

## EDITORIAL

# DREAM, VISION & LIT CANDLES

*Dr. Hikmat Ajjuri / Vice President*

In the early evening of the first of December 2004, Dr. Fathi Arafat passed away after three years of a fierce battle against an awful malignant disease. One can say that that Dr. Arafat had lost the battle against cancer, but I for one can also say that, after dozens of years of tireless work, Dr. Arafat also won the war for Humanity. In addition to being a medical doctor and the president of Palestine Academy for Science and Technology, Dr. Arafat was also the president of the Palestine Council of Health and the founder and president of the Palestine Red Crescent Society.

This medical background had never discouraged Dr. Arafat from contributing positively to building and

developing other non-medical fields. He loved construction as well as art, film-making and music. His known inputs in these fields surely reflect a great talent. He lit candles but never once cursed the darkness.

Even though the Palestinian National Health Plan was developed and finalized by a collaborative effort of over 400 Palestinian professionals, it was definitely a reflection of Dr. Arafat's vision. From the first day he returned to Palestine from exile in 1994, he realized that his dream had finally come true. He thus began pouring more concrete into the infrastructure of the state of his dreams, the newly born state of Palestine. He built Al-Amal City in Khan-Younis in the Gaza Strip, which comprises a 100-bed general hospital, a hotel, a conference hall and the Ability Development College associated with Al-Aqsa University. In Gaza City, he built Annour City, which comprises a hotel, conference halls, theatres, a cultural centre, a fitness club, Al Quds Hospital (a 70-bed general hospital), as well as a nursing school and an ambulance services centre.

In Ramallah, he also built the PRCS headquarters, but he left us before he had the chance to use his

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## ROOTS OF WATER CONFLICT IN THE EASTERN MEDITERRANEAN

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The East Mediterranean region is part of the Middle East and North Africa region (MENA), which is recognized as one of the driest and most water-scarce regions in the world. While holding 5% of the world's total population, the MENA region contains less than 1% of the global renewable water resources<sup>(1)</sup>. In the East Mediterranean region, particularly in Turkey, Iraq, Syria, Lebanon, Jordan, Palestine and Israel, most of the renewable water resources are transboundary and are shared between these countries. These resources mainly consist of surface water resources stemming from the Tigris-Euphrates and the Jordan River systems, as well as groundwater resources of which the West Bank Aquifer, on the western side of the Jordan Rift Valley, and the Coastal Aquifer, on the south-eastern side of

the Mediterranean Sea, are the most productive resources<sup>(2)</sup>.

Most of the Eastern Mediterranean countries suffer from a water crisis that varies in its intensity due to the overexploitation of water resources at rates that exceed the natural renewable water quantities in order to satisfy the needs of the rapidly growing population and the expanding needs in agriculture and industry. This has resulted in an imbalance between the limited available water resources and water consumption. Pollution has also contributed to the deterioration of the surface water and groundwater quality, thus reducing the usable water quantity. Furthermore, the absence of a comprehensive and integrated system of management of the water resources that are transboundary and shared between the countries of the region has resulted in an inequitable

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## ROOTS OF WATER CONFLICT IN THE EASTERN MEDITERRANEAN

allocation of such resources, making water a catalyst for conflict.

The current allocations of the shared water resources among the countries of the region have never been based on agreements, negotiations and equitable principles. They are rather the outcome of regional power struggles where the countries holding the power impose their will on the other countries in order to meet their water interests. Turkey has managed to monopolize and utilize the waters of the Tigris and Euphrates Rivers through its unilateral management projects, without considering the associated impacts on Syria and Iraq, which are the other riparian countries of the rivers. In the early 1990's, Turkey shut the water flow of the rivers for 30 days in order to fill the Ataturk Dam and thus create a reservoir of over 50 billion m<sup>3</sup>. This led to a serious decrease in the rivers downstream water flow, causing conflicts between these countries. More recently, in 1997, Turkey also launched the Southeast Anatolia Project, known by the Turkish acronym GAP, aimed at maximizing its utilization of the rivers' waters by constructing 22 dams and 19 hydroelectric power plants<sup>(3)</sup>.

