Royal Colleges granted partial recognition to the Gordon Memorial College. The recognition was given on the condition that "graduates of KSM are entitled to sit for the English Conjoined Board of London exam after completion of two years after qualifying if they pursued one further year of practice at a recognized hospital or medical School in the U.K.

In 1939, at the request of the Committee of Management of the English Conjoint Board, following a report by Sir Webb-Johnson provided a report to the Committee (an abridged summary was published in August of the same year in the *British Medical Journal*) (43), the Committee of Management of the English Conjoint Board made recommendations to the Royal Colleges which granted the exemption of graduates of the KSM, who had been especially recommended by the director of the SMS and had completed two years of internship following their graduation from the first part of the final LRCP MRCS examination on completion of twelve months' practice in a recognized medical school and hospital in the United Kingdom (44). A second recommendation also included the granting of the graduates of the KSM admission to the examinations for several postgraduate diplomas granted jointly by the Royal Colleges, after complying with the regulations of these examinations (45). Accordingly, the Royal Colleges fully granted such privilege to the graduates of the KSM (46). In 1946, the London Colleges gave the School full recognition. In 1948 the Royal College of Physicians of Edinburgh wrote to the School Council stating their acceptance of the KSM graduates to sit for its membership. In 1949 the Royal College of Surgeons of England recognized the post of registrar in Khartoum and Omdurman Civilian Hospitals to be acceptable for training to obtain its fellowship. The RCP of London had already accepted Sudanese graduates to sit for membership if they provided a letter of recommendation from the director of the SMS (47).

Administrative Hierarchy and the School Council

Since the early days of the School, mechanisms were put in place to aid the registrar in dealing with administrative issues. Several bodies dealt with the logistics of administration and management of the School. Two were in London and three in Khartoum. The former included the KSM Trust and Executive Council. The latter included the Executive Council, the School Board, the School Council, and the Al Baghdadi Trust. The Executive Council in London was usually formed from three ex-officio members who included the Governor General of the Sudan (as President), the British Ambassador to Cairo, the governor of the Bank of England, the Earl of Cromer as Vice-President, an Honorary Secretary, an auditor, a solicitor, and some other selected members (usually from current or former principals of GMC) (48). The members of the Executive Committee in London, which may have been as many as sixteen members, were people with previous experience or had worked in Sudan, as well as members of one of the councils of the University of London (49). The School Council was the main body that provided support to the Registrar/Dean of the School and helped with the running of the School up to the formation of UCK when it was dissolved. The Director of the SMS chaired this board. A Selection Board was formed comprising the Registrar/Dean of KSM in addition to the lecturers of medicine surgery and a representative of the GMC School of Science who oversaw the selection and the interview of the students from GMC and later from other secondary schools for admission to the School.

With the formation of the UCK on September 1, 1951, and the amalgamation of the GMC and KSM, the General Board, the Executive Committee, and the School Council all ceased to exist. All of the Sudanese components of the above administrative

hierarchy were dissolved (with the exception of the Al-Baghdadi Trust), and it was replaced with the Medical Faculty Board. The name of the School now bore the name 'Faculty of Medicine' (50). This board consisted of the Principal of the UCK, the dean of the Faculty of Medicine, the director of the Medical Services, the MoH, the heads of the departments of Medicine, Surgery, Obstetrics and Gynecology, Pathology, and Anatomy, and in addition two members whom the Sudan Medical Council appointed, and a second member appointed by the directorate of the MoH (51).

Facilities of the School

Since its inauguration, the School hosted its main basic biomedical sciences departments. They included the Departments of Anatomy, Physiology, and Pathology, and by 1950, they also included Public Health and Social Medicine (52). By 1950, the Department of Anatomy had facilities that were suitable for the dissection of six cadavers. A complete cadaveric body was dissected in 18 months, with no more than eight students for each cadaver. At these premises, operative and applied anatomy classes were taught to final students (53). The Department of Physiology had separate laboratory and preparation rooms equipped for practical and chemical physiology and histology. In contrast, the Pathology Museum was situated adjacent to the Stack Medical Research Laboratory, which had a large number of mounted and unmounted specimens. At the School, the Pathology Department had a laboratory equipped with microscopes, which the Department of Physiology shared for histology classes (54).

Clinical classes were conducted at the two main hospitals, Khartoum CH and Omdurman CH, and midwifery courses at the Omdurman Midwifery Training School. Later, the Khartoum Eye Hospital (formerly the River Hospital) was added to the teaching beds.

Hospital training of KSM graduates as house-manship/internship

In the beginning, the training of the KSM graduates as housemen /interns, was designed for two years, and that was to be conducted initially exclusively at only Khartoum and Omdurman Civilian hospitals. From the late 1930s when the larger provincial head-quarter hospitals began to be well staffed, some of these hospitals were included to train the new graduates. However, in 1942, it was "found that better experience was gained in the teaching hospitals of Khartoum and Omdurman than in the Provincial where the staff is often too busy or not numerous enough to direct the work of the young doctors or to ensure that their work is restricted to the work housemen should do" (55). From the end of 1942, the new graduates would rotate between Omdurman and Khartoum Civil hospitals, spending six months each in the medical, surgical, obstetrics, and ophthalmology departments (56). The posts were resident and were held in rotation. This period of "probation" would end after two years following satisfactory reports from supervisors. When deemed fit to carry on with their medical duties, both technical and administrative, without supervision, they would be accepted to the rank of Sudanese Medical Officers in the Medical Services of the Ministry of Health (57). If, however, these officials were not considered capable of working without supervision, they were given a further period of a year's probation (58). By the time the School was incorporated into GMC to form the UCK, a forerunner of the full-fledged university, there were 314 beds at Khartoum Civilian Hospital, 110 beds at the Khartoum Eye Hospital and 240 beds at Omdurman Civilian Hospital available to train medical students (59).

Prizes

Since its inception, the School had the tradition of awarding prizes to students who achieved distinctions. These prizes were for basic medical sciences such as anatomy, physiology, and pharmacology, as well as for the clinical sciences. Some were named after certain physicians who had made distinguished contributions to the School or the advancement of medicine in the Sudan. These prizes included the Waterfield Prize in Surgery, the Balfour Prize in Public Health, the Jackson Prize in Obstetrics, the Archibald Prize in Social Medicine (60), the Jackson Prize in Pathology (61), and the King Farouk Prize in Ophthalmology (62). Other

prizes were via donations, specifically by notable members of the British administration, such as, for example, the donation made by Lt. Col. E.S. Jackson of £200 toward the endowment of three prizes in medicine, pathology, and obstetrics (63). Finally, the most distinguished, famous, and long-standing prize was the Kitchener Memorial Prize, which was awarded to the best student on graduation. It happened in March 1952 when General Sir William Platt, GBE, KCB, DSO, visited the School on behalf of the Kitchener National Memorial Fund. During that visit, the school authorities were informed that a grant would no longer be coming from the fund, and in its place, an annual prize of £102, known as the Kitchener Memorial Prize, would be awarded to the best student attaining the School Diplomate (64). The first recipient of this prize was the late Professor Ali Khogali.

The Graphic Museum

The work of establishing the Graphic Museum began in 1934, and it took nearly ten years to complete. The whole philosophy behind establishing this museum was laid down in a statement made by Dr. Eric Pridie in his 1937 Annual Report: "The Graphic Museum continues to serve a most useful purpose in training students to learn by eye instead of verbal memorization" (65). According to Squires, the idea was proposed by the two assessors who examined the first graduates of the School in December 1927, Sir Alexander Biggam and Mr. Robert Dolbey (66). The work on models and specimens for the museum began in 1935, and the building, which was to the east of Stack Memorial Library, was completed by 1936. However, it took up to 1944 to fully equip it (67). A wide range of dedicated staff members of the SMS, including staff from the Public Health Department and entomological staff, made a major contribution "in their spare time, to establish the G.M. (68). At this time, the museum contained 3,500 exhibits, which included graphs, photographs, maps, and models of various kinds and sizes. When the museum was completed in 1944, the exhibits covered a full spectrum of over fifty themes that comprised various medical issues, including common medical conditions such as endemic and epidemic diseases, public health and sanitation, town planning and housing, eye disorders, school medical services, folk medicines, meteorology, quarantines, vaccination, sexually transmitted diseases, water, venomous snakes, disinfection, nutrition, maternity and child welfare, and historical medicine (69).

The museum was managed by a curator, who was usually the Assistant Director of Public Health, aided by a Sudanese assistant curator and three other assistants. The first curator was Dr. H.A. Crouch, who oversaw the organization of its various sections, which totaled 51 sections when it was complete (70). The Graphic Museum became an important hub for the teaching of various students, not only those of the KSM but others such as students from the School of Hygiene, sanitary overseers, medical assistants, and midwives. At some point, the SMS School of Hygiene had one of its rooms accommodated in the Graphic Museum (71). Its grounds were the site of exhibits that covered aspects of public health, such as rural sanitation. By 1945, the Graphic Museum contained 1,935 photographs. 200 charts, 100 drawings, 69 maps, 159 models, and 589 specimens, with a significant number prepared as posters for health education and awareness creation to be distributed to health centers, rural hospitals, and dispensaries (72). By 1951, the museum housed 54 different sections (73).

Since its inception, the Graphic Museum was open to the public, and for visits by students from various levels at schools, including those of technical studies such as the School of Administration and the School of Agriculture (74). Over the years, different sections and themes were updated and expanded. Leaflets for health education and 'propaganda' were prepared, printed in Arabic, and distributed to various rural and urban dispensaries and health centers. The Graphic Museum also prepared materials destined primarily for medical shows that took place in towns and villages.

In 1952, the professor of public health at the Faculty of Medicine in the UCK was given the

responsibility for the Graphic Museum (75).

The School Library

The library of the Kitchener School of Medicine was established around the time when the School was inaugurated. It grew steadily over the years, and by 1934, it had grown beyond the need of medical students, containing around 1,000 books. Over the years, regular additions of new books continued to arrive, and in 1940. The library book stock totaled 1,340, and the number of items borrowed was 310 (76). After that, additions to the book stock arrived annually, and by the end of World War II, the library had 1,600 books, and one-third of them were lent out to students and military and civilian medical personnel. Over the years, the library benefited from various donations, either in the form of books from individuals (77) or monetary donations. When Al-Seyed Ali El Mirghani donated £50, it was used to buy a new copy of the *Encyclopedia Britannica* in 1947 (78). Regular additions kept coming to the library. In 1950, the library had 1,837 books (79).

The School Hostels

At the inception of the School, the students were not housed or fed. Instead, they were provided with bursaries, and in those days, Ahmed Hashim Bey Al Baghdadi helped some students with accommodation (80), but that proved to be unsatisfactory. It was decided that the students should all be housed and fed without cost to themselves and even be provided with a small personal allowance and free transportation to their homes during vacations (81). The first group of students was lodged in a leased house, and by 1927 the new hostel located adjacent to the Medical School was ready. The hostel was designed to house 40 students, which was the total number of students in every given cycle (82). However, it was comparatively small, and in 1940, it was reported that up to ten students slept in a dormitory, and there was only one common room. The hostel also hosted the School of Science and veterinary students, who were enjoying the same privileges as those of the medical students (83). In 1950, a new extension to the buildings of the hostel was completed, which allowed the accommodation of 28 students in fourteen double-bed rooms, and an old dormitory was converted into a reading room (84). By the early 1950s, all students were required to live in the hostel, which was mentioned as consisting of dormitories, a common room, and a dining room (85).

Kitchener School of Medicine Milestones in Development

The mid and late 1930s

From 1931 to 1937, the number of students admitted each year was variable. The School had also catered for sanitary students since 1932 when the training of these students first began. (86). The graduates of 1933 were Ibrahim Mohamed el-Mahgrabi, Mohamed Rashad Farid, el Tigani Elmahi, Mohamed Hamad Satti, Osman Rahmi, Abbas Hamad Nasr, Ali Ibrahim Bashir and Bashir Mohamed Salih (87). In that year, ten students were selected from the scientific section of GMC in 1935 and attached to the laboratory section of the KSM and received instructions in zoology, chemistry, and physics, with a view to subsequently being enrolled as agricultural and veterinary science students. In 1936, the Governor General Council approved the creation of the Schools of Engineering, Agriculture, and Veterinary Science (88).

In 1938, the School of Science was moved to the premises of the KSM for two years. The course of study was increased to six years from 1939, which consisted of two years at the School of Science. They then passed to the KSM, where they underwent an eighteen-month course in anatomy and physiology, followed by two-and-a-half years of clinical teaching (89). In that year a six-month postgraduate course was offered for four medical officers from the SMS. The school hostel housed nineteen science students and three veterinary science students in addition to the medical students, and they all received the same privileges (90). In this same year, a standard was set for the candidates who were entering the School, and that was the School Leaving Certificate of the University of Cambridge Local Examination Syndicate (91).

The 1940s

The effects of World War II continued to be felt on

the medical scene in the Anglo-Egyptian Sudan. Most doctors were transferred to work on the Eritrean/Abyssinian Front, where the Italians were enforcing their troops for the showdown with the Allies. Some lecturers at the School had to retire from teaching, and others had to replace them. The war years continued to affect the School only in the availability of an external assessor from the United Kingdom and not the process of education. When the professional examinations were held at the end of 1945, the School was twenty-one years old. During this period, eighty-six doctors had been trained and granted the diploma of the School (92). Clinical, surgical, and medical pathology courses were added to the syllabus, and were offered for the first time that year, and Dr. Alice Muir Leach gave a special course on children's diseases.

The length of studies in line with medical schools in Britain was six years from 1939. The School continued to receive recognition from the Royal Colleges of Physicians and Surgeons in the United Kingdom. According to this, the Royal Colleges would admit "specially selected graduates of the KSM to their fellowship Examination under the regulation of their college." The Royal College of Physicians of London granted the School the privilege of allowing its graduates admission to their Membership Examination, and the Royal College of Surgeons would admit specially selected candidates to their Fellowship Examination (93).

In 1947, the Registrar was Mr. R.M. Buchanan, and the visitor from the Royal Colleges for the school examination held in January 1947 was Mr. L.E.C. Norbury, who granted the school recognition for one more year, with the acceptance of prospective candidates of the KSM for the respective examinations of the postgraduate diplomas of the Royal Colleges. On his recommendations, selected candidates were accepted to be directly admitted to the LRCP MRCS examination, if they complied with the regulations of the appropriate college regulation (94). In that year, eleven students were admitted from the School of Science, including the first two women students, Khalda Zahir Sarror and Zerwi Sirkesian (95). In 1948 Dr. Mansour Ali Haseeb was appointed as the first Sudanese lecturer for bacteriology (96).

In 1948, the time spent at the School of Science was reduced to only twelve months from eighteen, and the six months saved were added to the clinical studies, making the clinical studies a total of three years. The decision was also made to limit the number of intakes from January 1949 to a fixed number of 12 students (97). Dr. Hussein Ahmed Hussein replaced Mr. McKelvie as the first Sudanese lecturer of ophthalmology (98).

The School celebrated its 25th Anniversary on March 11, 1949, and the Minister of Health, Dr. Ali Bedri, MBE, DKSM, addressed a large gathering representing all communities of the Three Towns. He gave an account of the development of the School (99). The final examinations were held in January 1950, the external examiners had the first Sudanese doctor in their panel. He was Mr. Abdel Hamid Bayoumi, FRCSE, DKSM (100).

