



Newsletter

Sudanese National Academy of Sciences

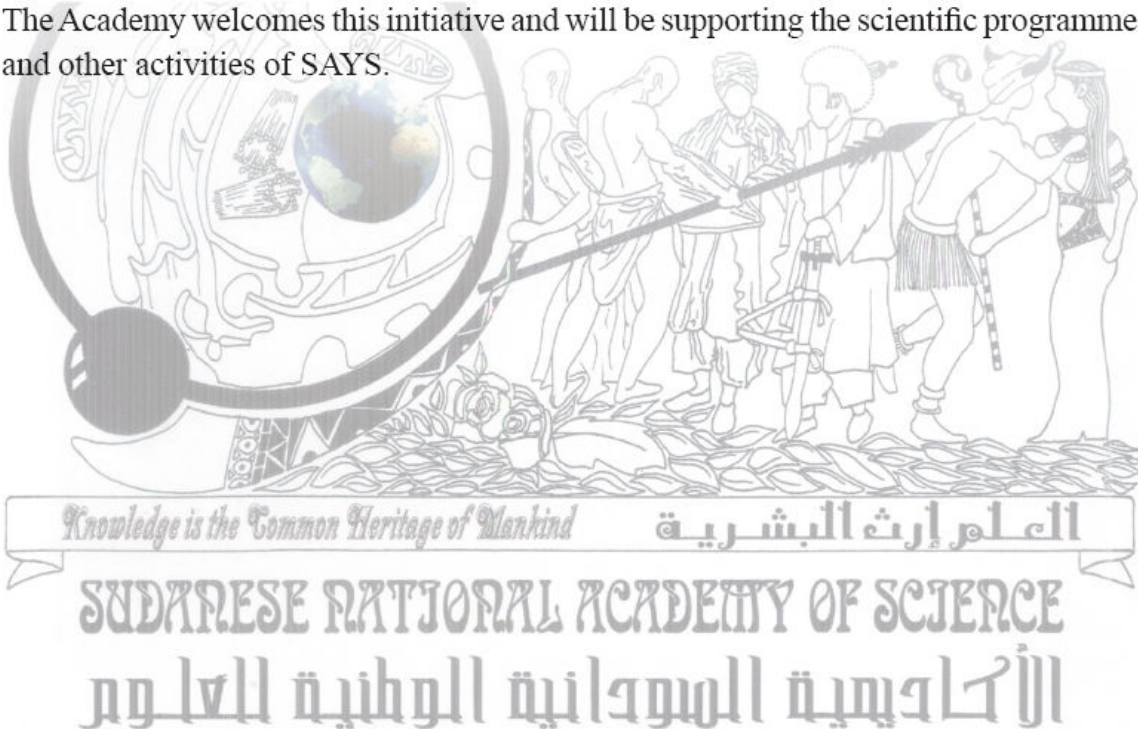
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Letter from the president - Prof. A M EL Hassan - President of SNAS

Young scientists contribute to the activities of SNAS.

An important function of academies of sciences is to encourage and help young scientists who will be the future fellows and members of these academies and on whose shoulders rests the future of research in any country. Recently young researchers in Sudan have organized themselves in the Sudanese Academy of Young Scientists (SAYS) linked to the Sudanese National Academy of Sciences. The aim of the Academy is to bring together young researchers from different disciplines and backgrounds in a forum that addresses issues of interest to research in the country with particular reference to the needs and aspirations of the young researcher. In linking it to SNAS, the Academy provides an opportunity for young researchers to interact with senior scientists in SNAS and benefit from their experience.

SAYS has already proven itself in supporting the activities of SNAS. They helped in establishing SNAS office and in organizing the scientific activities that were launched by a series of public lectures, delivered by senior fellows of SNAS. Members of SAYS are also helping the secretariat in the day-to-day administrative tasks of the academy. The Academy welcomes this initiative and will be supporting the scientific programmes and other activities of SAYS.



NEWS:

- The following five public lectures were given by SNAS members:

25/2/07 The Enigma of the Meroetic Language

Prof. Abdel-Gader Mahmoud

5/3/07 Music and Medicine

Prof. Ahmed Mohamed Elhassan

10/3/07 Human Body in the Space

Prof. Abdel-Malik M. A.Rahman

18/3/07 E-Learning

Prof. Ahmed Hassan Fahal

25/3/07 Gongoli Canal

Prof. Assim Elmagrabi

Abstracts four of the lectures are given on page 9-14 of this issue. SNAS is grateful to Prof. M A Elshiekh, Vice Chancellor of the University of Khartoum for making the Sharga Lecture hall available for the lectures free of charge.