As regards the Jordan River, which is considered an international water resource shared by Israel, Lebanon, Syria, Jordan and Palestine, its waters have never been utilized in accordance with the International Water Law because of Israel's control over the water resources in the region to meet its water needs. Israel, the power holder in the region, has managed to violate the Jordan River riparian countries' water rights, particularly those of the Palestinians, who are denied access to the Jordan River waters. Currently, through the Israeli National Water Carrier and the Jordanian East Ghor Canal, the Jordan River Basin meets around 50% of Israel's and Jordan's individual water demands, while it only meets 5% of Lebanon's and Syria's combined water demands. The unilateral management projects implemented by Israel and Jordan to meet part of their water needs have reduced the annual water flow of the Jordan River from 1,250 MCM in the early 1950's to 200 MCM of high salinity and deteriorated quality water today<sup>(4)</sup>.

Furthermore, Israel strengthened its control over the water resources in the region through its occupation of the Golan Heights, the Gaza Strip and the West Bank in 1967 as well as through its invasion of South Lebanon

in 1982 to extend its control over part of the Litani River. In the West Bank, Israel is currently exploiting about 82% of the annual safe yield of the groundwater basins to meet 25% of its water needs, whereas the water quantity consumed by Palestinians constitutes around 17% of the annual safe yield. It is obvious that the Israeli policy is guided by the logic of power rather than by international laws and conventions. Even during the Middle East Peace Process, Israel appointed itself as the water commissioner in the region and insisted on negotiating separately with each country. In this context, it should be emphasized that bilateral negotiations cannot be a substitute for an integrated and comprehensive water policy that should include all riparian countries of the international river basins.

The management of shared water resources in the Eastern Mediterranean should be integrated, and should involve protection and sustainable utilization of these resources with mutual recognition of each others water rights. Most of the countries in the world have been recently moving from hydro-sovereignty to hydro-solidarity in order to achieve a sustainable management of the shared water resources. Most of the world's rivers are shared, knowing no boundaries and are managed jointly by all the riparian countries. Therefore, it is crucial to start such an approach in the Eastern Mediterranean to avoid a critical water crisis in the near future. This can be initiated by calling for a basin wide management in the international Jordan River Basin involving all riparian countries. The same should apply for the Tigris and Euphrates River Basins.

### REFERENCES

- 1) MENA, **From Scarcity to Security: Averting a Water Crisis in the Middle East and North Africa**, The World Bank, 1994
- 2) World Resource Institute, <http://earthtrends.wri.org/>, April, 2003
- 3) A. T. Wolf, *Transboundary Waters: Sharing Benefits, Lessons Learned*, Thematic Paper presented at the International Conference on Freshwater, 2001
- 4) A. Rouyer, *Turning Water into Politics - The Water Issue in the Palestinian-Israeli Conflict*, University of Idaho, 2000

## INTERNATIONAL CONFERENCE **WATER: VALUES AND RIGHTS**

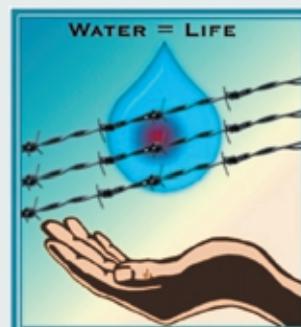
2-4 May 2005

The Palestine Academy for Science and Technology and the Palestinian Water Authority, in cooperation with the United Nations Development Program (UNDP), are organizing the International Water Values and Rights Conference, which will be held between the 2nd and 4th of May 2005, simultaneously at the Best Eastern Hotel in Ramallah and in Gaza, through video conferencing.

The conference will provide a platform for scientists, researchers, experts, decision-makers and those interested from the private and public sectors to introduce the latest in the state of the art in the diverse fields of water resource management and rights.

The Academy received more than 80 papers that were reviewed by peer-reviewers. Full papers shall be published in the conference proceedings.

The Academy and PWA have invited key



international speakers to participate in the conference, among them Prof. Luigi Campanella and Prof. Danilo Zolo from Italy, Prof. David Philips and Prof. Miles Burton from England, Prof. Mac Mckee, Prof. Stephen MacCaffery and Prof. Henry Vaux from the USA, and Prof. Ferran Izquierdo Brichs and Prof. M. Ramon Llamas from Spain, have all confirmed their participation.

Conference URL:

<http://www.palestineacademt.org/wconf>

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office there. His eagerness to develop research and technology in Palestine was very much felt by both I and Dr. Khatib, in our capacities as Vice President and Secretary General of the Academy. We both believe that Dr. Arafat was a capable and visionary president of the Academy.

Dr Arafat's interest in art, cinema and music is also well known to the Palestinians who work in these fields. Rashid Masharawi, the famous Palestinian movie director, Samir Jubran, the famous Palestinian musician (oud player) and nearly all Palestinian artists are indebted to Dr. Arafat for his support of their work and professions.