The 1950s and the formation of the academic departments

On September 1, 1951, the School was officially incorporated into the new UCK. It took five more years just before Sudan Independence when the University of Khartoum was inaugurated, and the KSM became the Faculty of Medicine at Khartoum University. The faculty then began to issue the degrees of Bachelor of Medicine and Bachelor of Surgery (MBBS), instead of the diploma degree (Dip. KSM). The formation of the UCK marked the beginning of the establishment of the various departments of the School (101). During the tenure of the last registrar of KSM, Dr. Pat Somers, in 1949, the Assessor Report issued by Mr. Philip Minchin from the Royal College of Surgeons of England stressed the need for dedicated full-time staff for preclinical sciences and pathology to meet the demand of an increasing number of students (102). The major move to establish full-fledged academic departments in various disciplines was orchestrated with the rise in the profile of the UCK, and it set the path for its eventual evolution into a

full university in subsequent years.

In 1952, after the School had been incorporated into the UCK, it had its first full-time academic staff complement, and the tradition of the School Registrar/Dean and other staff teaching subjects such as physiology and pharmacology ceased to exist. Separate departments were created, and eminent professors were recruited from the British Isles. The first of those recruited was Professor Dean Abbot Smith from London, who succeeded Pat Somers as the first academic dean of medicine and served as head of the Physiology Department. Dean Smith served his first term as Dean of the KSM from 1952 to 1954. Other heads recruited included Professor Butler for anatomy, Professor Hugh Vivien Morgan for medicine, Professor B. Hickey for surgery, and Professor George Daly for obstetrics and gynecology. Pathology, bacteriology and parasitology continued to be taught by the staff of Stack Laboratories, which was part of the SMS. Those staff members were Dr. Robert for pathology, Dr. Mansour Ali Haseeb[10] for bacteriology and parasitology, and Dr. Mohamed Hamad Satti[11]. In 1952, Professor B. Hickey was recruited from Cairo to begin the academic Department of Anatomy. Professor Butler succeeded him. The first Sudanese to join the Department of Anatomy as an assistant lecturer was Dr. Makram Girgis in 1957 (103).

What is worth noting is that several departments had their heads as professors supported by senior lecturers. The Department of Anatomy had as its first professor, Professor H.A. Harris, with Dr. Pat Somers (the dean) as the senior lecturer. The Department of Medicine had Professor Hugh Vivien Morgan, with Dr. W. O'Brien as senior lecturer, in addition to Dr. Townsend-Coles as senior lecturer in pediatrics (and also pathology) (104). Another full department was the Department of Surgery, with Professor B.B. Hickey as head and R. Fleming and Peter R Slade[12] both as senior lecturers (105). The Departments of Physiology, Pathology, Obstetrics and Gynecology, and Public Health had single staff as heads. They were Prof. Dean Smith (Physiology), Robert Kirk (Pathology), George Daly (Obstetrics and Gynecology), and Prof. Wheaton (Public Health). The academic departments were supported by sessional teaching staff from among SMS doctors, both Sudanese and British. Their numbers were substantive (15 in total), and they represented a wide range of disciplines, from surgery (F. Bartholomew and Abd al Hamid Bayoumi[13] to medicine (R.M. Buchanan and Abd al Halim Mohamed) to obstetrics and gynecology (J. L.D. Roy and Dawood Skander) (106) (284). These sessional teaching staff members also covered other disciplines such as bacteriology (Mansour Ali Haseeb and H. J. Holder), ophthalmology (Hussein Ahmed Hussein), mental diseases (Al Tigani al Mahi+), dental surgery (H. J. Burnes-Jones), nursing (Miss P.M, Dickens), anesthetics (A.M. Robertson), hygiene and public health (R. Charlton) and pharmacy (Mr. Nagib Salman) (107).

According to Dr. Ali Khogali Ismail, Dean Smith should be considered as the one who laid the strong foundation for academic medicine in Sudan, and to his credit goes the first establishment of the basic medical sciences platform in Khartoum. Prior to Dean Smith's recruitment, the subject of physiology was taught by Dr. Townsend-Coles, and after he had joined, Dean Smith later persuaded Dr. Kenneth Adams (later Professor Adams) to join the KSM as a lecturer in biochemistry. Shortly after that, he also recruited Dr. Christopher Weiss, a German, as a lecturer. Adams came to Sudan early in 1956 and stayed until 1961. He later completed his PhD from the London School of Tropical Medicine and Hygiene, and his thesis was on splenic puncture from suspected cases of visceral leishmaniasis (Kala-azar) collected from the Upper Nile Province in southern Sudan. Ali Khogali stated that he was

(10) Dr. Mansour Ali Haseeb was the first Sudanese to train as a microbiologist and parasitologist (for his biography see Tarik Elhadd, the Evolution of modern Medicine in the Anglo-Egyptian Sudan, 1924-1956, Africa World Press, New Jersey, November 2023).

(11) For his biography see Appendix 1.

(12) He was well remembered by Dr. Kenneth Owen in his reminiscences (see K Owen, Sudan Interlude, J of Retired Fellows of the Royal Soc of Medicine, 2008), and he recalled that he soon came back to work in Bristol as a urologist surgeon and unfortunately died tragically in an accident after a 'Bonfire Night' celebration.

(13) Abdel Hameed Bayoumi was the first Sudanese to train as a surgeon (for his biography, see Elhadd, the Evolution, ibid).

his assistant in that endeavor (108).

According to Dr. Ismail, Dean Smith always strived for a strong department with a decent number of staff members. After Independence in 1956, he began the process of training Sudanese graduates of the KSM as academic staff in basic medical sciences. He carefully planned and orchestrated schemes for those recruits to be posted to various departments of basic medical sciences at British universities. He first began with his platform, the Department of Physiology. The first to start the enterprise was Dr. Ali Khogali Ismail, a graduate of the December 1953 group of KSM graduates.

A new post was created, that of Research Assistant. That was equivalent to today's post of lecturer. Ali was appointed early in 1957. He was soon posted to St. Andrews University in Scotland to obtain his PhD in medical physiology. When Dr. Ismail was posted to St. Andrews for his training, Dean Smith appointed Dr. Nasr Eldein Ahmed Mahmoud (a graduate of the KSM class of 1956) to replace him. According to Dr. Ismail, while he was completing his training between St. Andrews and Oxford, Dean Smith had an opportunity to add another British member of staff to his flourishing department. Dr. Olive Dunbar was a lecturer with Prof. Bell at Dundee University. Her husband, Dr. James Dunbar, was recruited as a senior lecturer in Microbiology. Dean Smith grabbed the opportunity and offered Dr. Dunbar a placement in Khartoum until the return of Dr. Ismail. She stayed for three years (109).

In 1955, Prof. Julian Taylor[14] joined as the first professor of surgery in Khartoum after the formation of the faculty following Independence. Taylor assumed the deanship from 1956 until 1958. At the time, Prof. Taylor was deputy president of the Royal College of Surgeons of England, and through his connections, he orchestrated training for young Sudanese doctors in surgery (110). Prof. Hugh Vivien Morgan, the first Professor of Medicine in the Faculty of Medicine, succeeded him. In 1958, Prof. Dean Smith served his second term as Dean of the Faculty of Medicine, which ended in his tragic and sudden death in 1960 (111).

It is worth adding some notes here on the training of medical students in dentistry. The first to lecture at KSM on dental diseases was L. T. Alianak, D.D. S, who qualified from Beirut, held the post for twelve years till 1949, when the first British to be appointed to a full-time job was H. J. Burns-Jones. He served the dual post as a dental surgeon with SMS as well as a lecturer in Dental Surgery at KSM. In 1951, he was joined by a British dental mechanic and a dental officer (112). Of note, the first Sudanese to qualify as a dental surgeon was Dr. Hassan Abdel Lateef, who opened a private practice at Omdurman in 1952 (Ali Khogali Ismail, Personal Communication). According to Squires, the ~~hopes~~ to establish a separate dental school at Khartoum were dashed following the resignation and departure of Burnes-Jones in the mass exodus of British doctors on the eve of Sudan Independence. It took nearly one and half decades for the first dental School to be established and inaugurated as part of the faculty of medicine at Khartoum University in 1971, and the first intake for students took place in the summer of 1972. The first dean of the School of Dentistry was an Egyptian dental surgeon who was appointed as a temporary till the first Sudanese dean of the School, Dr. Ahmed Alballah Hamza, assumed office in 1973 (Dr. Abdel Malik Mahdi[15], personal communication).

List of Registrars and deans of the Kitchener School of Medicine/Faculty of Medicine 1924–1974 (First 50 years of the institution)

1. Dr. Norman F. Smith, Registrar, April 1924 – December 1925
2. Dr. E.A.H. Grylls, Registrar, December 1925 – Decmber 1928
3. Dr. F.E. Anderson, Registrar, December 1928 – November 1931
4. Dr. D.R. Macdonald, Registrar, November 1931 - November 1938

(14) Julian Taylor was born in 1889 and died suddenly in London on April 15, 1961 (for his biography, see Appendix 1).

(15) Dr. Abdel Malik Mahdi, a notable Sudanese dentist and one of the first batch of dental students to qualify from Khartoum in 1976. The first batch of graduates had 19 dentists including one female

5. Dr. J.S. Aldridge, Registrar, November 1938 - November 1944
6. Dr. J.S. Aldridge, Registrar, November 1944 - November 1946
7. Dr. R.N. Buchanan, Registrar, November 1946 - October 1948
8. Dr. R.B.U. Somers, Registrar, October 1948 – August 1953
9. Prof. D.A. Smith, Dean, August 1953 – October 1954
10. Prof. Robert. Kirk, Dean, October 1954 – March 1955
11. Prof. H.V. Morgan, Dean, March 1955 – March 1958
12. Prof. Dean A. Smith, Dean, March 1958 – July 1960
13. Prof. H. Butler, Dean, July 1960 – September 1963
14. Prof Mansour A. Haseeb, Dean Sept 1963 – September 1969
15. Prof. A.M. Elhassan, Dean, Sept 1969 – August 1971
16. Prof. Ali Khogali Ismail, Dean, August 1971-1974

Graduates of Kitchener School of Medicine, 1928-1956

January 1928

Ali Babiker Bedri
Mohamed Amin Elseyed
Fouad Skander
Ahmed Akasha
El Fadil El Bushra
El Nur Shams Eldein
Tahir Yousif

January 1929

Ali Mohamed Bakhreiba
Ibrahim Anis
Ali Mohamed Kheir
Muhktar Mohamed Mahmoud
Ahmed Abdel Halim

January 1931

Abdel Rahman Attabani
Hussein Ahmed Hussein
Ibrahim Ahmed Hussein
Ahmed Ali Zaki
Mansour Abdel Magid

January 1932

Mahmoud Hamad Nasr
Mamoun Hussein Sharief
Khalil Abdel Rahman
Elfadil Daffa Allah
Elseyid Abdel Razig
Mahmoud Ali Hamdi

January 1933

Abdel Halim Mohamed
Abdullah Mohamed Omer Abu Shamma
Elhadi Elnagar
Mohamed Zaki Mustafa
Ahmed Bukhari
Abdelaziz Mohamed Ahmed
Beshir Abdel Rahim
Mohamed Hassan

January 1934

Mansour Ali Haseeb
Abdel Hamid Bayoumi
Habib Abdulla
Adeeb Abdulla
Suleiman Bassioni
Ibrahim Abbas

January 1935

Tigani Elmahi
Ibrahim Mohamed Elmaghrabi
Mohamed Hamad Satti
Mohamed Rashad Farid
Abbas Hamad Nasr
Ali Ibrahim Beshir
Beshir Mohamed Salih
Osman Rahmi
Mohamed Abdullah Elawad

January 1936

Baghir Ibrahim
Ali Mohamed Nur
Kamal Andarawos
Ibrahim Suleiman
Mahgoub Hamza

January 1937

Mubarak Elfadil Shaddad
Zein Eldien Ibrahim
Osman Yusuf Abu Akar
Abdel Salam Salih Elmaghrabi
Fouad Shihata
Ahmed Elgasim ali Bakheit

April 1938

Mohamed Adam Adham

January 1939

Sid Ahmed Abdelhadi
Mohey Eldien Mahdi
Mohamed Elamin Abdel Rahim
Labib Abdulla
Mohamed Sherif Dawood
Sayed Ali Abdel Rahim

April 1939 14

Dafalla Mustafa

December 1940 24

Daoud Mustafa Khalid
Suleiman Mudawi
Mohamed Ali Ahmed
Mohamed Elkheir Alshafie
Abdel Rahim Mahmoud
Abdullah Disouki Abdulla
Mohamed Mowafi Abdel Fattah

April 1941 27

Ali Omer Orou
January 1943
Mohamed Elfatih Abu Bakr
Anis Mohamed Ali
Mahmoud Hussein Mahmoud
Hassan Musa
Mekki Elsheikh

April 1943

Abdel Razzag El Mubarak
January 1945
Girgis Ayad Skander
Mahmoud Abdelrahman Ziada
Mohamed Mahmoud
Mohamed Osman Abdel Nabi

January 1946

Mohamed Elhassan Abu Bakr
Abdullahi Sid Ahmed Goreish
Mahmoud Mohamed Hassan
Taha Osman Balleya
Tahir Abdel Rahman Mahmoud
Yusif Dafaa Allah Shebieka
Elnur Abdelmagid Idries
Ismail Amin Nabri
Fatah ElRahman Abdelgadir

January 1948

Taha Ahmed Baasher
Yahyia Gamal Abu Seif
Hamad Nallah Elamin
Maurice Sidra Hanna
Abdelgadir Mishaal
Abdel Moniem Ibrahim Wasfi
Abdelgadir Hassan Ishaag

January 1950

Osman Mudawi
AbdelGadir Ginawi
Abdel Bari Mutwakil
Lewis Abdu Tadros

January 1952

Abu Bakr Mohamed Elamin
Fayz Amin Alsunni
Fuad Abdu Tadros
Salah eldien Abdul Rahman Ali Taha
Elshiekh Abdul Rahman
April 1952
Khalida Zahir Sarror Elsadaty
Zarouhi Vahan Sirkissian
Ibrahim Salih Elmaghrabi
Mirghani Yusif Ali
Imam Mohamed Elmahadi

1953

Ali Khogali Ismail
Alzein Alnaeil
Hassab al Rasoul Suliman
Hassan Abdallah Koshkosh
Subhi ElHakeem
Abdallah Saad
Omer Hassan Amin
Yusuf Osman Ibrahim
Yusuf Mahdi Alzein

1954

Abdel-Hafez Abu Yusif
Mohamed Jawad Alsarrag
Mohamed Ahmed Gabbani
Makram Girgis
Fathi Mustafa Elhakeem
Gustav Boulous
Yusuf Osman Ibrahim

1955

Ahmed Mohamed Elhassan
Kamal Ahmed Khidir
Agi Shanhaz

1956

Ahmed Abdel Aziz Yacoub
Ali Mohamed Fadul
Haddad Omer Karoum
Nasr eldien Mohamed Mahmoud
Hassan Haj Ali
Amin Ali Nadim
Ahmed Mahmoud Abbas
Eltahir Fadul
Kamal Bushra
Widad Grunfoli

Mustafa Abdel Magid
Elseyd Daoud Hassan
Hassan Hussein
Tag Eldien Ahmed

References:

1. Corbyn. E. N. 1944, op cit.
2. KSM/SAD papers. p.12
3. ibid
4. ibid
5. Squires, the Sudan Medical Services, op cit. p.65
6. 6. Ali Khogali Ismail, personal communications
7. Squires op cit., p. 66
8. ibid p,12
9. KSM/SAD papers. p.12-13
10. 10. Squires, op. Cit. p.12
11. Report K. S.M. 1924-1925, p.7
12. Squires op cit. p.66
13. Webb-Johnson, bmj, op cit.
14. Squires, op cit. pp.70-71
15. K. S. M SAD papers, p.7
16. SMS Report 1926, pp.67-69
17. SMS Report 1928, p.100
18. SMS Report 1928. P.92
19. Squires, op cit. p.72
20. Squires, p.72
21. KSM SAD papers, p.169
22. ibid
23. ibid
24. ibid, p.168
25. ibid, p.170
26. ibid
27. Webb-Johnson, bmj 1939, op cit.
28. Squires op cit. p.67
29. Squires, op cit.
30. Squires, op. cit. p.71
31. ibid
32. Elhadd, Munks Roll.
33. Abd Al Aal Abdalla. Milestones, op cit.
34. ibid
35. ibid, p.75
36. SMS Report, 1929
37. SMS Report, 1926
38. Squires, op cit.
39. KSM, SAD papers, p.7
40. ibid
41. 41. ibid, pp.170-17242. KSM, SAD papers p.13
42. Hodson, Colonial Medical, bmj 1939, op cit.
43. ibid
44. ibid
45. ibid
46. Squires, op cit.
47. KSM, SAD, p.31
48. 49. KSM Report, 1952, p.4
49. ibid,
50. ibid,
51. KSM, 1950,
52. ibid, p.5
53. ibid
54. SMS 1942 Report, p.50
55. ibid
56. KSM papers, p.22
57. ibid
58. KSM Report 1952, p.4
59. SMS 1949, p.53
60. KSM Annual report, SAD, p.22
61. KSM Annual report, 1942, p.53
62. SMS 1937 Report, p.88
63. ibid, p.32
64. SMS 1937 Report, p.4
65. Squires, pp.88-89
66. SMS 1944 Report, p.55
67. ibid
68. ibid
69. Alsafi, A. Al Hakeem, op cit. p.43
70. ibid, p.65
71. SMS 1945 Report, p.76
72. 73. KSM SAD, 1951 Annual Report, p.6
73. SMS 1947 Report, p.71
74. KSM 1950 Report, p.50
75. SMS 1934 Report, p.79
76. SMS 1937 Report, p.88
77. SMS 1947 Report, p.64
78. SMS 1944 Report, p.54
79. SMS 1950 Report, p.22
80. Elhadd, TA & Khalil. SI. smj, op cit. 2013
81. 81. Squires, op cit.
82. SMS 1926 Report
83. SMS 1940 Report, p.64
84. SMS 1938 Report, p.77
85. SMS 1950 Report, p. 32
86. SMS 1952 Report, p.5
87. SMS 1934 Report87. ibid, p.78
88. Bashir, MO. Op cit. p.109

89. SMS 1939 Report, p.77
90. ibid, p.77
91. ibid,
92. SMS 1944 Report, p.52
93. ibid
94. KSM 1947 Report, p.61
95. Ali Khogali Ismail, personal communications
96. ibid
97. ibid
98. ibid
99. KSM 1949 Report, p.31
100. ibid, p.32
101. Ali Khogali, personal communication
102. KSM/SAD Report, p.18
103. Ali Khogali, p.c
104. KSM/SAD Report. p.53
105. Abd Al Aal, op cit.
106. 106. KSM/SAD Report, p.53
107. ibid
108. Ali Khogali, personal communication
109. ibid
110. Abd Al Aal Abdalla, op cit.
111. Ali Khogali, personal communication
112. Squires, op cit. p.78.

Gordon Memorial College: The Antecedent of Medical Education in Sudan

Tarik Elhadd

Endocrine Section, Department of Medicine, Hamad Medical Corporation, Doha, Qatar

"In January 1899, the foundation of GMC was laid. It was a tiny flame that was lit on that day, but it has led to much, and it has materially guided and made possible the formation of a medical service staffed mainly by the Sudanese themselves."

Robert Kirk (Professor of Pathology and Dean of the Kitchener School of Medicine 1952–1955).

It would not be possible to talk about the creation of the Kitchener School of Medicine (KSM) and how this came about eventually in 1924 without mentioning the milestones of its legitimate mother, Gordon Memorial College. The KSM was born under the wings of the GMC and this latter deserves its story to be told and in some detail. Horatio Herbert Kitchener, 1st Earl Kitchener of Khartoum and of Broome, was a shrewd tactician, and he managed to dictate his vision for a new Sudan with wit and vintage. In 1886, he was appointed governor (at Suakin, Sudan) of the British Red Sea territories, and he subsequently was assigned to Egypt as adjutant general in Cairo. He was appointed as sirdar (commander in chief) of the Egyptian army in 1892. On September 2, 1898, he defeated the Sudanese forces of al-Mahdī in the Battle of Omdurman and then occupied the nearby city of Khartoum, which he rebuilt as the center of Anglo-Egyptian government in the Sudan.[(1) (1)] As governor-general of the Sudan he aimed to introduce the vanquished people of the defeated country to the "world of civilization," and he envisaged that such a move could not be accomplished without the introduction of modern education. He set off the motion by recruiting the sons of sheiks, tribal chiefs, and village heads. He then made his famous appeal to establish a college in the name of Charles Gordon, the imperial hero whose death in his palace in Khartoum in 1885 set the famous cry among the British public in London, "Avenge Gordon" (1). Such public opinion was the crucial factor that orchestrated the necessary platform for the expedition that culminated in the "Re-conquest of Sudan." Sudan was to be ruled by a Condominium Treaty, but, in real terms, the British hand was left to rule solo in the country, and Egypt was to finance the cost of such an enterprise. Kitchener's appeal in 1898 for the Gordon Memorial College in Khartoum captured the imaginations of many public figures back in London. Rudyard Kipling wrote in 'Kitchener School':

> Not at the mouth of his clean-lipped guns shall ye learn his name again, But letter by letter, from Kaf to Kaf, at the mouths of his chosen men. He has gone back to his city, not seeking presents or bribes, But openly asking the English for money to buy you Hakims and scribes.[(2)]

In that famous appeal, Kitchener addressed the British public by stating:

> Sir, I trust that it will not be thought that I am trespassing too much on upon the goodwill of the British public or that I am exceeding the duties of a soldier if I call your attention to an issue of very grave importance arising immediately out of the recent campaign in Sudan. The region now lies in the pathway of our Empire, and a large population has become practically dependent on our race. A responsible task is henceforth laid upon us. Those who have conquered are called upon us to civilize . . . .it is with this conviction that I venture to lay before you a proposal which, if it met with the approval and support of the British public

(1) Editors of Encyclopaedia Britannica. Horatio Herbert Kitchener, 1st Earl Kitchener: British Field Marshal. Britannica. https://www.britannica.com/biography/Horatio-Herbert-Kitchener-1st-Earl-Kitchener.

(2) Rudyard Kipling, 1904, "Kitchener's School," The Five Nations.A translation of the song that was made by a Muslim schoolmaster of Bengal Infantry (some time on service at Suakim) when he heard that Kitchener was taking money from the English to build a Madrissa for Hubshees – or a college for the Sudanese. http://www.telelib.com/authors/K/KiplingRudyard/verse/p1/kitchenerschool.html#:~:text=Not%20at%20the%20mouth%20of,buy%20you%20Hakims%20and%20scribes.

> and the English-speaking race, would prove of inestimable benefit to Sudan and to Africa . . . for the main objective of establishing a modern school to teach the Sudanese (2).

Kitchener, in his own words, aimed to make the proposed college the focus of higher education in the Sudan for all time. As a result of that appeal, in excess of £122.000 was subscribed, and following this, an Executive Committee was formed in a meeting of the General Council of the subscribers to give effect to Kitchener's proposal. Accordingly, the Executive Committee appointed a Board of Trustees to oversee the "establishment and maintenance of the Gordon Memorial College and for anything tending to extend and improve the condition and the education of Sudanese" (3). Kitchener was not to see the immediate plants of the seeds of his mammoth military mission in Sudan, as events in South Africa necessitated his withdrawal to join Lord Roberts for other rounds in the South African wars. He passed the responsibilities on to his main aide-de-camp, Colonel Reginald F. Wingate, who played a crucial role in his capacity as Director of the Intelligence of the Egyptian Army in the Nile Campaign. Furthermore, Wingate was to be the longest-serving Governor General of Sudan, and the one who laid the foundation for the British administration in Sudan that lasted until Independence sixty years later (4).

The GMC is considered to be the forerunner of modern education in Sudan, including medical education. The story of the establishment of the college has been well narrated by Patrick D'Arcy (5) and recently by Zein Ibrahim (6). It is ironic that despite the college eventually losing its Memorial name before even the Independence of Sudan, its development passed through phase after phase, eventually culminating in the birth of the current University of Khartoum. Kitchener was quoted to have thought of the idea on September 20, 1898, when he spoke to his major aide-de-champ, Francis Reginald Wingate, just over two weeks following the great showdown at Omdurman. The appeal to found the college was made to the British public and not to the British government in November 1898. As such, it was a people's donation, and it was a collective act of benevolence, as Zein Ibrahim argued in his excellent documentation of the College chronicles (7).

The job of drawing the plans of the main building on the campus was assigned to Fabricious Pasha, the architect of the Khedive of Egypt, who completed the plans in April 1899 (8). Kitchener himself scrutinized and approved the plans and ordered the construction to commence immediately (9). Kitchener was assigned to the Military Works Department under the direction of Lieutenant Gorringe Bey*(3) the job of producing the architectural details and supervising construction after the Earl of Cromer had laid the foundation stone on January 5, 1899 (10). On January 5, 1900, Lord Cromer laid the foundation stone of the college in the name of Queen Victoria, who was the patron of the college (11). Construction was still in progress when Lord Kitchener inaugurated the college on November 8, 1902, a year ahead of the completion of the project. The cost of construction of the main buildings of the college, which comprised the north and east wings, was £23,000 in addition to £7,000 spent on furniture, equipment, and laying out the grounds. The trustees used the remainder of the funds to form an endowment fund. Additions were made to the main building, and the Government of Sudan paid for the addition of three single-story buildings east of the central establishment (12). It is intriguing to think that the birth of the GMC, which maintained the standard of education in the West, started as a primary school. The GMC proved to be the birthplace of modern education in Sudan and formed the core that proliferated over the years into several branches and eventually ended up in the evolution to a full-fledged university just over half a century later since its inauguration on November 8, 1902. This enterprise could be argued to be an

(3) Sir George Fredrick Gorringe Bey (1868–1945) of the Military Works Department. He fought in the Dongola and Nile campaigns. He was instrumental in reconstructing Khartoum, including the Governor General's Palace, Gordon Memorial College, and the province offices at Wad Medani and Sinja. He later became Governor of Sennar Province (1902–1904). (Hill, Biographical Dictionary of the Sudan, Frank Cass Ltd, 1967, pp.140-141).

enterprise second to none in the history of education in the world. The platform of education upon which education at higher levels was built was one of the best among British colonies, despite Sudan did not have such status, but de facto it was.

The GMC was to be the source of students for KSM, and the exit examination of the GMC was the entry examination for the KSM. It is worth mentioning here that the GMC was the main supplier for junior employees in the Sudan government service. In a sense, then, for the KSM students to begin from where their peers normally left off gave the graduates of the KSM supremacy and hierarchy over their fellow compatriots.

The college was subject to several appraisal committees over the years to assess its development to improve its standards and keep in a breadth of educational development elsewhere. That proved to be the turning point of the college educational hierarchy with its development and evolution into a higher school following the recommendation of the Earl De La Warr Commission, which the British Government sanctioned originally to oversee the curricula of the Makerere College in Uganda. However, upon request from the Sudan Government, a review of the GMC was also done in 1937. Its recommendations were published in 1938 (38). The commission's views were influenced by three people: Mr. V.L. Griffiths (Dean of Bakt er-Ruda), Mr. G.C. Scott (warden of GMC), and Mr. Mirghani Hamza, a notable and leading educated Sudanese (39). The commission recommended reforms in the syllabuses of science and history and to increase the number of British teaching staff (41).

This recommendation culminated in the school evolute into an apex and center of higher education in the country, with the creation of several schools like the School of Agriculture, School of Veterinary Sciences, and School of Engineering, in addition to the earlier KSM and later school of Science and School of Arts and Commerce were established (43, 44). Part of the recommendation was made that secondary schools be built elsewhere. Hence, Wadi Seidna and Hantoub and later Khor Taggat schools were borne.

A yardstick development was the formation of the Council of the GMC in 1944, which held its first meeting on November 15, 1944. That earmarked the beginning of the new GMC, which embraced all higher schools with the exception of the KSM. The new GMC was officially inaugurated on January 1, 1945 (56). The School Council decided in December 1945 to apply to the Senate of London University for admission to the college. In 1947, the courses leading to the London Bachelor of Arts (B.A.) and Bachelor of Science (B.Sc.) general degrees were introduced and the college hence entered into a special relationship with London University. By 1951, the expansion of the college in terms of its premises, academic staff, and technical facilities had reached an advanced level when construction of eight additional units began in 1948, five of which, including the Blue and White Nile Hostels, the Biology Block, the Science Lecture Theatre, the Heat Engines and Hydraulic Laboratory were at the main site in Khartoum. The Agricultural Chemistry Block, the new Veterinary School, and the Hostel were built at Shambat in Khartoum North (59). An important input into medical education was the involvement of the GMC in teaching science to KSM students. The science section of GMC was housed on the premises of the KSM until after 1942 when it moved out back to the original site of the GMC.

The Establishment of the University College Khartoum

In 1951, the Government of Sudan issued Ordinance No 13 to establish the foundation of the University College Khartoum (UCK) (62). This college comprised the GMC and the KSM, which came into existence on September 1, 1951, when the ordinance authorizing its creation became a law (63). The general purpose of the ordinance was summarized in a note submitted to the Legislative Assembly earlier in 1951. That note clearly explained the reasons behind the creation of the new academic body, highlighting the fact that the continued separation of the KSM from GMC was "out of the keeping of modern practice and that if it continued, is likely to

impede the planned and harmonious development of university education in Sudan."

The note went on to state that the Bill is, therefore, intended to bring them together in one institution under the control of a Common Council. Secondly, neither institution is endowed with the statutory rights and powers that are traditionally regarded as the indispensable hallmark of academic independence. The Bill is therefore designed to constitute the new University College as a statutory public corporation and to vest it with the legal powers and responsibilities that the accumulated experience of other countries has shown to be necessary for modern university education (64).

As the ordinance made clear, both the KSM and GMC retained their identity as distinct parts of the new whole. However, an important milestone of the formation of the UCK was that as it was embracing the GMC, the University College had been accepted by the University of London into the scheme of special relationships (65). The ordinance detailed the formation of the University College, with both KSM and GMC, its academic staff, its departments, senior warden, the Visitor of the College, and the council. The GMC embraced the Faculties of Agriculture, Arts, Engineering, Law, Science, and Veterinary Science. The Governor General of Sudan was made the Visitor of the College "who shall have power at any time he may think fit to direct an inspection of the College to be made in any manner he may think fit for the purpose of ensuring the effective discharge of the duties and responsibilities imposed by his ordinance." He also has the task of appointing the Chair of the Council, plus choosing, at his discretion, six members, of whom one-third shall retire every year. The Visitor must also choose two other members who are medical practitioners practicing in the Sudan, of whom one shall retire every second year (66). The council duties, as outlined by the ordinance, are "the duties of control of, and [responsibility] for, the general government and administration of the College" (67). The council shall elect nine members (not being persons employed by the college). The Academic Board must elect six more members of the council. They shall be members of the Academic Board (three of them shall be Deans of a Faculty other than the KSM), of whom one-third shall retire every year in order of election. Members of the Council also include ex officio members who were the Principal, Vice-Principal and the Dean of the KSM by virtue of their office (68). The Academic Board was formed from the Principal, the Vice-Principal, the Senior Warden, the Librarian, the Dean of each Faculty, the Head of Each Department, and one other member of the academic staff who shall be elected annually before the 31st day of December by the Faculty Board and shall be eligible for re-election (69). The Principal shall be appointed and may be removed by the council with the consent of the Visitor (70). "The Principal shall be the chief academic and administrative officer of the college and shall be advising the council on all matters affecting the policy, finance, government, and administration of the college. He shall exercise general authority over members of staff and shall be responsible for the discipline of the college. In this behalf he may make rules which shall come into force immediately but which shall be submitted to the council for ratification at its next meeting" (71). He also had to supervise the admission of students to the college and to ensure that "admissions are made in general conformity with the general policy of the Council" (72). The council shall appoint the Vice-Principal from among the members of the academic staff on the recommendation of the principal after he has consulted the Standing Committee (73).