• International Conference on Women Leaders in Science, Technology & Engineering: 8 – 10 January, 2007, Kuwait City. Scientific sessions were held at the Arab Organizations Head Quarter, Kuwait.

The conference was organized and sponsored by:

- Kuwait Institute for Scientific Research (KISR)
- Kuwait Foundation for the Advancement of Science (KFAS)
- The United States Department of State
- Arab Fund for Economic & Social Development (AFESD)
- The American Association for the Advancement of Science (AAAS).

Women leaders from the Middle East and North Africa as well as from the US came to build and strengthen networks among women scientists and engineers, and create and develop their capacities to serve as leaders and innovators, as well as mentors to younger girls.

- Prof. Suad M. Sulaiman (Ph.D. Parasitology) from the Sudanese Environment Conservation Society and member of SNAS Council and Dr. Manar El Sheikh Abd el Rahman (Ph. D. Biostatistics) from the Faculty of mathematics, University of Khartoum, were invited to the conference. Both participants who are very active in their fields of specialization and interacted with the other women participants. Many future plans of collaboration were discussed during the conference.

<http://www.kisr.edu.kw/webpages/women-leaders/index.html>

<http://www.aaas.org/news/releases/2007/0201kuwait.shtml>

- Prof. Suad M. Sulaiman has recently been appointed Academic secretary to the newly established Nile College.

- By an invitation from the Royal society, Professor A. M. Elhassan the President of the Academy and Professor M. E Ibrahim, general secretary participated in a joint meeting of the African Academies with the Royal Society of Great Britain. The meeting was organized by the Royal Society, TWAS, and The African Academy of science. The meeting had several activities including a visit to the parliament. Presentation by leading UK scientist on topics of interest and finally Academy members had the opportunity to attend the ceremony of the award of the Pfizer prize, a new award by RS and Pfizer intended for young African Scientists working in Africa and who have distinguish themselves early in their career.

ON THE JONGLEI CANAL

Effective water resources management, in many parts of Africa, is critical for alleviating poverty and enhancing: Human Health, food Security, environmental sustainability, overall economic development, and regional security.

The Nile is the longest river in the world. A salient feature of the hydrology of the Nile is its regular predictable annual flood. What was never predictable, however, was the volume of annual flow. The pre-dynastic rulers and the ruled of Egypt have always desperately sought to forecast its volume, unsuccessfully. There have always been inter- annual and intra-annual variations of volumes of flow.

The most distant source of the Nile is the Luvironza River in Burundi, a tributary of the Kagera, which flows into Lake Victoria. The "Victoria Nile" flows into the shallow and swampy Lake Kyoga and thence through the northern part of Lake Albert. Thereafter it descends into the Sudan plains at the town of Nimule, where it is called Bahr el Jebel. The average annual discharge is 29 billion cubic meters, in the well defined channel between Nimule and Juba, where the inclination is 1m per km. Farther downstream, Bahr el Jebel enters the 'Sudd' swamps which are probably the largest tropical swamps in the World

Of the 29x10⁹ m³ of water entering the head of the main swamp region north of Bor, only 14 thousand millions leave the swamps at Lake No, the rest of the water being 'lost' by seepage and evaporation.

Ecologically the Sudd wetland is composed of a maze of various ecosystems, grading from open water and submerged vegetation, to floating fringe vegetation, seasonally inundated woodlands, rain-fed and river-fed grasslands, and floodplain scrubland. Because of the seasonal fluctuations in the flow of the Nile, sufficient quantities of water are not always available for irrigation purposes at the 'timely period' in northern Sudan and Egypt. This has initiated intensive studies of the equatorial Nile and its control, which have gone on since the turn of the 20th Century. These plans addressed the problem of reducing the water losses in the Sudd, either by improving the natural channels by dredging and straightening and raising their banks, or by a diversion canal to the east of the swamps, or a combination of all those methods.