And added to all this is Dr. Arafat's active role and commitment to the missions of the Red Cross and Red Crescent societies and to the International

Physicians for the Prevention of Nuclear War - IPPNW - a recipient of the Nobel Peace Prize.

As a visionary man, Dr. Arafat started building bridges between the Palestinian and Israeli civil societies from the moment he arrived in Palestine, because he never doubted the need for the participation of civil societies in building a long and lasting peace.

In his speeches at hundreds of international and regional meetings, he had never ignored the right of the Israeli children to live in peace whenever he spoke of the rights of the Palestinian children. Having attended with him a great number of regional and international events, meetings and conferences, I truly believe that Dr. Arafat was a great advocate for the cause of peace and the cause of humanity at large.

# Environmental Field Center

Several steps have been undertaken by the Palestine Academy for Science and Technology towards establishing the Environmental Field Center (EFC) in Jericho. A Waqf land of about a 20,000 m<sup>2</sup> was surveyed and prepared for the construction of the center in Jericho. The facility is designed as a 200 m<sup>2</sup> structure which will include a library, a fossil exhibition, a seminar hall and a small cafeteria. In cooperation with the Palestinian Agricultural Research Center in Jericho, the work on analyzing the soil of the EFC is on-going. Soil analysis should give a good idea about the most suitable plants arts for the area.

A website for the EFC has been designed and could be accessed at ([www.pal-efc.org](http://www.pal-efc.org)). This website and a part of this project were financed by the Small Grants Program of the Global Environmental Facilities (GEF/SGP/UNDP).

### SMITE-EUMEDIS FOLLOW UP

The Palestine Academy and Palestinian Polytechnic University (PPU), in cooperation with experts from the Palestinian Federation of Industries and Palestine Standards Institution, namely Eng. Amr Badarneh and Eng. Shaker Atawi, have prepared two case studies for two SME sectors, (dairies and hotels) as a first step in the process of preparing a country report for SMITE project. The collaborative project has produced an effective user friendly benchmark that is accessible to end-users representing the industrial and hotel premises. The Academy and PPU presented these case studies at

the Cyprus Conference that was held on 28 February 2005.

### GLOWA FOLLOW UP: RESEARCH ON CLIMATE CHANGE SCENARIOS FOR THE REGION

In cooperation with the Potsdam Institute of Climate Impact Research, part of the research on climate change scenarios for the region and its impact on the water budget in the Jordan River basin has been

completed. Based on the statistical downscaling approach and on models developed by the PIK, linked with regional meteorological data spanning from 1901 to 2003, results are now being analyzed in order to build the future climate change scenarios needed as inputs to other working group within the GLOWA-Jordan River project. Parts of the results were presented in a GLOWA stakeholder workshop held in

Ramallah by GLOWA's national coordinating institute, the Palestinian Hydrology Group (PHG), on February 2, 2005. GLOWA's conference will take place in Köln-Germany on May 17th 2005. A Ph.D. student was recently assigned to work on the project. Mohammad Abubaker, deputy D.G. of the Palestinian Metrological Department shall be pursuing his studies working on further developing the statistical downscaling model.

### IAP PRESIDENTS CALL FOR ADVICE ON THE TRAGIC TSUNAMI EVENTS

The dramatic and awful events of the end of December, which have struck hundreds of thousands of people in South Asia, bringing devastation to coastal areas in the Indian Ocean, have aroused an impressive sense of solidarity worldwide. The practical assistance and donations from around the world will help in feeding and caring for the survivors, rebuilding houses, schools, roads, and ports, but will not create renovated conditions that remove the threat of such tragedies



*The logo, which is the Palestine Sun Bird is one of the famous birds that live in Palestine and can be seen at the EFC.*

in the future. At this special time, the scientific community could and should make a unique contribution by providing experienced knowledge, information and even scientific experts to the affected countries to help with on-going efforts to remove this threat from these countries. As a global network of world academies, we call on all our member academies to provide any possible scientific and technical help, as well as support in every means to the affected countries.

The scientific community should concentrate on doing everything scientifically and technically possible in order to improve the capability of early-warning systems for natural disasters like earthquakes \_ a formidable challenge - but also to enhance the prompt dissemination of information on marine earthquakes and other relevant seismic activities \_ an endeavour much easier to attain and altogether of crucial importance.