At its first meeting, the council laid down the aims of the University College which were to be the same as for the GMC seven years earlier: "The functions of the college are teaching and research. The value of research is not only intrinsic; it should also assist teaching in various ways. It should attract good staff and help to maintain its quality; and it should influence the students-through their contact with those engaged in it-toward acquiring the scientist and scholar objective attitude to knowledge." The statement went on to assert: "These aims can be obtained partly through good curricula, adequate apparatus and libraries, and wise teaching such

as can produce in students not only knowledge but also character and culture obtained through understanding of the values and traditions of the great professions and research" (74).

At the inauguration of the college in 1951, the Visitor was Sir Robert Howe, the Governor General, and among the council members appointed by the Visitor from the Sudanese were Mohamed Saleh Shingeiti, Sheikh Mohamed Abu Algasim Hashim, Mohamed Osman Yassin, and Dr. Abdel Halim Mohamed. Those elected by the council were Mekki Effendi Abbas, Mekkawi Suleiman Akrat, Mirghani Hamza, Abdel-Salam Abu al Ela, and Mamoun Beheiri (75). Among the teaching staff at the KSM at the time were Drs. Abdelhalim Mohmaed, Mansour Ali Haseeb, Al Tigani al Mahi, Hussein Ahmed Hussein, Daoud Skandar, Nageib Samaan and Abdelhameed Bayoumi. Gamal Mohamed Ahmed was the Student Warden (76). The new college was constituted as a statutory public corporation with legal powers, and its constitution was drafted with the help and advice of the Inter-University Council and the Senate of the University of London (77). A degree of special relationship was forged between the University of London and the UCK, allowing a degree of freedom in adapting syllabuses, guaranteeing standard degrees, and ensuring the recruitment and hiring of staff from abroad, but this was forged with some national issues (78). A proposition made by Dame Lilian Benson, the representative of the Senate of the University of London, in the Council meeting of the UCK, advocated breaking off the relationship between the two institutions and for the UCK to become an independent institution (79). In its meeting on April 6, 1954, it was deliberated that the University College should "obtain full university status by July 1 1955 or soon after." The council endorsed this and it was soon followed by a scheme of scholarships for Sudanese graduates set up to obtain a core of Sudanese scholars and university lecturers (80).

In 1955 the UCK would be upgraded to form the University of Khartoum. Finally, a Bill from the newly elected parliament following Sudan's Independence was passed, granting the university status on July 24, 1956.

References

1. D'Arcy. Laboratory on the Nile, the history of Wellcome tropical research Laboratories at Khartoum, SRS Press, New York, 1999.
2. KSM, SAD papers. General Correspondence, p.8
3. 1944-1966 KSM. General correspondence papers SAD, 570/11 p.16
4. Warburg, G. Sudan under Wingate of the Sudan. Administration in the Anglo-Egyptian Sudan. Routledge, 1971.
5. D'Arcy, Laboratory on the Nile, op cit.
6. Zein Ibrahim. Gordon Memorial College, a chronicle of a College. Khartoum University Press. 2009.
7. ibid
8. ibid
9. ibid
10. Jackson, Ashley. Buildings of Empire. Oxford University Press, Oxford, 2013. p.202
11. Ibrahim, Z. op. cit.
12. KSM / SAD papers pp.18-19
13. ibid p.8
14. ibid p.9
15. ibid
16. ibid
17. ibid
18. ibid
19. MacMichael, H.A. The Sudan. Benn, 1954
20. Ibrahim, Z op cit
21. KSM / SAD papers pp.16
22. ibid. pp.9-10
23. Bashir, M.O. Educational Developments in the

Sudan, Oxford University Press, 1964, p.90

24. . ibid.
25. ibid
26. ibid, p.96
27. ibid, pp.90-111
28. ibid. p.101
29. KSM / SAD papers pp, 9-10
30. Bashir, op cit. p.107
31. ibid. p.108
32. Article of 1936 Treaty, cited in Bashir, MO, op cit. p.111
33. Holt, PM & Daly, MW. History of the Sudan, from the coming of the Arabs to the Present day, Routledge, 2011, p.140
34. Bashir, op cit. p.111
35. ibid
36. GMC Report, 1934, p.9
37. Bashir, op cit. p.111
38. Ibrahim, Z. op cit. p.95
39. Bashir, op cit. p.113
40. Sudan Government Report of De La Warr Education Commission, 1937
41. Bashir, op cit. p.115.
42. KSM / SAD papers pp.9-11
43. Bashir op cit. p.115
44. ibid, p.116
45. KSM / SAD papers pp.9-11
46. ibid
47. ibid
48. British MJ, Aug 26, 1939; p.459
49. Ali Khogali Ismael, personal communications.
50. Bashir, op cit. p.141
51. ibid, p.143
52. ibid, p.144
53. 5ibid
54. KSM / SAD papers pp.11
55. Bashir, op cit. p.141
56. ibid, p.144
57. ibid
58. KSM / SAD papers pp.11ibid
59. ibid, pp. 11-12
60. ibid p.12
61. Ibrahim, Z. Op cit
62. KSM / SAD papers pp.16
63. ibid p. 13
64. ibid
65. ibid
66. ibid. p.19
67. ibid
68. ibid, p. 19-20
69. ibid. p.23
70. ibid. p.22
71. ibid
72. ibid p. 24
73. ibid. p.14
74. ibid
75. ibid, p.48
76. ibid, pp.54-55
77. GMC Report, 1951
78. Bashir, op cit. p.184
79. ibid, p.185
80. ibid

On The Centenaries of Two Pioneering Institutions

Faculty of Medicine, Khartoum University (1924-2024) & Omdurman Midwifery Training School (1921-2021) (A Short Historical Account)

Tarik Elhadd
Endocrine Section, Department of Medicine, Hamad Medical Corporation, Doha, Qatar.
Hassan Bella
Virginia, USA.

The beginnings of training of nurses and midwives in Sudan during the earlier establishment of the health services by the British Administration at the turn of the 1900s took time to kick off. It is an irony that the training of midwives preceded the one for nurses by five years, and that of doctors by three years. The pioneering work of two British nurses/midwives, the Wolff sisters, Mabel Elsie Wolff and her eldest sister, Gertrude Gee Wolff, and that of the two Sudanese midwives Sitt Gindiyya Salah and Sitt Batul Mohamed Issa in the earlier years of the Omdurman Midwifery Training School, had very much set the path for a historic and unprecedented venture of training in modern times. The school became a model that propagated the concept of modern midwifery and child health care to the rest of the country. An issue that from the beginning was very much entwined with the midwifery school was the practice of Pharaonic circumcision (Female genital mutilation). Despite relentless efforts to curb the practice, it persisted well into our modern times.

On the eve of the Sudanese medical community celebrating the first centenary of its medical establishment when the Kitchener School of Medicine was inaugurated in 1924, this article has been redrafted with the aim of shedding some light on its historical foundation and the pioneering British and Sudanese staff who established what a feat second to none in the first quarter of the twentieth century was (Figure 1).

It is an irony that the training of midwives in the 'Anglo-Egyptian Sudan' preceded the training of nurses. Several factors played a major role in this venture. According to the papers of the first Matron of Midwifery Training School (MTS), Miss Mabel

2/29. *Staff of the Midwifery Training School, Omdurman, 1937.* Many of the era's achievements in the social services may be traced to one or two long-serving and determined experts. Modern midwifery, and the partly consequent decline in infant mortality, is an example. Shown here are the program's founders, the formidable Misses Gertrude (left) and Mabel Wolff ("the Wolves"), just before their retirement, along with six Sudanese midwives (in white, including, to Mabel Wolff's right, Sitt Batul Muhammad Isa) The other staff are two uniformed drivers, a handyman, a cook, and a *kisra* (bread) maker. (Ref. 583/5/2. Collection: M.E. & G.L. Wolff. Photographer Unknown.)

Figure 1. Omdurman Midwifery Training School Staff

Elsie Wolff, a British Nurse/midwife who was born and brought up in Egypt, the idea of establishing the school came from Mrs. Molly Crowfoot, wife of Mr. John Crowfoot, Director of Education in Sudan at the time, who happened to have attended a birth at Omdurman. Mrs. Crowfoot had been 'horrified' with the practice of Pharaonic circumcision (synonym; Female genital mutilation [FGM]), and having just seen its consequences on the delivery process, she went on to persuade Dr. Edward Crispin, the Director of Sudan Medical Department (SMD), to start training for Sudanese midwives. Mrs. Crowfoot went further and recommended Miss Mabel Wolff to be the 'best person for the job' [1] beyond doubt, that could be the only reason for the establishment of the MTS, as other needs, including the need to provide subordinate medical staff to meet the expanding health service with the availability of more funds after the Great War.

Further, developments in other fields in the country, particularly the building of the Makkwar Dam and the establishment of the Gezira Scheme, needed improvement in maternal and child health to meet the long-term supply of Sudanese laborers [2]. The annual reports of SMD over the preceding years repeatedly mentioned that Sudan was very much under-populated following the wars, famines, and epidemics that characterized the Mahdiyya period' [3]. Funds for the School were secured after the end of the Great War, and the building of the school began in 1919 and finished by the end of 1920. On January 1, 1921, the MTS was opened in Omdurman to encompass the major training scheme for allied health care professionals sponsored by SMD. The only exception was the crude beginning of the training of the 'Medical Assistants' at Port Sudan in 1918. The early success of the school lay with its first two matrons, the 'Wolff Sisters', Mabel, and her elder sister, Gertrude Wolff. Both were born and brought up in Egypt where their father was working as a clerk for a company firm in Port Twefig on the Suez Canal. Both were fluent in spoken 'Colloquial Egyptian Arabic'. Further, they were well set for such a difficult task, having been trained earlier as nurses/midwives in Britain and having had the experience of training midwives in Egypt.

Miss Mabel Elsie Wolff, the youngest of the 'Wolves Sisters', was recruited first. She arrived in the Sudan in November 1920. At the time Sudanese women had little or no passion to be trained in the nursing profession, regarded as a low-class profession [3]. Even in Britain, at the beginning of the twentieth century, nursing and midwifery were low-class professions. The prime aim of the MTS in its beginning was to train the traditional Sudanese midwives, the 'Dayas' (*in Sudanese slang means midwives), (figure 2), and then to create a class of 'modern midwives' out of and in rivalry with the existing ones [2].

However, it wasn't an easy task. Recruitment of the first few batches of students proved to be a very difficult task. Some of the logistic difficulties that Miss Wolff faced in the beginning, were the cultural barriers to the profile of the midwife herself in

Figure 2. A Sudanese Midwife

Sudanese society. To be a midwife in Sudanese culture, you need to fulfill the prerequisites of either being married/or being married, having witnessed childbirth, and being relatively old. Miss Wolff did not fit any of these criteria! She had stepped into an alien country; she was in her thirties and was unmarried. The attitude to accept 'training' from this 'Frankish' 'uncircumcised' white woman was repulsive to many traditional 'Dayas'. The task of recruiting the first students for the school proved to be a 'mission impossible'. Only two students joined the first batch. It was only intriguing that the first was a lady who was turning 70 and the second was a widow with no experience, aged 60!

The eldest one of them poked Miss Wolff in the cheek and said, 'I was practicing midwifery before your mother was born[4]. That was Nura bint Omar of 'Farieg al-Suk' (an Omdurman suburb), and the second was the bawab (gatekeeper) wife, who was a young woman with no experience of midwifery. According to Janice Boddy and the SMD Report of 1922, Miss Wolff started her first class with 4 students [4,5]. They were likely to have included two other women recruited a few months later [5,6]. The first of these last two students was Aziza Bercy, an old midwife, aged 68 years, from beyond Abu Rouf, and the second was Mastura Khidir, a youngish woman with previous midwifery experience. Mastura later became the first Sudanese midwife to receive a Medal from His Majesty King George V in 1945 as a tribute of being the only surviving

pioneer midwife from the first batch that started training in Omdurman [7].

The major difficulty that faced Mabel Wolff, the Matron, was the fact that almost all her students were totally illiterate. Modern education for girls had just begun over a decade before (*pioneered by Sheikh Babiker Bedri, a Sudanese notable who opened the first modern school to teach girls in Rufaa in 1907). The task was to involve teaching and mentoring a new breed of 'Dayas', those of the 'Hakoma*' (in Arabic meaning government), to counterbalance those of the conventional Daya's'; 'dayat Alhabil' (= midwives of the ropes). So, the primary aim of the MTS at the beginning was to improve the skills of the practicing 'traditional midwives', stressing the new concepts of cleanliness, hygiene, and safety. Later, pure science was to follow. The MTS mandate was to 'overcome, combat and improve harmful rituals and customs'. The criteria of age and literacy were not included in the selection of the first candidates, and indeed, the first wave of those who received training were both old and illiterate. The average age of the first few batches was 60 [8]. The second batch consisted of 6 women from Omdurman, the youngest of whom was Gindya Salah, the widowed daughter of Aziza Bercy, a trainee of the first term. She was a bright, beautiful, and intelligent woman. Gindiya later became the first Sudanese Staff Midwife at the school. Another, a woman from Omdurman called Umm el-Taiman Sharif Al-Hindi, was discovered by Miss Wolff delivering her first school case in a state of 'stark nudity'. The reason given was that she did not want to soil the government uniform, which at the time was merely a surgeon's white overall! [7].

> The 'ultimate goal of midwifery training was to have at least one clean, well-trained and enlightened midwife in every village of Sudan." [9], 'to install a knowledge of asepsis with better methods." and "to overcome, combat and improve harmful rites.", and "To care for minor ailments of women and children." [10]

Recruitment remained difficult in the first couple of years. However, as the length of the designed study course was initially only 3 months, Miss Wolff succeeded in training most of the 'Dayas' in Omdurman, Khartoum, and Khartoum North by 1924. The course evolved gradually and had increased to 6 months by 1924. Individual tutoring and coaching were the mainstay of the teaching style. The students had to attend 20 lectures and had to deliver a minimum of 20 cases, and another 20 had to be seen with a co-pupil midwife. Practical and oral exams were conducted at the end of each study course, and British Medical officers ran them from the SMD. On passing, the students were given a certificate as a license to enable them to practice in the Sudan. The mainstays of the new principles taught to the students were hygiene, cleanliness, and safety. Mabel Wolff stressed these principles in the first elementary lessons she had written and prepared for the students: 'The first lesson was, a midwife must learn the importance of good manners, morals, and cleanliness' These principles had to be applied in all spheres: the student, herself, nails and hands, her family, children, husband, own home, and place of work [11]. Miss Wolff's style relied heavily on simple means and examples from the local Sudanese homes, an art that she had very much mastered. The center of the instruction to the midwives was the concepts of hygiene, discipline, teamwork, orderly manner, and personal and family zest for cleanliness. The icon of these new principles was symbolized by the 'Midwife Box' and kettle. The box would have all the items needed by the midwife to conduct a 'perfect hygienic job', and all the items had to be recognized by 'feel, taste and smell' [4,7,12]. There was a special emphasis on being rational, and doses of various medicines had to be known by heart. Mabel Wolff, against all the odds, and by understanding the culture of those whom she taught and mentored, Miss Wolff had discovered an overall approach that was destined for success. Janice Boddy, in her excellent critical review of Mabel Wolff's 'Omdurman enterprise', stated, 'She paid heed to local sensibilities and taught by invoking students' [5]. The curriculum of training catered to the successful communication of the village midwife with rural mothers, using similes, metaphors, and proverbs known to the people (figure 4).