An agreement was signed in 1967 by which the Permanent Joint Commission for the Nile waters was to develop the upper reaches of the Nile. One of their proposals was the present Jonglei Canal Project. This includes the excavation of a canal with a daily discharge capacity of 20x10⁶ m³ per day and a total length of 360km, from Bor to the mouth of the Sobat.

Is the Jonglei Canal a Needed Development or a Potential Eco-disaster?

Recent climatic variations and consequent fluctuations of annual volumes of discharge of rivers in the Nile Basin, suggest that assumptions adopted around the mid-20th century regarding the availability of water may now require drastic reassessment!

Decreasing rainfall in many parts of Africa brought about a drop of water levels in

many African Lakes. For example Lake Chad has become smaller than 10% of its original size, Lake Turkana shrank from within the Sudanese borders and the level of Lake Victoria dropped by nearly 2.5 m.

Questions that need to be discussed:

• IS INCREASING THE YIELD OF THE NILE THE ULTIMATE SOLUTION?

OR

- Is increasing the efficiency of water use a right step in the right direction?
- Improved water management means more crop per unit of water!
- That includes growing the right crop in the right place at the right time.
- It also includes decreasing evaporation rates from shallow reservoirs in some of the hottest places on the Globe.

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E-Learning is it possible?

If we are not going forwards, we are in fact going backwards.

E-Learning is the delivery of a learning, training or education program by electronic means. It involves the use of a computer or electronic device in some way to provide training, educational or learning material. E-learning can involve a greater variety of equipment than online training or education such as CD-ROM, DVD, mobile phone, PDA and other information and communication technology tools.

The vast movement towards e-learning is clearly motivated by the many benefits it offers. Like no other training form, e-learning provides a single experience that accommodates the three distinct learning styles of auditory learners, visual learners, and kinesthetic learners. Other unique opportunities are more efficient training of a globally dispersed audience; and reduced publishing and distribution costs as Web-based training becomes a standard.

E- Learning has other advantages to the trainer and organization; they include; reduced overall cost and learning times, increased retention, consistent delivery, expert knowledge and it provide proof of completion and certification. For the learner, it has outstanding advantages which include on-demand instruction, availability of education, self-pacing, interactivity and confidence.

E-Learning is not, however, the be all and end all to every training need. It does have limitations, among them, up-front investment, technology issues, inappropriate content and cultural acceptance.

The pro's and con's of E-learning vary depending on program goals, target audience and organizational infrastructure and culture. But it is unarguable that e-learning is rapidly growing as a form of training delivery and most are finding that the clear benefits of E-learning will guarantee it a role in their overall learning strategy.

As the use of E-Learning in medical education increases, the need for better collaboration and communication among educators becomes strikingly apparent and with limited resources, no single educational institution can create all of the resources that it needs.

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Music and Medicine: Wolfgang Amadeus Mozart

The presentation was about the life, diseases and music of Mozart. The presentation was illustrated by some of his music, the Prague symphony. This was first performed in Prague and consisted of four movements instead of the usual three movements for symphonies at that time.

Birth and Childhood:

Mozart was born in 1756 in Salzburg. Only two of his seven siblings survived beyond infancy. He started composing at the age of five years and composed 626 works. He died at the age of 36. Concerning his music genius, a lot of anecdotes from his early childhood were said. All education he had was from his father, Leopold. Every day and night, two of his children (Nannerl and Wolfgang) and Leopold were involved in music. According to Leopold's note, Wolfgang started music training when he was five or six years old (about 1761) and the first music, K1 was composed in 1761. The education of Mozart by his father was so good and earnest that Wolfgang showed unbelievable development.

All this impressive record of musical output was made in only 30 years of his short life amidst traveling, ill-health and financial problems. Between 6 and 16 years, Mozart spent only 6 months at home.

He was denied a normal childhood by an empowering father who exploited his talents to the full, traveling with him all over Europe. There was no chance for him to play around with his friends. As his biographer noted in 1793 – 'For just as this rare being early became a man so far as his art was concerned, he always remained as the impartial observer must say of him – in almost all other matters a child.'

In December 1781, Mozart got married to Constanze Weber. His father never approved of the marriage because he considered the Webers a family of questionable reputation.