Many Academies of Sciences cannot launch their own research programmes on this subject because of a lack of resources, laboratories, etc. But they can, at a national level, create the conditions for re-evaluating the priorities of the major national research agencies, and induce their government to devote new budgets to this field, and participate in international cooperation in this field. The IAP would not comply with its mission if it remained detached from this fight towards more safety for coastal populations. Therefore, this topic will be on the agenda of the next IAP Executive Committee meeting (Stockholm, 26-27 February), addressing such issues as effective monitoring networking, epidemic disease prevention, GIS calamity assessment, and the role of regional organizations (i.e. AASA, FASAS and NASIC).

Expressing our deepest sympathy to those Academies which were affected, directly or indirectly, by this disaster,

We remain, yours very truly,  
Chen Zhu            Yves Quéré  
IAP Co-Chairs

## ACADEMY CONGRATULATION

### **Election for TWAS Members**

The Third World Academy of Sciences (TWAS) has nominated Professor Mohammed Shabat as a TWAS Fellow. Professor Shabat was a candidate of the Palestine Academy for Science and Technology. He works at the Physics Department of the Islamic University of Gaza, and has done research in the field of nonlinear optics, optoelectronics, and magnetostatic surface waves in ferrites, where he has described numerical algorithms, applications of the Davidenko method to a Lossy nonlinear waveguide and so on. He is a Senior Member of IEEE, and the recipient of the Humboldt Fellowship and also the Shoman Prize for Young Arab Scientists.

### **The Islamic Bank for Development Award to An-Najah for its Scientific Research**

After an endorsement sent to the Islamic Bank for Development by the Palestine Academy for Science and Technology, the Islamic Bank for Development awarded the prize of Science and Technology to An-Najah University in order to encourage the unique scientific research in Arab and Islamic academic institutions. Hundreds of universities were competing for the \$100,000 prize.

The international specialists committee expressed its admiration for the scientific efforts of the university in the fields of science and technology.

The Academy congratulates An-Najah University for being awarded the reputable prize.

It must be mentioned that An-Najah is also the multiple recipient of the Abdul Hamid Shuman Prize for the Arab Researchers over the past few years, as well as the Hisham Hijawi Prize, the Saint Andrews Prize, et al.



## AN-NAJAH NATIONAL UNIVERSITY

Several activities and studies were carried out at the Water and Environmental Studies Institute (WESI) last year, and they can be summarized as the following:

- A workshop on the "Management and Preservation of Soil" was carried out at An-Najah National University on Sunday, the 10th of October, 2004. Various related concept papers were presented at the meeting, on such topics as the role of agriculture in Palestine and the degradation of agricultural land in the West Bank and the Gaza Strip.
- The final version of the conceptual and methodological manuals of the "Biodiversity Project" was prepared and will be disseminated soon.
- The work on the "Bacterial Regrowth Project," funded by UNESCO, is on-going. Recently, three experimental galvanized iron water tanks were installed to facilitate the study of the effect of tank shape on bacterial growth behavior.
- The assessment study of the environmental quality status of the Tubas area was accomplished through conducting field questionnaires and surveys to explore public opinion regarding the development and construction of in-house wastewater treatment units. The project was funded by the Spanish ACH establishment.
- Divers were stationed at the surface water flow measuring stations in Wadi Faria and Wadi Badan watersheds. The intent is to have continuous records of water flow in addition to the manually-read data. Also, water samples were being taken to analyze for water quality parameters.
- WESI staff are in the process of evaluating activities and proposed environmental projects in Asira Village. The project is funded by the UNV.
- As part of the joint work with the Ministry of Agriculture, WESI has finalized the "Salt Water Use in Agriculture" manual.

## ARAB AMERICAN UNIVERSITY IN JENIN

Professors at the Faculty of Arts and Sciences published five articles in referred journals:

- Dr. Saed Mallak (Department of Mathematics) published two articles, one on "Limit Theorems for Non-Stationary Discrete Time Markov Chains," and another on "A Class of One-Dimensional Models with Unique Ground States" that admits phase transitions.
- Dr. Samira Barghouthi (Department of Chemistry) published an article on "Thermodynamic Studies of Antimalarial Drugs and Their Interaction with Myoglobin, Hemoglobin, and Phospholipid Model Membranes."
- Dr. Nizam Diab (Department of Chemistry) published two articles: "Sequential Injection Stripping Analysis of Nifuroxime Using DNA Modified Glassy Carbon Electrode," and "An Array of Functionalized Electrodes for the Detection of Nitric Oxide Released by Endothelial Cells Using Different NO-Sensing Chemistries."