Figure 4. Ms E Wolf in tour of provinces

The school persevered against the odds, and the difficult enterprise reigned supreme against major stumbles at the beginning. The report of SMD in 1922 stated that a total of 15 midwives were trained at the MTS [6]. From the 1923 Report, the following is extracted:

> 'Progress made by the school is very gratifying. It has raised the 'local standard' of midwifery, and it has also now begun to receive women from the provinces for training. It is thus hoped that the influence of the school will permeate gradually throughout the country and will result in the appreciable decline of the maternal and infantile death rate of childbirth and, consequently healthy increase in the population. Up to the present time, 42 women have been trained, of whom 25 are practicing at Omdurman and 17 in the provinces [13].

By 1924, all traditional midwives (days) in Khartoum, Omdurman, and Khartoum North had been trained, so Miss Mabel Wolff started to recruit midwives from various provinces. She, like any other British staff in those days, would spend only 9 months in the country each year, and from these, she would spend 6 months at the school and 3 months touring the districts and provinces of Sudan, advocating for the school, and selecting her prospective candidates (figure 5).

In 1925, she made a tour of the provinces, starting with 'Berber Province', and then to Dongola, meeting notable women to lobby them, and again her perseverance and dedication paid dividends. That year, she secured a total of 11 women to be trained [14]. The tours of various provinces became a constant annual task Mabel had to conduct [15], and this continued till the next leap of midwifery training saw the light by opening a series of satellite training schools in the provinces in the 1940s and beyond.

When the school was established, the premises were very limited. The funds allocated were small and could not finance a decent building, including lodging for the first Matron, who had to be housed in a building of two rooms made of mudbrick, with a bathroom but no bath. In one corner of the compound, there was a tiny kitchen and a servant's room. The school proper had two mudbrick buildings of two rooms each, one used as a dormitory for students, an office, a lecture theatre, and a patient's examination room [4]. In the corner of the building, there was a little storeroom, which was later converted into a 'labor room'! The furniture was sparse, and the lighting was by means of candles or paraffin lamps. Water was brought daily by gangs of prisoners while a well was being dug in the 'hoosh' (in Arabic, meaning 'backyard'). The only means for transportation of Miss Wolff was by a hired donkey or on her own feet.

Figure 5. Ms E Wolf in tour of provinces

Sudan Medical Service replaced the Sudan Medical Department. Restructuring of the health services

took place in 1924 with significant expansion of health services and the MTS benefited greatly from these developments. When the Women's Hospital was opened in 1925, the eldest sister of Miss Wolff, Gertrude Lucie 'Gee' Wolff, was recruited from Egypt to be the first Matron of the newly formed 'Nurses Training School' at Omdurman in 1926.

The authorities built new modern premises in 1930 to meet the demand of the expansion of the work and fulfill the role of the school,. The process was completed by 1932 when the new training class was able to use it. The site comprised two lying-in wards, a lecture room, tutorial rooms, Matron's office, a labor ward, and a dedicated building for antenatal care, in addition to dormitories for midwives, a bathroom, and a kitchen [(16)]. The new premises allowed for greater expansion of the school and extension of the course of study to eight months, and that included infant and child welfare, attendance at clinics, and home visits. In 1930, Miss Gee Wolff took over as Matron of MTS, and Mabel became Inspector of Midwives. This arrangement helped the expansion of the work in the provinces, with Miss Mabel Wolff having ample time to ensure the quality control of her graduate practicing midwives. Mabel kept stressing the importance of continuing the good course to her subordinates by using her skills in utilizing simple messages to them.

Further, in 1930 with more expansion of the work and role of the school, new modern premises were built. These comprised two lying-in wards, a labor ward, and a dedicated building for antenatal care. The latter was the first 'Antenatal Clinic' in the Sudan, and from there the concept propagated to other hospitals. The new premises allowed for more expansion of the school and the extension of the course to 8 months, which included infant and child welfare, attendance at clinics, and home visits. In 1930, when Mabel became 'Inspectress of Midwives', that very much helped the expansion of the work in the provinces with Mabel Wolff having ample time to ensure the 'quality control' of her graduate practicing midwives. The MTS became the nidus for the new era of modern midwifery practice in Sudan, which relied on the 'modern medical science; cleanliness, hygiene and safe practice'.

The MTS in Omdurman would, in years to come, be propagated to the rest of the country, and major cities would have their own local MTS. The new wave of midwives began to infiltrate the urban and rural Sudanese communities. The cost of employing them was nil to the government of the Anglo-Egyptian administration. The community employs the village midwife. The people pay her. Fees are an optional matter, usually varying from a few piasters to a few pounds or customary offerings. Skills were taught by apprenticeship. Drugs were taught by taste and smell. Practicals were taught on the midwifery model "Zarifa". With her certificate of midwifery, the village midwife received the equipment she needed for her practice. The midwifery box is a galvanized tin box made locally. All the equipment used by the midwife is essential, simple, and adapted to the surroundings she must work in. During the 1920' the box contained 41 items. Only 4 of 41 items were imported from outside the country, namely syringes, scissors, thermometers, and Mackintosh sheets.

The wheel of change began its motion slowly in Omdurman in the 1920's. By the late 1940s, the first satellite mini-MTS, together with a child welfare clinic, was opened at El-Obeid, witnessing a new era of several midwifery training schools to be opened in the various provinces of the Sudan, and this would continue well beyond Independence. By 1940, a total of 624 midwives were trained, and by 1944, the Nursing school graduates who completed 3 three-year courses of study and those who were literate could apply to join the MTS to train as future 'Staff Midwives' or 'Health Visitors'. By 1951, the number on the payroll and requiring inspection was 415, and in 1952, the annual intake of the school was 36, with an average figure of 6 students who were literate trained nurses from the Omdurman Nursing School. Those would be on course for higher training in midwifery and to obtain the degree of 'Staff Midwife' or 'Health Visitor'. When Miss PM Dickens was appointed as Principal Matron of Nurses in 1946, she helped to design and implement 3 new courses specifically for literate, qualified nurses. The other major criterion

for the nurse after qualifying was to be registered in the Central Nursing Council. These courses were designed to lead to higher training and to enable those who completed them to be promoted to the posts of either 'Staff Midwife', 'Health Visitor', or 'Nursing Instructor'. The course that led to the post of 'Health Visitor' at that time lasted for one year and involved lectures in public health, social welfare, maternity and child welfare, pediatric diseases, and hygiene.

The year 1948 was the beginning of the establishment of regional Midwife Training Schools. In 1948, a second midwifery training school was opened at el-Obeid, and the first group of four graduates was celebrated. And in the same year, the work of antenatal and child welfare clinics was conducted by health visitors [17,18]. The school kept graduating a similar number every year, and by 1954/1955, the total number of graduates from this school had totaled twenty-two midwives since its opening [19]. In 1950, a third school was opened at Juba, and in 1952 a fourth one at Malakal, destined to train midwives for the southern Sudanese provinces. A fifth school was opened at Wad Medani in 1953, and at the dawn of the Sudan Independence in 1955, the sixth school was opened at Atbara, the capital of the Northern Province, with ten students enrolled [20]. The mother school at Omdurman remained the main midwifery training center.

An important issue that was very much entwined with the midwifery training enterprise was that of female circumcision. That was the second major hurdle that faced Mabel Wolff from the beginning. The practice of 'pharaonic circumcision', which the British authorities were keen to abolish, became a very sticky issue. The practice was deeply entrenched, and Miss Wolff's first recruits would go along with her, as they were the ones who performed the barbaric custom. The British Administration was set to 'overcome, combat and improve' this practice. Miss Wolff, therefore, adopted a tactic of advocating her students that 'if you do circumcision, you should do tahur alwasat'. (This is a form of infibulation where Miss Wolff advocated a reduced form of circumcision). However, despite that tactic, which had been criticized at the time and coupled with relentless efforts to try to curb the practice throughout the era of the British Administration in Sudan and beyond, the practice remained deeply entrenched in Sudanese society in general. It even remained prevalent into the Twenty-First Century.

One would like to pay tribute to several pioneering British and Sudanese women whose contribution to the foundation of midwifery training deserves to be known and their place in history to be engraved.

A word on the Wolff sisters: "They were women with exceptional personalities. They started by learning the Sudanese culture. They overcame the antagonism of the people and the authorities. They loved the Sudanese, and the Sudanese loved them'. [21]

A few names were mentioned earlier. Of these, we already mentioned Sitt Gindiya Salih (or Salah), who went on to be the first Sudanese Staff Midwife at the school in 1926 and remained there till her untimely death in 1936 from breast cancer. Miss Elaine Kendall, the last British Matron of MTS, wrote in her tribute:

> '…though Sitt Gindiya Salah was illiterate, she developed into a wonderful practical teacher. Her outstanding personality, integrity, and devotion to duty impressed all who came into contact with her, and she helped greatly in the spread of both midwifery and the nurses' work; in fact, the first medical students (of Kitchener School of Medicine) owe much to her help and influence in the early days when there was so much opposition and antagonism to be overcome before either doctors or medical students would attend any midwifery case. She certainly must take her place as the original Sudanese pioneer Staff Midwife of the Midwifery Training School of the Sudan'[7]. Paul Squires, one of the longer-serving British doctors in Sudan, wrote, 'She was illiterate but a wonderful teacher' [12].

Dr. Alexander Cruickshank, in his autobiography 'Itchy Feet', wrote, 'one of the students (he meant Gendiya) later 'turned up trumps' and became the first staff midwife at the MTS' [4].

The second one to be mentioned was Sitt Battul Mohamed Isa who belonged to a Ruffaa family and had had some education at the Girls' School established by Babiker Bedri. The story of her joining the MTS was an interesting one. Sitt Battul became impressed by the way 'Sitt Zeinab Mohamed al Nasri', one of the first traditional midwives to be trained at Omdurman, 1925 conducted deliveries of several women in Rufaa, including a sister of Battul. Battul was fascinated by her cleanliness, her 'Midwifery Box' and 'Kettle', and the competent way she did her job. Battul decided to join MTS, so she wrote a letter to Miss Wolff asking to be recruited. She received an affirmative reply delivered to her home via the district office, to her horror, 'by a policeman'. She was further excited when she shortly met Miss Wolff in person, who came to Rufaa accompanied by Sitt Gindiya Salah on a tour of inspection of midwives. She was recruited initially to be trained as a nurse at Omdurman Nurses School in 1926, and she worked as a theatre nurse till 1930. Initially, she was thought to be dull and difficult to train, but she persevered, and against the odds, she proved to be the best Sudanese Staff Midwife with the Wolff Sisters. She was taken as a Senior Staff Midwife in 1930 and helped to train scores of Sudanese midwives and nurses at the school. Miss Kendall wrote about her: *'She is the most remarkable Sudanese midwife'*. She went on to be Assistant Principal of the School in 1953.

Another of the generation of pioneering midwives one would like to mention is Sitt Hawa el-Basir who was among the later generation of nurse/midwives to be trained before Independence. Sitt Hawa el-Basir had the task of Sudanizing the post of the Principal Matron, and she also oversaw the task of taking the training of midwives and nurses in the post-independence era [22].

The school had set the platform for modern training of midwives in the Sudan and was the stimulus for scores of mini-MTS, which would soon open in the rest of the Sudan.

One would like to quote some remarks of earlier distinguished visitors from the UK who had inspected the school during the first few decades following its establishment. In 1936, Mr. JS Fairburn, President of the Royal College of Obstetrician and Gynaecologist (PRCOG) (1930-1936), Chairman of the Central Midwives Council for England & Wales, and Consultant to St. Thomas' Hospital, London, wrote: *'As a teacher, I feel very humbled by this School'*. In 1946, Sir Eardley Holland, another PRCOG, wrote: *'The work of this school and the influence that spreads from it, I feel, is more appealing than anything I know of in medicine'* [23].

After Independence, MTS at Omdurman and the spreading satellite mini-schools in various provinces continued to feed into the expanding national health service. The Sudanese, being keen and involved from the beginning of the program, carried on with confidence and energy, and in due course, priority was given to the full development of midwifery and child health services.

Over time, 17 branches of the MTS were opened in the provinces

In 1971, the 50th Anniversary of the MTS was celebrated. Miss Wolff was presented a special medal – the Order of Merit of the Republic of Sudan.

From the early days, the MTS played an important role in the training of medical students as well as doctors. The pioneering Sudanese obstetricians who continued to come through the ranks played a crucial role in ensuring the quality and high standards of the MTS graduates. Obstetricians in Khartoum, Omdurman and the provinces were the ones who chose and mentored the recruits of the various MT Schools. One would like to salute the memory of many of the earlier generations, including the late Dr. Al Kheir Alshafie, the late Dr Subhi el-Hakeem, and the late Dr. el-Tahir. Abdulrahman and Dr Adla Shashati, who had assisted in the training at the training at the Omdurman MTS.

The impact of such a visionary program of midwife training was huge over the decade. High coverage with obstetric services, especially in remote areas. Reduction in infant and maternal mortality due to pregnancy and labor. Maternal mortality, which was

as high as 3500/100000 in 1941, dropped down to 50/100000 by 1980. There was also a reduction in neonatal tetanus. Domiciliary care became the rule. Improvement of cleanliness standards in villages. Achievement of real community participation. Beyond doubt, it was the first program of its kind to provide primary care through part-time health workers in the Sudan. The village midwives training program has been described as the *"showpiece of Africa."* The program qualified the first barefoot doctors in the World. It also produced the first part-time health workers. Mr. Fairburn PRCOG (President of the Royal College of Obstetricians & Gynecologists) commented after visiting the MTS in 1936, *"Their School made me feel humble as a teacher."*

The full and detailed history of the training of midwives is still awaiting to be fully documented, and we hope that this article stirs a motion in that direction.