His diseases

He suffered from several diseases that included:
Streptococcal infection and erythema nodosum
Rheumatic fever or Henoch-Schonlein syndrome
Typhoid
Small pox

The final year of his life:

Early 1791 he suffered from depression and paranoia, swollen face and later swollen ankles. In that year a messenger visited him with a request to compose a requiem. In his paranoia, Mozart believed the strange visitor, who refused to give his name was the messenger of death. It turned out later that the person who ordered the requiem was Count Wallseg, a music and theater lover, a minor composer and conductor. He was in the habit of commissioning musicals without revealing his identity. He passed the music as his own composition. The musicians in his court knew he was not. The requiem was intended for his wife who died at the tender age of 21.

Mozart's final illness lasted 15 days. He suffered from high fever, abdominal pain and vomiting. His hands and feet were grossly swollen. He mentioned to his wife that he had the taste of death in his tongue. This was perhaps due to the uremia of renal failure. One morning, his friends sang the unfinished requiem while he was in his death bed.

The next day he was dead. The body was moved to St. Stephens's cathedral where it was consecrated. The extremely simple funeral was the cheapest available. He was buried with others in a mass grave. Although no autopsy was performed, the most likely pathology was end stage kidney disease. This was most probably a consequence of post streptococcal acute glomerulonephritis due the several attacks of sore throat during childhood.

Was Mozart poisoned?

Six months before his death, Mozart confided to his wife that he was being poisoned and the poison was aqua toffana (after Toffana, a 17th century Neapolitan woman who prepared and delivered a cocktail containing arsenic). The person who poisoned Mozart was suspected to be another jealous musician, Salieri. Mozart's son denied this. It was also rumored that the composer was poisoned by the Masons because he revealed some of their secrets in his opera the Magic Flute. Mozart and his father were both Masons. It is likely that there was no truth in this.

The Mozart Effect:

The effect first came to light in a 1993 paper in Nature (vol 365, p. 611), when Fran Rauscher, a neuroscientist at the University of Wisconsin and his colleagues showed that college students who listened to Mozart's Sonata for Two Pianos in D Major for 10 minutes performed better on a spatial reasoning test than students who listened to new-age music or nothing at all. Others claimed to have found the Mozart effect in experimental animals that listened to Mozart's music. The findings in humans and animals are intriguing and there is no proper explanation for the phenomenon, if at all it exists.

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THE HUMAN BODY IN SPACE (SPACE MEDICINE)

The unfamiliar environment of space affects human physiology in many ways. Some of the physiological changes are still poorly understood, while others mimic the symptoms of known diseases that afflict earth-bound humans. We discuss these issues and speculate on what could happen to space travelers embarking on long journeys, such as future missions to Mars.

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Book Review:

Traditional Sudanese Medicine by Professor Ahmed EL Safi, Professor of Anesthesiology and Founding Member of the Sudanese National Academy of Sciences.

Reviewed by Prof. A M Elhassan, President of SNAS

This important book has recently been published (2006) by Azza House: Publishers and Distributors, Khartoum. The author has long experience in the area of Sudanese traditional Medicine and has researched the subject intensively over the last thirty years. He founded the Traditional Medicine Research Institute in the Sudanese National Council for Research in 1980, and the World Health Organization Collaborating Centre for Research in Traditional Medicine 1984. In 2005 he founded the Sudan Medical Heritage Foundation and Health Heritage Studies Centre as an NGO dedicated to research, development and conservation of Sudanese health care heritage and resources.

The book is a 730 page document with 2500 general bibliography references and 600 indexed items of Sudanese Materia Medica. It gives a succinct and authoritative account of the history and scope of traditional medicine in Sudan. It describes traditional health beliefs and practices in the different regions of the Sudan. A wide range of topics are discussed in detail. These include chapters on Health and ILL-Health Beliefs, Diagnosis of ILL-Health, Management of ILL-Health, Recipes, Sudanese Material Medica, Traditional Health Practitioners, the Profession of Traditional Medicine, Foreign Influences and Foreign Impressions. A photo gallery at the end of the book illustrates various topics discussed in the various chapters.

The book should be read by every health care provider and by students of medicine, pharmacy, veterinary medicine, agriculture, medical sociology, medical anthropology and folklore. Members of the public will find in the book a lot that will be of interest. Professor EL Safi is to be congratulated on this important contribution to Sudanese culture and heritage.



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