Five articles were published by faculty members of the Allied Health Sciences:

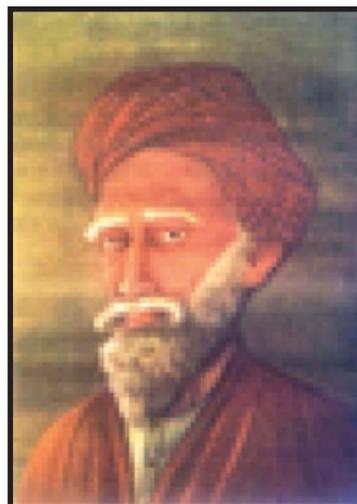
- F. Mansour, H. Aziازه, B. Saad, Y. Tadmor, F. Abo-Moch, and O. Said published "The Potential of Middle Eastern Flora as a Source of New Safe Bio-Acaricides to Control Tetranychus Cinnabarinus, the Carmine Spider Mite."
- B. Saad, G. Abu-Hijleh, and U.W. Suter published "Cell Culture Techniques for Assessing Tissue Compatibility of Biomaterials."
- R. Arshady, B. Saad, S. Dakuar, H. Aziازه, and G. Abu-Hijleh published "Development of New 3D Test System for the Evaluation of Biosafety and Effects of Medicinal Plants." 3rd International Symposium on Natural Drugs.
- H. Aziازه, O. Said, and B. Saad published "The Potential of Local Medicinal Herbs Used in Traditional Arabic Medicine to Treat Skin, Liver and Cancer Diseases."
- B. Saad, G. Abu Hijleh, P. Neuenschwander, and U.W. Suter published "DegraPol-Foam: A New Biodegradable Material for Tissue Engineering."

With regard to conferences, there were a good

number of conference participants. To mention a few: Dr. Amin Dawwas (Faculty of Law) attended a conference on "Arbitration" in Tunis at the end of May, 2004; Mr. Mustafa Abusalah (Faculty of IT) attended a conference on SIGIR "Special Group on Information Retrieval" in the United Kingdom on July 15th, 2004; Dr. Nafe' Hassan (Faculty of Law) presided over the international conference on "International Law and Palestinian Refugees" which was held in September 2004 at Damascus University, with the cooperation of the Syria-Lebanon Palestinian Refugee Group; Dr. Nizam Diab (Faculty of Arts and Sciences) attended the Wolfgang Schuhmann 37th National Convention of the South African Chemical Institute Chemistry for a Better Life in Pretoria, South Africa in July, 2004 on "Electrochemical Microsensors: Potential Tools for the Early Diagnosis of Neurodegenerative Diseases;" and Dr. Samira Barghouthi (Faculty of Arts and Sciences) attended a proposal writing conference supported by USDA and BARD on "Environmental Projects-Agricultural Applications," in June, 2004 in Turkey .

Also faculty members from AAUJ attended various workshops, among them Dr. Amin Dawwas (Faculty of Law) who participated and directed a workshop held at the AAUJ on "Draft Concession Law," Eng. Sulaiman Iqab Foqha (Engineering & Maintenance Department) attended an international course on "Anaerobic Sewage Treatment and Agricultural Reuse of Treated Effluent" at Bir Zeit University in January, 2004, and Dr. Nafe' Hassan (Faculty of Law) attended the second training course on "International Humanitarian Law for Arab Professors of International Law" held by the ICRC in Amman in August, 2004.

Mr. Sami Awad (Faculty of IT) lead the only team from Palestine to the ACM Arab and North Africa International Collegiate Programming Contest (ICPC) at Kuwait University, in Kuwait in November 2004.



## ABUL HASSAN ALI AL-MASU'DI

(Died 957 AD)

Abul Hasan Ali Ibn Hussain Ibn Ali Al-Masu'di was a descendent of Abdulah Ibn Masu'd, a companion of the Holy Prophet (peace be upon him). An expert geographer, a physicist and historian, Masu'di was born in the last decade of the last decade of the ninth century AD. His exact date of birth being unknown. He was Mu'tazilite Arab, who explored distant lands and died at Cairo, in 957 AD.