References

1. Wolff ME. Some notes on the Sudan. Sudan Archives of Durham 582/10/16.
2. Bell H. Frontiers of Medicine in the Anglo-Egyptian Sudan. Oxford University Press 1999;
3. Military Intelligence Report, Sudan Government 1908 & 1911.
4. Cruickshank A. Itchy Feet: a doctor's tale, London 1991.
5. Boddy J. Barbaric customs & colonial science: teaching the female body in the Anglo-Egyptian Sudan. In: Michael Lambek & Paul Antz; Illness & Irony on the Ambiguity of Suffering in Culture. Berghahn Books 2003.
6. Sudan Medical Department; Annual report 1922.
7. Kendall EM. A short history of the training of midwives in the Sudan. Sudan Notes & Records 1953;33:42-53.
8. Messinezy DA. Notes on the health personnel training program of the Anglo-Egyptian Sudan. Bull World Health Org 1949; 2:289-98.
9. Annual Report. Omdurman MTS, 1921
10. Annual Report, Omdurman MTS. 1932.
11. Wolff ME. Elementary Practical Lessons for Midwives. Sudan Archives of Durham, 581/5/7.
12. Squires HC. Sudan Medical Service: an experiment in social medicine. Heinmann; London:1958.
13. Sudan Medical Department. Annual report 1923.
14. Sudan Medical Services. Annual report 1925.
15. Sudan Medical Services. Annual report 1926.
16. Sudan Medical Service 1932 Report, p.105
17. Medical Services, Ministry of Health, 1949 Report, p.21
18. Elhadd, Tarik. The Evolution of Modern Medicine in the Anglo-Egyptian Sudan, (part VII, p.176)
19. Medical Services, Ministry of Health Annual Report, 1954/1955, p.22.
20. Elhadd, Tarik. The Evolution, op cit. p.179
21. Hassan Bella. Sudanese Barefoot Doctors: A Success Story That Amazed the World. Khartoum University Press, 2012 (In Arabic).
22. Elhadd, the Evolution, op cit. p.357
23. Elhadd, Tarik. Colonialism and Medical Experiences in the Sudan, 1504-1956. Africa World Press, New Jersey, 2020, p.225

Sayed Ahmed Muhammad Hashim Baghdadi's Legacy

Ahmed El Safi

Woodbridge, Virginia, USA, ahmadalsafi@gmail.com

Ahmed Muhammad Hashim Baghdadi (1875-1933), (figure 1) was born in Persia and raised in Baghdad.

According to Tigani Adam Hammad (Ahmed Bey Hashim Baghdadi. Vol.7. Al Hakeem Medical Students Journal, June 1969), Baghdadi came to Sudan as a poor single young man in 1900, among the first non-European civilians to arrive in Sudan after the reconquest. Baghdadi worked in antique trading, collecting a fortune to purchase real estate. He owned many residential plots, houses, agencies, and offices in Omdurman and Khartoum. As for the shop he used to work in, it became, in the late 1960s, a rented shop for the dress-maker (شبير قلة)[1].

Dr. Ali Bedri (the first batch of graduates) and Al-Hadi El Nagar (the fifth batch of graduates), who were close to Baghdadi, corroborated and indeed provided Tigni Adam Hammad with more important information. They noted that he led a lonely life but was loved by all who knew him. He was eager to study Persian poetry and often read some poems to his visitors; he spoke Arabic with a foreign accent but did not speak English. We were told that he married an Omdurman woman but had no children. He and his wife were separated when medical students knew him. Very little is known about his family. However, a cousin visited him for a short time. Some servants from Egypt and Baghdad lived with him in his home.

His real estate, which was included in The Baghdadi Trust (Waqf Al-Baghdadi) later, was in Khartoum and Omdurman, including a club, shops, houses, agencies, 33 leased stores in Khartoum Market, including Al-Halawani Building in Al-Gomhouria Street, Al-Fawal Building, west of the United Nations Square, the Bible Library Building in Central Station in Khartoum, and 14 plots in Omdurman Market. An accurate description of these assets is included in the Trust documents. However, it was revealed later that the plot of land on which KCH, South Block, also belonged to Baghdadi's real estate.

When the project to establish a medical school in Khartoum was declared to commemorate Lord Kitchener, who died of drowning with his ship during World War I in 1916, Baghdadi was the first contributor. By a deed dated September 25, 1917, "Baghdadi transferred certain lands and buildings in Khartoum and Omdurman to the Director of Education as a free and irrevocable gift." The "Declaration of Trust" was signed on September 27, 1917, in the presence of Wasy Sterry, the Legal Secretary. The Declaration signatories included John Winter Crowfoot, Director of Education, Lee Oliver Fitzmaurice Stack, Governor General, and Ahmed Mohamed Hashim Baghdadi, Settler.

The Director of Education, with the full consent and approval of the Governor General and Settler, determined to constitute out of the said gift trust to be called "the Syed Ahmed Mohamed Hashim Baghdadi Trust" for the benefit, maintenance, and tuition of students of the said School of Medicine of which the Governor General and Director of Education were the Trustees. Accordingly, Hashim Bey preserved only a life interest in the property for himself, and from this, he allotted a sum of £300 to the maintenance of the students when the school was established.

In this endowment, Baghdadi suspended all his properties in Omdurman and Khartoum to sustain and pay the tuition fees for poor and needy students from that school based on merit and eligibility without distinction based on color, race, or religion.

Ahmed Bey gave his parental care to the Kitchener School of Medicine (Faculty of Medicine, the University of Khartoum later), was keen on their comfort, generously honored them, and gave each student a pound every month to dress. He visited

(1)This article is extracted from Ahmed El Safi. Sudan Health, an annotated chronicle. Amazon, 2024.

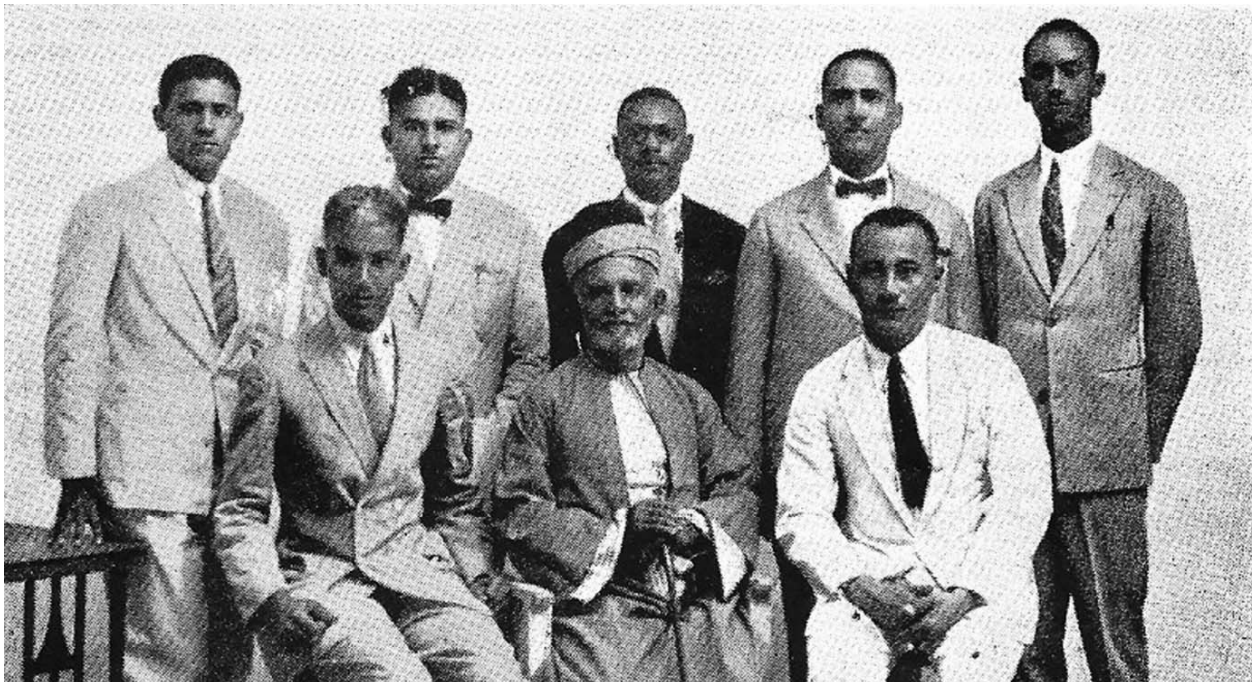


Figure 1. The first batch of students graduating from the Kitchener School of Medicine in 1928. Standing from left to right: Dr Tahir Yousif, Dr Ahmed Akasha, Dr Fadil Al Bushra, Dr Daoud Iskander, Dr Al Nour Shams Al Din. Sitting from left to right Dr Ali Badri, Hashim Bey Al Baghdadi, Dr Amin Al Sayed.

them in their dorms, inspecting their conditions, and they regularly visited him in his house without embarrassment or permission, as his house was close to the dorms. When the number of school students increased after its opening, he allocated to them his two-story house.

When the Kitchener School of Medical Board was formed, Baghdadi was one of its members and on the school executive committee. He was photographed sitting in the middle front row of all the commemorative photos taken for 1928, 1929, 1931, and 1932 graduates. Dr. Donald McDonald d replaced Baghdadi in the center of the sitting row in the commemorative photo of 1933, when Baghdadi died. Never before!

In his honor, King George V granted him the title (MBE), and the Egyptian government awarded him (the Nile Medal) and the title (Bey). In addition, the Faculty of Medicine, University of Khartoum, gave his name to one of its halls and the city of Khartoum, a street.

As for his endowment, it is still standing. It is managed by (the Endowment Headmaster) at the University of Khartoum, assisted by the Baghdadi Endowment Board of Trustees and the Investment Committee for the Endowment of Al-Baghdadi.

On the amalgamation of KSM into GMC and the formation of KUC, the school council and all its organs were dissolved except the Baghdadi Trust.

A tradition of keeping a visitor's book ready to be signed by KSM was available on the inauguration day. The first signatories were Sir Lee Stack and Hashim Bey Baghdadi.

In an article titled The visitors' book in the Khartoum Medical College, published in the Journal of the Royal College of Physicians of London (27, 1, January 1993), Professor A. W. Woodruff, professor of medicine, University of Juba, analyzed the entries and their importance starting form 1924 when KSM started. The first entry was Sir Lee Stack, Governor-General of Sudan, signed on February 29, 1924, when he oped KSM. He counted the signatures of 27 Royal College of Physicians of London fellows. After the second war, the number of visitors to

KSM increased significantly, including examiners, lecturers, and research workers. However, in recent years, the signatures in the book have been few as

successive governments have withdrawn aid and support for Sudan. For example, during 1932-1941 and 1942-51, there were 343 and 327 signatures, respectively, but in the years 1982-1991, only 97 were added.

Baghdadi hoped that he would die and be buried in Sudan. So, he prepared his grave in Farooq's Cemetery in Khartoum, ensured that his tomb resembled the Egyptian tombs, and visited it every year. He died in Khartoum at 2 or 3 pm on January 22, 1933. He died of double pneumonia and jaundice. These were fatal diseases, as antibiotics of all kinds were unknown.

From and after his death on January 23, 1933, all income and profit arising out of the said property accrued to the beneficiaries at the Kitchener School of Medicine. The settler directed that the income should be applied in the following manner:

a. One-third of the annual net income was to be allocated for keeping the property in good condition and repair so as to obtain the best possible rent and cover any other expenses.

b. Any sums remaining out of the said third were to be accumulated for the purchase of other property.

c. The remaining two-thirds were to be applied and paid for the benefit, maintenance, and tuition of such poor and deserving students as may be selected for the study of medicine in the Kitchener School of Medicine. The Trust was to be administered by the Administrator General (as he then was) on behalf of the Trustees.

In 1968, the University of Khartoum noticed that the income acccruing from such valuable property was too low and that the buildings of the property were in a bad state of repair in comparison with the neighboring property. The University then decided to demolish the existing buildings and build instead modern flats and office blocks in order to increase the income, and to free such property from the Rent Restriction Ordinance of 1953. The efforts exerted by the University succeeded in 1971 in obtaining the authority's approval:

a. To consider the Trust property as public buildings and consequently to exempt it from the Rent Restriction Ordinance of 1953.

b. To recognize the following as Trustees:
    a. The Vice-Chancellor
    b. The Dean of the Faculty of Medicine
    c. The Dean of the Faculty of Law

c. To administer the Trust through a University under a manner appointed by the trustees.

The University also went ahead with the preparation of all the documents necessary for the erection of modern commercial blocks and was probing the best way to develop these buildings.

Baghdadi was buried in the grave he built. Later, KSM graduates visited Baghdadi's grave and added a dome in the shape of the KSM building to honor his memory and as an act of gratitude.

Sudan Health in a Century: An Overview

Ahmed El Safi

Woodbridge, Virginia, USA, ahmadalsafi@gmail.com

- On February 29, 1924, the Kitchener School of Medicine was inaugurated.
- On March 11, 1949, KSM celebrated its Silver Jubilee and was addressed by Ali Bedri.
- On February 29, 1974, FOM celebrated its Golden Jubilee
- On February 29, 1999, FOM celebrated the Diamond Jubilee
- Today, on February 29, 2024, the Faculty of Medicine is celebrating the centennial Jubilee, unfortunately, on the wreckage of a hundred years or more of hard work.

In a recent book, we listed the progression of Sudan's health activities from its inception in 1898 to date. We enumerated the milestones of Sudan's research programs, discoveries, and health, legislation, bylaws, regulations, policies, plans, persons, events, and activities, and the contribution of philanthropy, healthcare financiers, missionaries, police, and medical corps. We recorded the epidemics, pandemics, endemic diseases, famines, and natural disasters that affected Sudan's health in recent history. We listed Sudan's healthcare pioneers and senior executive officers, specialties, hospitals, laboratories, dispensaries, societies, journals and bulletins, regulatory bodies, quarantines, training and research institutions, universities, schools, libraries, museums, and centers of excellence. Here is an extract of the contributions of Sudanese doctors, pharmacists, dentists, nurses, technicians, and scientists[1].

In 1896 (1306 AH), Sudan was hit hard by famine (مجاعة سنة ستة). Conditions in the country were so bad that people ate food of any and every kind: dogs, cats, rats, leather, and gum. Smallpox and measles epidemics played havoc among the vulnerable population.

In March 1896, Major General Horatio Herbert Kitchener's campaign to reconquer Sudan was started. He took Dongola, built the Wadi Halfa-Abu Hamad railway, and on September 4, 1898, crossed the Nile into Khartoum, hoisted British and Egyptian flags, and held a ceremony to honor General Gordon.

Butrus Pasha, Minister of Foreign Affairs of Egypt, and Lord Cromer, British High Commissioner, signed the Constitutional Charter of Sudan in 1899. This Charter provided the constitutional and legal basis and agreement for the Anglo-Egyptian Condominium that reigned, overruling Sudan for over fifty years. From that date onward, the British started their missionary job of understanding the newly conquered territory, civilizing the natives, building up a core of literate government clerks, and starting healthcare services.

Coincidentally or by ingenious design, Wellcome and Baghdadi visited Khartoum in 1900; Henry Solomon Wellcome, an American and naturalized British industrial philanthropist, pharmacist, chemist, and bacteriologist from the West, and Ahmed Mohamed Hashim Baghdadi, a single young man from the East.

On January 1, 1900, Mr. James Currie was appointed the first Principal of Gordon Memorial College even before the buildings were completed and formally inaugurated. By 1901, building up an administrative system for the Gordon Memorial College began within the newly-founded Department of Education.

On November 8, 1902, GMC buildings were inaugurated by Lord Kitchener as the first Condominium Western project. Though buildings were completed, it was not yet a university-level institution.

(1) This article is extracted from Ahmed El Safi. Sudan Health, an annotated chronicle. Amazon, 2024

In 1902, Henry Solomon Wellcome gave the government of Sudan a laboratory he called *Wellcome Tropical Research Laboratories in Khartoum*.

Andrew Balfour, the first director of WTRLK, and British scientists participated in that period with research that was not limited to tropical and endemic diseases as expected but included traditional medicine, public health, anthropology, geological surveys, soil chemistry, water and food, and various research in the plants and animals of Sudan, its insects, scorpions, and snakes.

When the project to establish a medical school in Khartoum was declared to commemorate Lord Kitchener, who died of drowning with his ship during World War I in 1916, Sayed Ahmed Mohamed Hashim Baghdadi was the first contributor.

