

PCST IN THE ARAB WORLD: THE RATIONALITY WAR ONLINE

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Introduction

Public Communication of Science and Technology (PCST) in the Arab world -and perhaps in other areas of the developing world – has goals, actors, and means that differ from what is known in the developed countries. In the West, public understanding of science is the basis of the knowledge society. The wider the popular basis of science is, the bigger the scientific output for each State **will be**. This scientific and technological development is followed by an economic and military superiority, in a way that public understanding of science became a State issue. Since 1985 the British House of Commons got aware that the promotion of British industry is not dependent on State support for scientific research only, but also on a better public understanding of science, and so, entrusted to scientific institutions to undertake the task¹. In order to achieve the knowledge economy, the European Union, the United States and Canada, gave great importance to the spread of scientific culture in society. They were soon followed by Japan, South Korea and the BRICS... Thus the rhythm of creation of scientific organs and of the administrative authorities in charge of the supervision of the condition of scientific culture in those countries to ensure their progress was accelerated.

Whereas civil society focuses on the political dimension of this issue. Democratic practice will be defective without democratization of science. It is there where the taxpayers follow what becomes of their money and the way it is spent; Governments are forced to provide justifications for the choices of scientific programmes financed by the State Treasury.

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When the public understands science and technology, they identify their expectations and vote for an electoral program against the other. And in order to guarantee a conscious participation of the citizen in public life, the citizen needs to collect initial scientific knowledge through PCST.

As for the Arab region, those responsible for the dissemination of scientific culture do so within the framework of the battle of modernity, a battle which was settled in Europe more than two centuries ago, which is not the case yet in this region, where the incredible Auguste Comte's theory of the evolution of the human intellect is verified.

In the southern Mediterranean, physical products of modernity were accepted whereas the ideology was not. Here, religious preachers say that the grasshoppers that crept on the Tunisian town of El Kef in June 2015 have been a punishment from God inflicted to the people of the city. And while more than 20 countries are working in the field of artificial rain, masses are recruited to gather in public squares in order to pray in request for rain, this is how the way religious movements react, in a kind of apostasy to the progress of modernity. In January 2016 the Tunisian ministry of Religious Affairs called for the organization of a prayer for rain in all of the Tunisian mosques looking for a raining that will be beneficial to solve the drought crisis, instead of relying on the modernization of agriculture and converting it from rain-fed to irrigated while fulfilling of all the technological requirements. Besides camel urine got to be sold as a drug under the Salafi propaganda pressure. Furthermore a fatwa is issued forbidding Arab youth participation in travel to Mars within the company project "Mars One"². This is reminiscent of the Europe's atmosphere before the Enlightenment, where the British Parliament attributed the famous Fire of London to divine anger from the writings of Thomas Hobbes, and recommended not to publish them³, and where the invention of the lightning rod by Benjamin Franklin was met with opposition as an objection to the will of the Lord, and where the Venice authorities stored gunpowder in the dome of the church, believing that the Lord does not affect churches with lightning.*

The Moroccan thinker Abdullah Laroui opposes the historical analysis, which examines the succession of forms of consciousness, with a structural

* In 1767 the lightning struck the church of San Nazaro. The gunpowder was exploded, and about 3000 lives were lost.

social analysis pretending their presence together in the same community. And the contemporary Arab ideology is formed – according to Laroui - of the three forms of consciousness. The awareness of the Sheikh , the consciousness of the leader and that of the technical advocate, and the three forms of awareness coexist with each other because each one has a class support. The awareness of the Sheikh is represented by groups such as those that governed before the independence of Arab countries, and still maintain their positions . And the awareness of the Liberal Democratic leader, by the emerging bourgeoisie and another bourgeoisie descending from the ruling classes, after the decomposition of the attempt to adapt to the new situation .

As for the awareness of the engineer, this one is supported by a small bourgeoisie aspiring to a nation state.

The national state imposes submitting reason on a society that remains at large sinking in fun and celebration of emotion. This Reason stays limited no doubt, and most of the times superficial and hasty. But it possess an unprecedented efficiency in continuous wailing about the glories of Granada and the pros Alexandria.⁴ (Laroui, 1995, p. 75)

Laroui explains what he intended by the concept of "reason" saying : « we intend the scientific reason » and he cites the Egyptian intellectual *Salama Moussa* : "*Civilization is now industry, and the culture of this civilization is science , while the culture of agriculture is literature, religion and philosophy..*" (Laroui, 1995, p. 47) *Salama Moussa* had founded in 1930 in Cairo, with the cooperation of a group of engineers, doctors and intellectuals, "**The Egyptian Complex of Scientific Culture**" which has set as a goal the dissemination of scientific culture among the masses, but he failed to achieve that..

In fact, the approach that undermines all scientific thinking while it claims to reconcile science and religion is old in the Arab region. The Arab thinker Fouad Zakaria published his book "**Scientific Thinking**" four decades ago, noting that ordinary people can acquire scientific mentality, even if they are not exercising in science, nor completely knew the scientific theory and without the need to study the scientific curriculum in formal education. And he addressed severe criticism to the power that prevents the masses from acquiring this scientific way of thinking, saying:

We are too proud of our glorious scientific history, but in our present we oppose to knowledge the strongest resistance. And the people who are keen to confirm the leading role played by Muslim scholars in the Islamic civilization in its golden age, are themselves fighters of scientific thinking these days.