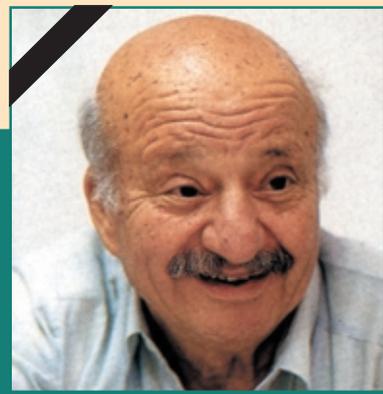
He travelled to Fars in 915 AD and, after staying for one year in Istikhar, he proceeded via Baghdad to India, where he visited Multan and Mansora before returning to Fars. From there he travelled to Kirman and then again to India. Mansoor in those days was city of great renown and was the capital of the Muslim State of Sind. Around it, there were many settlements/townships of new converts to Islam. In 918 AD, Masu'di travelled to Gujrat, where more than 10, 000 Arab Muslims had settled in the seaport of Chamoor. He also travelled to Deccan, Ceylon, Indo-China and dchina, and proceeded via Madagascar, Zanjibar and Oman to Basra.

At Basra, he completed his book Muruj-a-Thahab, in which he described in a most absorbing manner his experience of various countries, people and climates. He gives accounts of his personal contacts with the Jews, Iranians, Indians and Christians. From Basra he moved to Syria and from there to Cairo where he wrote his second extensive book Muruj al-Zaman in thirty volumes. In this book he described in detail the geography and history of the countries that he had visited. His first book was completed in 947 AD. He also prepared a supplement, called Kitab al-Awsat, in which he has compiled historical events chronologically. In 957 AD, the year of his death, he completed his last book Kitab al-Tanbih wa al-Ishraf, in which he gave a summary of his earlier book as well as an errata.

Masu'di is referred to as the Herodotus and Pliny of the Arabs. By presenting a critical account of historical events, he initiated a change

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## DR. FATHI ARAFAT (1933-2004)



- In 1968, he founded the Palestine Red Crescent Society.
- 1967, Member of the Palestine National Council (PNC).
- 1967, Member of Fatah Revolutionary Council.
- 1968, Deputy President of the Palestine Red Crescent Society.
- 1968, Member of the Council of Arab Ministers of Public Health.
- 1968, Chief Palestinian Delegate to the International Federation of the Red Cross / Red Crescent Societies.
- 1973, Chief Palestinian Delegate to the World Health Assembly.
- 1978, President of the Palestine Red Crescent Society.
- 1982, Member of the Palestine Liberation Organization - Central Council.
- 1986, Head of the Health Committee of the PNC.
- 1986, Deputy of the General Secretary of the Arab Doctors Union.
- 1988, Deputy President of the Non-Aligned States' Ministers of Health Council.
- 1992, President of the Palestine Higher Council of Health.
- 1968, President of the General Union of the Palestinian Doctors & Pharmacists.
- 1992, President of the Palestine Academy of Science and Technology.
- 2000, Honorary President of the Palestine Red Crescent Society.

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in the art of historical writing, introducing the elements of analysis, reflection and criticism, which was later on further improved by Ibn Khaldun. In particular, in *Al-Tanbih* he makes a systematic study of history against a perspective of geography, sociology, anthropology and ecology. Masu'di had a deep insight into the causes of rise and fall of nations.

With his scientific and analytical approach he has given an account of the causes of the earthquake of 955 AD, as well as the discussions of the water of the Red Sea and other problems in earth sciences. He is the first author to make mention of windmills, which were invented by the Muslims of Sijistan.

Masu'di also made important contributions to music and other fields of science. In his book *Muruj al-Thahab*, he provides important information on early Arab music as well as music of other countries.

His book *Muruj al-Thahab wa al-Ma'adin al-Jawahir* (Meadows of gold and Mine of Precious Stones) has been held as 'remarkable' because of the 'catholicity of its author, who neglected no source of information and of his truly scientific curiosity'. As mentioned above, it was

followed by his treatise *Muruj al-Zaman*. In addition to writing a supplement *Kitab al-Awsat*, he completed *Kitab al-Tanbih wa al-Ishraf* towards the end of his career. It is, however, unfortunate that, out of his 34 books as mentioned by himself in *Al-Tanbih*, only three have survived, in addition to *Al-Tanbih* itself.

Some doubts have been expressed about some claims related to his extensive travelling e.g., up to China and Madagascar, but the correct situation cannot be assessed due to the loss of several of his books. Whatever he has recorded was with a scientific approach and constituted an important contribution to geography, history and earth sciences. It is interesting to note that he was one of the early scientists who propounded several aspects of evolution viz., from minerals to plant, plant to animal and animal to man. His researches and views extensively influenced the sciences of historiography, geography and earth sciences for several countries.

**(Taken from:** Personalities Noble, National Science Council of Pakistan, edited by Hakim Mohammad Said). Second Revised Edition (English and Arabic). Published by the Islamic Academy of Sciences (2000).

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