By a deed dated September 25, 1917, "Baghdadi transferred certain lands and buildings in Khartoum and Omdurman to the Director of Education as a free and irrevocable gift." The "Declaration of Trust" was signed on September 27, 1917, in the presence of Wasy Sterry, the Legal Secretary. The Declaration signatories included John Winter Crowfoot, Director of Education, Lee Oliver Fitzmaurice Stack, Governor General, and Ahmed Mohamed Hashim Baghdadi, Settler.

In the first three decades of the twentieth century, Sudan knew no treatment for kala-azar, relapsing fever, bilharziasis, onchocerciasis, dysentery, typhoid, cerebrospinal meningitis, gonorrhea, and other killer diseases beyond elementary symptomatic treatment. Women knew only the traditional birth attendants who would assist them in childbirth and women's diseases.

Only traditional medicine and traditional variolation methods were available to help people in the face of epidemic and endemic diseases. Public health measures and means of environmental sanitation and hygiene were elementary.

Effective drugs were few. Dr. Herbert Squires, who arrived in 1908, successfully used pellets of emetine hydrochloride drug to treat amebiasis in Port Sudan for the first time, and Dr. Christopherson treated bilharzia using tartar emetic in 1917. Prontosil was not used successfully before 1937 to treat gonorrhea and other diseases. Quinine was available for treating malaria and was being tried in intramuscular and intravenous routes. Also, Arsenic preparations were used for the treatment of syphilis. Calomel and Magnesium sulfate were used as laxatives. Silver nitrate was used to treat trachoma. Cupping, scarring, blood-letting, and purgation were rife. The limited available technology and basic sciences restricted surgical practice.

The Medical Department (MD) was founded in 1904, ending the military domination of the medical services in Northern Sudan. The Sudan Medical Service (SMS) replaced the MD in 1924. SMS took over 19 hospitals and 55 dispensaries (شفخانة) run by 16 British doctors, 30 Syrian doctors, and 30 medical assistants.

Governor General Sir Lee Stack inaugurated the Kitchener School of Medicine on February 29, 1924. The intake was from the best Gordon Memorial College secondary school graduates. Notably, GMC started as an elementary school in 1902 and eventually became a secondary school. Khartoum Civil Hospital (established in 1909) was the primary teaching hospital.

KSM was the first professional school to emerge from the GMC, the first medical school in Sudan, the second with a comprehensive syllabus in North Africa, and the third in Africa. The first was Qasr Al Eini in Egypt, founded by Mohamed Ali Pasha and opened in 1825.

The objectives of KSM were:

1. To build up a cadre of Sudanese doctors in a particularly favorable position to combat the epidemic and endemic diseases that were wasting and debilitating the country's population and preventing its natural increase.

2. To allow educated Sudanese to take part in the development of their country.

3. To provide postgraduate courses for doctors trained at the school and provide particular study and research opportunities.

Before the First World War (1914-1918), Sudan depended entirely on expatriate staff to deliver healthcare. The Medical Department had been sufficiently developed, yet remote areas were still under military personnel. Junior staff, such as nurses and dispensers, were in-house trained orderlies. The war conditions and the start of major development schemes like the Gezira Irrigation Scheme made it clear that Sudanese workforce training was necessary.

After World War 1, the training of Medical Assistants started in 1918, Domiciliary Midwives in 1921, Laboratory Assistants and Auxiliary Nurses in 1925, Public Health Officers and Sanitary Overseers in 1931, Radiographers in 1933, and Dispensers in 1936. In 1946, courses to upgrade Staff Midwives, Health Visitors, and Nursing instructors were developed. In 1953, Laboratory Technicians and Ophthalmic Assistants training started. In 1956, Nursing Sisters training started; Dental Assistants in 1960; Anesthesia Assistants in 1963; and Statistical Clerks in 1967.

Seven Sudanese doctors graduated from KSM in 1928 with a Diploma from the Kitchener School of Medicine (D. K. S. M.) (دبلوم الباطنية والجراحة والتوليد). It is to be noted that the school did not admit new students in 1926, 1937, 1941, 1945, and 1947. Consequently, no students graduated in 1930, 1938, 1941, 1942, 1944, 1947, 1949, 1951, 1955, and 1962.

All graduates were appointed immediately in SMS as house officers on the Group 6 salary scale with a monthly pay of 168 Sudanese pounds.

Ali Bedri, who graduated in 1928, graduate) performed the first surgical operation in Khartoum Civil Hospital on May 3, 1928. The operation was an excision of Madura in a fourteen-year-old patient done under chloroform.

In 1924, Sir Lee Stack, the Governor of Sudan, was assassinated in Cairo. As a result of this incident, the British evacuated Sudan from all Egyptian forces and replaced the Sudanese forces with British and Syrian doctors. In 1928, Stack Laboratories buildings were completed and inaugurated to memorialize Sir Li Stack for the Egyptian government's funds in compensation for the assassination. The building was almost a mirror image of the KSM dome designed by Mr. Gordon Brock Bridgman (1884–1971), the Government Architect of the Public Works Department.

From 1927 to 1935, the laboratories formed the bacteriological unit of the Wellcome laboratories. The Laboratories were direct off-shoots of Wellcome Tropical Research Laboratories.

In 1935, the laboratories became the center of medical research in Sudan and an integral part of the SMS. The SMS research section consisted of the Stack Laboratories, the Wellcome Chemical Laboratories, and the Medical Entomology section at Wad Medani.

KSM started under the auspices of SMS with four years of training, extended to 5 years in 1934 and six in 1939. Dr. Normal F. Smith was the first registrar. (The registrar post was renamed Dean in 1943). The school faculty comprises government employees from SMS and Wellcome Tropical Research Laboratories in Khartoum.

KSM maintained links with the Royal College of Physicians, contributing to several lecturers, assessors, and external examiners.

Teaching in KSM in the first years was undertaken by government employees. WTRL staff taught subjects in the first year. The Senior Physician and Senior Surgeon posts were created, and beds in KCH were divided between them. The Senior Physician taught the medical specialties, including skin and mental diseases, obstetrics, and gynecology. The Senior Surgeon taught Eye.

On the eve of independence, KSM provided 146 graduates, of whom Ali Bedri was appointed Minister of Health of the newly emerging Ministry

of Health before independence (1948-1953). He was succeeded by Mohamed Amin El-Sayid (1953-1958) as the first Minister of Health in the independent Sudan. Dr. Ahmed Ali Zaki was the first Director (Under Secretary). Abdalla Omer Abu Shamma, Ali Mohamed Kheir, and Hassan El Hakim held the first principal posts in the Ministry of Health. Herbert Squires described these four officers as men of enthusiasm, vision, and foresight.

In 1944, experimental use of Pentostam was initially conducted. This drug later proved to be the ultimate cure for leishmaniasis.

In 1952, the first two women, Zarwi Fahan Sirkisian and Khalda Zahir Surur El Sadati, graduated from KSM.

In 1956, Yusuf Osman Abu Akar was appointed the first founding Commander of the Sudan Medical Corps. The Sudan Medical Association was established in 1949, and the Sudan Medical Journal in 1953.

Over a hundred years, over twenty-nine pieces of legislation have been enacted to regulate healthcare practices in Sudan. About ten acts are directly related to medicine and health, and nineteen are closely related to health and impact it in specific ways.

KSM and Faculty of Medicine graduates (and later graduates of foreign universities, namely Egypt, Iraq, Lebanon, and Eastern Europe) successfully Sudanized the service, built a robust Sudan's healthcare services, regulatory bodies, Medical Corps and police medical services, educational, research and training institutions, and specialized centers.

El-Sayyid Daoud Hassan, Senior Pathologist and Director of Laboratories, MOH, and Ahmed Mohamed El Hassan established the Sudan Cancer Registry (CR) in 1966 in the NHL to register laboratory-confirmed cancers. The CR provided information that elucidates the incidence rate of the different types of cancer in the country, site, and trend. It would also highlight how the demographic variables of age and sex are related to incidence. The results have helpful guidelines for active control measures, epidemiologic studies, and research. The CR survived for 20 years before it vanished.

In July 1964, the Faculty of Pharmacy, University of Khartoum, was inaugurated as the first faculty of pharmacy in Sudan. Patrik D'Arcy was the first founding Dean.

In addition to FMOH, other federal agencies are involved in healthcare delivery, notably the Armed Forces, which operate about 51 hospitals with nearly 2,700 beds, 69 primary healthcare centers, and three diagnostic centers. The Ministry of Interior, which has 25 hospitals and a health insurance program that reimburses government health facilities, also operates about 148 facilities. In 1971, the first dental school was established in the Faculty of Medicine, University of Khartoum, and a full-fledged faculty in 1972.

The National Medical Supplies Fund (NMSF) succeeded the Central Medical Stores (CMS) and Central Medical Supplies Public Corporation (CMS) in 2015, with branches in several States. Until the mid-1960s, CMS imported and supplied about 85% of the country's requirement of drugs and dressings and practically all laboratory supplies and medical equipment; all were provided free of charge to public hospitals and PHC units nationwide.

Eventually, the CMS operated on a cash-and-carry basis, meaning the States must buy medicines and organize their transport, storage, and distribution. In addition, all hospitals, as financially autonomous entities, are responsible for their drug procurement system. At the PHC level, health workers often have to rely on "self-help" kits, privately bought.

KSM/FOM graduates formed all regulatory bodies. The Sudan Medical Council ordinance was issued in 1955 and operated in 1968. Directorates for every specialty and ethical committee were formed. The Sudan Medical Specialization Board trains future specialists and was formed in 1995 currently, with 9,000+ registrars in 57+ specialties.

The National Medicines and Poisons Board (NMPB) is Sudan's pharmaceutical regulatory authority. The NMPB's executive arm is the National General Directorate of Pharmacy (NGDOP). The NGDOP regulates four aspects of medicines use: quality, safety, price, and efficacy.

The National Medical and Health Professions Council was established in 2005 as the counterpart regulatory body to the Sudan Medical Council, responsible for all workers other than doctors, dentists, and pharmacists.

In 1969, the Ethics of Medical Professions Act was developed. In 1979, a committee for health research ethics was formed in the National Health Laboratories. In 1980, a Research Ethics Committee was established in the Faculty of Medicine, UOK.

As early as the late 1950s, Prof. Abdel Hamid Ibrahim raised the alarm about the wide use of toxic insecticides on cotton in the Gezira Scheme and other public and private schemes without knowing the health hazards of their residues.

A new section for analysis of pesticide residues in food, water, and the human environment was established, and three analysts obtained their MSc and training in pesticide residue analysis. Moreover, for the first time, radioactive tracer techniques were used to follow the presence and movement of DDT (introduced in 1947) used on the cotton plant, on the cottonseed, in the oil extracted from the seed, and in the remaining cake, which food-producing animals consume, and that is before it was abandoned in 1949.

Until the 1970s, there was very little legislation for the regulatory control of foods. The Wellcome Chemical Laboratory/NCL was to test and report on food samples submitted by public health inspectors working for the local government councils. Testing and certifying drinking water for fitness for human consumption and other uses relied until the 1960s on trained technicians to do the routine analysis. By the end of the 1970s, seven scientists had received postgraduate degrees and training in water analysis.

At SMS or MOH headquarters, pharmaceutical services, like all clinical services, were under the Assistant Director of Hospitals (later Directorate, then Directorate General of Curative Medicine). In 1967, the Senior Pharmacist Omer Gabbani was transferred to MOH - HQ to oversee the new Pharmacy Section in the Directorate of Curative Medicine to be in charge of drug regulatory activities and implement the Pharmacy and Poisons Act, the administration of the national MOH pharmaceutical services. In the same year, 1967, for the first time, a pharmacist (Salih Suleiman Eisa) was transferred to the Central Medical Stores to fill the post of Superintendent of Medicines previously filled by dispenser Hassan Bushara.

From 1957 to 1969, several steps were taken to plan for national development in medical services in curative and preventive services, and much attention was paid to upgrading and providing laboratory services.

The Blue Nile Health Project (BNHP) was started in 1979 and became operational in 1980, and was directed by Ahmed Ayoub El-Gaddal with the help of Mutamad Ahmed Amin and others. BNHP reduced bilharzia infection in the population from 80% to 6% through various preventive measures. And increasing workers' productivity and reducing absenteeism from work. Other diseases included in the project were malaria and diarrhoeal diseases. Later on, in basic research, Sudanese scientists collaborated with French researchers to elucidate the genetics of humans' susceptibility to Summer's fibrosis (liver fibrosis), a significant cause of death in those infected with *S. mansoni*.

In 1993, the Institute of Endemic Diseases (IED) University of Khartoum was founded and located within the FOM/UOK, ushering in a series of centers of excellence in Sudan. In 1991, the Mycetoma Research Centre was established at the Soba University Hospital, University of Khartoum.

Jabir Abu Alizz Diabetic Center was the first specialized governmental diabetes health center in Sudan. It was established in August 1998 in Khartoum

State. The Sudan Childhood Diabetes Center was inaugurated in 2019 to be the largest of its kind in Africa.

The National Health Sector Strategic Plan 2012–2016 aims to improve the population's health status, impoverished, underserved, and vulnerable groups.

The Federal Ministry of Health has formulated 22 health system policies, including a national health policy (2007). In addition, the Federal Ministry of Health has developed a monitoring and evaluation framework (2011) and strategy (2014) to ensure accountability.

The "one plan, one budget, one report" approach is being adopted for the health sector, and one strategic plan was developed for 2015 at the federal level and in three states. Training occurs at state and federal levels to support a 2016 project and the third strategic plan (2017–2021). A policy and planning forum involving non-health sectors has been created to support health integration into all policies. Policy dialogue is continuing on universal coverage and health system reform.

More hospitals, laboratories, and clinics were built, and in 1976, MOH laid down the foundation for a Primary Health Care network before being suggested in the Alma Ata Declaration in 1978.

A primary healthcare expansion plan (2012–2016) has been developed to extend quality healthcare services to the whole population. The main aim is to improve access to essential primary healthcare services.

Extensive expansion began in both staff and building numbers. From one or two hospitals in each province in the wake of the formation of the SMS, a gradual process of establishing new hospitals was coupled with the building of chains of dispensaries.

The routine health information system is based on quarterly and annual reports from health facilities and daily and weekly communicable diseases surveillance reporting, with data published annually in a health statistics report.

Health services are provided through different partners, including Federal and State Ministries of Health, the Armed Forces, the police, universities, the private sector (both for-profit and philanthropic), and civil society. However, those partners perform in isolation due to ill-defined managerial systems for coordination and guidance.

The private, for-profit, charity, and trust sectors played an increasing role in health service provision, especially in cities, towns, and better-off rural areas. Private sector providers focused on curative services, research, and general-purpose grants. In Sudan (2006 report), 172 private hospitals and medical centers, out of 119, are located in Khartoum. Khartoum's share of private clinics equals 1,558 1243 beds, 739 specialists' clinics, 539 GP clinics, 288 dental clinics, 799 private laboratories, 30 X-ray units, 17 physiotherapy clinics, 195 public pharmacies, 1220 private pharmacies, 1012 veterinary drug stores.

NGOs also play an essential role in filling gaps in government system coverage and serving populations that are unattractive markets for private providers, such as IDPs. In Khartoum, for example, the number of NGO health centers (114) is comparable to that of government centers (136). International NGOs also implement a small number of health programs.

The "Sudanese medical community," the concrete, self-conscious scientific community distinct from other professional organizations, has been in the making for almost a century. This community must be strong, unified, and embrace a national strategic vision. Unfortunately, we believe it lacked identity. As a result, it is currently weak in education, training, research, and service delivery. This community's determinants are the level and type of scientific research conducted, the quality of the teaching and training system developed, and the coherence, interdependence, and stability of the healthcare delivery system it established and maintained.

Healthcare delivery and clinical practice are far from satisfactory. The scientific research that rose

to a high degree of excellence in the first seventy years of the twentieth century has declined steadily in quality and worth. The scientific publications, the leading indicator of intellectual productivity, lacked collective vision. Medical journals do not herald a better world, introduce valid theories, or launch new advances. Apart from a few modest textbooks, the absence of published social, cultural, and academic works in the entire field in a hundred years is notable and indicates how culturally sterile the area was.

Indeed, there are many gaps between generations other than those related to patients: a gap between doctors and patients; a gap between biological medicine and the humanities; a gap between the practice of medicine and Sudan's social history throughout the ages; a gap between the school and the community around; a gap between evidence-based medicine and traditional, alternative and complementary medicines, and a gap between biological medicine and its scientific roots and historical currents. All these gaps need bridging, and the apprenticeship tradition, the hallmark of medical teaching and training in the recent past, has suffered badly due to many social and economic factors.

As a result, hundreds of resourceful medical scholars were forced into exile or unnecessarily alienated in the last three or four decades. The time-honored Sudanese medical system is on the brink of collapse due to a shortage of experienced leaders, educators, and trainers. We must put much effort into bridging those gaps, preventing imminent dangers, breaking barriers, and reaching those difficult to reach.

The war that raged on April 15, 2023, destroyed the country's infrastructure, almost all significant buildings, facilities, and factories. More than a hundred universities and higher education and academic institutions, almost all primary and secondary schools, were thrown out of function, and a generation was deprived of education. Life and livelihood were suspended wholly or partially.

Over six million Sudanese, namely professionals, were dispersed between displacement, emigration, and forced deportation between the cities and regions of Sudan, neighboring countries, and the rest of the world. Over 2,000 Sudanese were killed in the first four months; the rest suffered from poverty, unemployment, hunger, disease, frustration, and despair. Hundreds of refugees are under dismal conditions at the Chadian and Egyptian-Sudanese borders. War is playing havoc, causing extensive damage, loss of lives, and endangered knowledge and material culture repositories.

Sudan is in ruins; the infrastructure was shattered, and the economy was devastated. We passed the crisis stage and disaster. We are facing imminent collapse. If this is not the case, we assume it is and work accordingly. Nothing less than a comprehensive recovery is needed to restore the economic infrastructure and rehabilitate and rebuild the country.

Hunger is rife, the forthcoming harvest season is not promising, and famine is imminent. The rainy season is starting, and the anopheles mosquitoes, cholera, and yellow and dengue fevers are reinstated.

In Sudan, this is a time of distress and disaster; Equally, it is a time of great opportunity. Sudan continues to occupy a strategic position in Africa. Its resources are still in the hands of its people, and the country is undoubtedly the world's food basket and a store of enviable resources.

The dilemma we are in now, the more difficult it is, the more getting out of it makes us stronger. This message is based on well-informed optimism and hope, and amidst this chaos, this message pleads for galvanizing Sudanese scholars to prepare for the future.

Realizing any vision is not possible unless we come together on an ambitious integrated program that enables the country to restore what was destroyed by war, armed civil conflicts, and misguided governments and plan for the future.

Organizing and getting along with each other is a

collective work. Intensive effort must support our ability to theorize politically and analyze events, expose mistakes, identify weaknesses, stop the chaos, and devise new ways to break the prevailing bitter reality.

The experts among the 48 million should continue the efforts to stop the war. The rest should concentrate on recovery, rehabilitation, reconstruction, and development.

Attaining and protecting fundamental human rights and liberties requires sweeping reforms in governance, creating effective institutions, attaining significant capacity building at all levels of government, and achieving democratic transformation and sustaining democracy.

This message contributes to the dialogue in nation-building and capacity-building for democracy in Sudan.

We, on behalf of the medical professions at large, pay tribute to all healthcare providers who set new traditions and models of admirable behavior, who taught, trained, and mentored, and, more importantly, provided guidance and encouragement to several generations of young and aspiring healthcare providers. They were, without exception, meticulous clinicians, arduous teachers, imaginative trainers, and hard-working researchers; those who maintained unimpeachable professional integrity upheld strict medical ethics, and consolidated sound medical traditions in rich service careers.

A special tribute is paid to medical doctors, dentists, and pharmacists who have established new institutions, introduced new specialties, founded new disciplines, researched the field, or made discoveries and techniques, the rank and file technicians, nurses, midwives, and support auxiliary personnel.

Serious minds take everything in life seriously, hobbies included. They see leisurely activities as a source of enjoyment, fun, and a target of excellence; they excel in them to the extent that these amateurish endeavors turned out to be, in time, second specializations and careers for many. We applaud the poets among us, the musicians, playwrights, writers, athletes,

Medical doctors, wherever they worked, have always been recognized as respectable figures in their communities and were entrusted with the leadership of their social and community institutions, politicians, social leaders, and administrators.

More importantly, we pay tribute to the scientists, zoologists, botanists, sociologists, anthropologists, folklorists, veterinarians and agriculturists, and all scientists who taught doctors and shared in scientific research.

Postscript

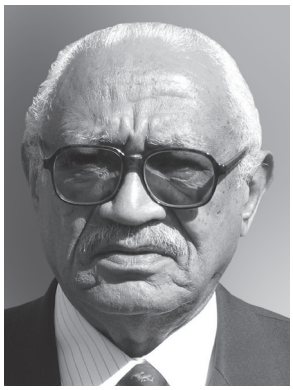
While finishing editing the drafts of the centennial issue of KMJ, Professor Salah Ahmed Ibrahim, the Editor-in-Chief, passed away on 28 February 2024 in the Military Corps Hospital. His sudden tragic death in the crossfire of this war was a shock to his friends, colleagues, students, and patients and to the faculty he faithfully served. His contributions to pediatrics and neonatology remain assets to this country.

We who have been close to him worked with him, and enjoyed his warm friendship shall always miss him. Our heartfelt condolences go to his family.

This journal is a reminder of his dedication.

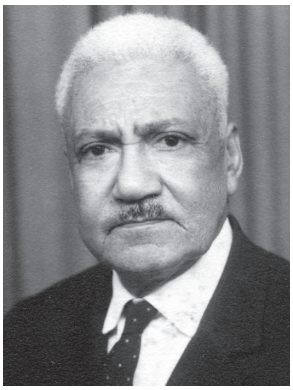
May his soul rest in peace. Amen.

Random List of Senior Doctors



Ahmed Mohamed El Hassan
(1930-2022)

Ali Bedri
(1903-1987)



Hussain Ahmed Hussain
(1904-1987)

Abdalla Omer Abu Shamma
(born 1908)

El Tigani El Mahi
(1911-1970): First Psychiatrist

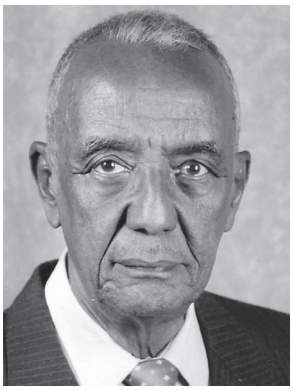
Mansour Ali Haseeb
(1910-1973): First Bacteriologist

Mohamed Hamad Satti
(1913-2005): First Pathologist

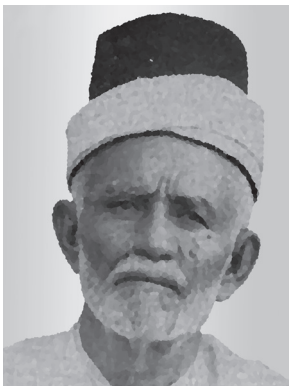
Mohamed Ahmed Hassan
(born 1931)

Abdel Halim Mohamed
(1910-2009): Firs Physician.

Abdel Hamid Bayoumi
(1911-2004): First Surgeon



Abdel Hamid Ibrahim
(1929-2015): First Chemist



Ahmed Mohamed Hashim
(1875-1933): First Philanthropist

Instructions to Authors

Authors are advised to read these instructions carefully. Adhering to the format of the journal guidelines will facilitate and limit the time needed for the processing of the paper.

Types of papers

Please specify the type of paper submitted for publication. The journal accepts the following categories: original articles, short communications, case reports, review articles, letter to the editor, medical news and quiz cases relevant to medical education.

Covering letters

1. Should specify the type of paper according to the first paragraph of this document.
2. If the authors wish, they can include in the covering letter information on related publications.
3. All authors should sign the covering letter.
4. Address all correspondence to:-

   The Editor, Khartoum Medical Journal, P.O.Box 102, Khartoum, Sudan.

   E.mail:kmj @meduofk.net

   E-mail:khartoummedicalj@gmail.com

Copyright

Submission of original articles for publication is an undertaking by the author/s that:-

1. The manuscript is not under consideration for publication elsewhere.
2. The manuscript is original, truthful and free of fabrication, fraud or plagiarism.
3. All authors have read the manuscript, agree to its contents and share in the responsibility of its publication.
4. All authors have made a substantial contribution to the work submitted e.g. conception and design, experimental work or clinical studies, analysis and interpretation of data, drafting and critical editing. Contributions such as obtaining material or other support does not justify authorship.
5. All funding and support for the work should be acknowledged.
6. Any part of the manuscript not owned by the authors requires that permission should be obtained by the authors from the owner of the copy right.
7. All papers published by the journal will be KMJ copyright.
8. Please also supply information or related papers in press or submitted for publication elsewhere.

The manuscript

1. Use of English Language according to Oxford English Dictionary style.
2. Formatting the manuscript: should be typed, double spaced, with margins not less than 3 cm.
3. The title should not be more than 100 characters and spaces.
4. The abstract should not be more than 250 words presented as follows: objectives or background – about 50 words, methods about 60 words, results about 60 words and conclusion about 60 words.
5. System of international units should be used. Equivalents may be given in parenthesis. Symbol and abbreviations: A Guide for Biological and Medical Editors and Authors, 5th Edition, 'London, Royal Society of Medicine Press 1999'.
6. Tables should be on separate pages.
7. Legends for tables and figures should be submitted separately.
8. Please supply two hard copies of manuscript, tables and figures as well as a digital copy which may be sent through the e-mail.

Illustrations

1. Illustrations should be kept to the minimum. Illustrations in color are acceptable; however, an extra charge may be required to be paid by authors.
2. Care should be taken that illustrative material may have to be reduced in size to fit pages or columns. It is recommended that the size of figures to be about 12.5x20 cm.
3. All illustrations should be numbered on the reverse side and the tope of the figure indicated.

4. Graphics should be clear, camera-ready and all symbols explanations included on the figure or in the legend.
5. Permission to reproduce illustrations or tables should be obtained by the authors and submitted with the manuscript.

Statistical analysis

1. Statistical methods used should be clearly identified and if necessary described.
2. Means and standard errors of the mean and P values should be given to two decimal places.

References

1. Please use the Vancouver Style as shown below.
2. References should be listed numerically by order of their appearance in the text.

The Vancouver Style of Reference Formatting

With the growth of medical knowledge and research, it had become necessary that the formatting of reference citation both within the text of scientific writing and in reference lists should be widely agreed. The first steps to establish a uniform system for formatting manuscripts and references were begun by the Conference of Biological Editors in 1960. The International Committee of Medical Journal Editors (CMJE) held a meeting in Canada in 1979 to launch a uniform style of reference formatting for medical journals and proposed the Vancouver Style. Since then the major medical journals have adopted the 'Uniform requirements for manuscripts submitted to biomedical journals'[1], a common style for presentation of papers for publication.

- The justification of an internationally accepted style of reference citation can be summarized as follows:-
- Correct and complete referencing of scientific and medical publications is an essential component of the 'scientific method' when recording the outcome of research.
- To facilitate formatting scientific papers for more efficient peer reviews and publications.
- An unambiguous system of referencing allows other researchers and reviewers of manuscripts to access the cited literature to validate claims and arguments.
- To successfully secure research funding, the research proposal including the existing literature on which it is based should be convincing and easily accessed by reviewers.
- Uniform and complete citation formats facilitates quotation and reference compilation for researchers and postgraduate students.

The following is a summary to supplement the Instructions to Authors for referencing of manuscripts submitted to KMJ. It is based on the Vancouver Style and is the preferred referencing format for writing of dissertations, theses and other referenced writing in the Faculty of Medicine, University of Khartoum:-

1. References should be numbered consecutively throughout the text in the order in which they appear.
2. No references should be included in the abstract.
3. Identify references in the text, tables and legends by numerals in parenthesis e.g. (1), (2,3) or (3-6).
4. When citing authors in the text, acknowledge only the first author where there are three or more authors, e.g. Smith et al (1998) stated that ….(1).
5. Where there are two authors cite both, e.g. Adam and Ehsan (2003) reported that ….(2). Note that numerals in parenthesis at the end of a sentence are written before the full stop.
6. The list of references should begin on a new page and given the numbers which indicate order of citation.
7. All authors should appear in the list of references i.e. all references are listed in full.
8. Where more than 6 authors are registered, write the first 3 authors followed by et al.
9. The order of author/s initials, punctuation, title of article, year, journal title – in accepted abbreviated form, volume and page numbers, constitute a full reference citation. The following are examples of commonly used reference sources:

Reference in journals

General format including punctuation,
Author/s, title of article, title of journal (in italics with no full stops), year; volume number: page numbers.

e.g. Rose ME, Huerbin MB, Melick J, John JK, et al. Regulation of interstitial excitatory amino acid concentrations after cortical contusion injury. Brain Res 2002; 935: 40-6.

References in books

Author(s) of a book

General format including punctuation.

Author(s) Title: sub-title. Edition. Place of publication: Publisher; Year

e.g. Guyton AC, Hall JE. Textbook of Medical Physiology. 10th Ed. Philadelphia: Saunders; 1990.

Author(s) of a chapter in a book

General format including punctuation

Author(s) of the chapter. Title: sub-title of chapter. In: Author(s) (or editors) of the book. Title: sub-title of book. Place of publication: Publisher; Year; page numbers.

Elmunshid HA. Special senses. In: Sukkar MY, Elmunshid HA, Ardawi MS, editors. Concise Human Physiology 2nd Edn. Oxford: Blackwell Science; 2000.p.401-23.

Reference on-line

Example (from The Michener Institute for Applied Health Sciences, Learning Resource Centre: Irc@ michenere.ca).

Book on the Internet

Foley KM, Gelband H, editors. Improving palliative care for cancer [monograph on the Internet]. Washington: National Academy Press; 2001 [cited 2002 Jul 9]. Available from: http://www.nap.edu/books/o309074029/html/.

Internet homepage/website

Cancer-Pain.org [homepage on the Internet]. New York: Association of Cancer Online Resources, Inc.; c2000-01 [updated 2002 May 16; cited 2002 Jul 9]. Available from: http://www.cancer-pain.org.

For a fuller range of examples of citation from other sources of references, there are innumerable sites on the internet. Please also consult the publications cited in KMJ instructions to authors and the references cited below:-

1. Uniform requirements for manuscripts submitted to biomedical journals: writing and editing for biomedical publication [home-page on the Internet]. Philadelphia, PA: International Committee of Medical Journal Editors; [updated 2003 Nov; cited 2004 Oct 9]. Available from: http://www.icmje.org/.
2. Style manual for authors, editors and printers. 6th Ed. Milton, Qld: John Wiley & Sons; 2002.

Volum 17 Number 01 Supplement, 29 February 2024

Contents