Too often, the call to defend irrational elements in our lives, and the attack on any attempt to establish the most basic origins of logical and scientific systematic thinking, and make it a firm basis of the assets of our lives - This call comes from those people who are keen on various occasions, to boast to Westerners that muslim scholars preceded them to many ways of thinking, and scientific theories that were not known to Europe until lately (...)

If it is recognized that the aspect of life on this earth has changed over the last hundred years more than it has done over thousands of previous years, the biggest credit for this is due to scientific knowledge, and - before that - to the presence of people who recognize the importance of this kind of knowledge and support it with all sorts of encouragement. And today, any nation that wants to find itself a place on the modern world map, cannot help but respect the scientific thinking style and adopt it.⁵ (Zakariya, 1978, p 8-10)

For this reason, the supporters of rationality in the Arab countries believe that the public's understanding of science is one of the conditions of accessing to modernity. It is this distortion of science that pushed the previous *Tunisian secretary of state to higher education and Scientific Research*, to issue her book titled: "*La science voilée*" [The veiled science] in 2012, in which she accuses the Movement « Intelligent Design » of controlling traditional mass media by acting under the banner of the scientific miracle in Quran and Sunnah where every new scientific discovery is emptied of its content, and focus is made on the primacy of the sacred text in this discovery. Saudi Arabia is spending generously to distort the scientific culture by religion through the publication of the magazine «Scientific Miracles in the Quran and Sunnah », through the organization of international annual conferences for this purpose, and through financial support to related associations throughout the Arab world.

While we recognize the presence of the different forms of awareness in Arab societies, we remark that the dominant discourse in relation to science is the religious one (Creation and Intellegent Desin). This, can be seen through the control of the conservative movement in the Arab region on traditional means of communication.

PCST IN THE TRADITIONAL MEDIA

Books:

It is so important to know that the Ottomans had forbidden the entry of the printing press to this region for 222 years. The first printing press in Egypt started with Napoleon Bonaparte in 1798. For three decades (between 1820 and 1849) of the 19th century, Muhammed Ali Pasha had begun the translation of science from European languages to Arabic. More than 56 % of printed books at that time, were scientific (21.4 % in Sciences and 34.9 in Technologies).⁶

Paradoxically, the conservative current in the region which forbade the entry of the printing press, has finally dominated printing. The best book sellers in the 21st century are religious. And about 20% of publishing houses in Lebanon (the most important center of printing in the Arab World) are specialized in printing Quran and religious books.⁷

Magazines:

The scientific magazines are published only in 5 out of 22 member countries of the Arab League. In fact only one scientific journal is published in the United Arab Emirates, two are published in Lebanon, three in Kuwait, three in Egypt, and four in Saudi Arabia. As for numbers about the printing and distribution of magazines and journals in the Arab world, these do hardly exist due to the absence of auditing and distribution centres. Both two magazines of « Scientific progress » and « nature » the Arabic edition are printed in 10 000 copies⁸, as for the rest, they vary between three thousand copies (« environment and development ») and ten thousand copies. Only the Arabic edition of « National Geographic » is capable of going beyond this figure. Therefore, the total of all the scientific Arabic journals together does not exceed 100 000 copies destined to a public of 350 million people. And we can realize the extent of the weakness of the Arab scientific journals in the Arab region if we compare them with their counterpart in the United States of America, as the number of Americans is around 320 million which is near the number of Arabs (350 million), whereas the total number of distributed scientific journals in the United States is 100 times higher than what is printed in the Arab world. In fact, the following six American magazines: SCIENTIFIC AMERICAN, POPULAR SCIENCES, NATIONAL GEOGRAPHIC MAGAZINE, POPULAR MECHANICS, DISCOVER and SMITHSONIAN reached a circulation of over 10 million copies per month in 2015.

And as we can measure scientific culture by measuring its input, the number of copies of distributed scientific magazines becomes an indicator of the state of scientific culture in the Arab world and thus , the share of the American citizen is a hundred times bigger than the share of an Arab in scientific information via paper magazines.

Dr. Wahid Mufadhil counts in his Survey study of 2009 seventeen Arab scientific journals⁹. But he includes among them the general culture and religious magazines and journals, which aim to highlight the so-called "*scientific miracles in the Quran and Sunnah*" and "intelligent design of the universe." We dropped five of them when updating the inventory list and ignored others that ceased to be published, and came out with the following table:

Table 1 : Arabic scientific magazines :

Title of the magazine	Country	Observations
Environment and Devalopment	Lebanon	Monthly magazine dealing with environment science
Science and World	Lebanon	A magazine dealing with general science
Science	Egypt	A magazine dealing with general science
Contemporary Language	egypt	A monthly magazine specialized in computer science
National Geographic for Kids	Egypt	The Arabic edition of the american national geographic for kids
National Geographic Arabic	United Arab Emirates	The Arabic edition of the american national geographic
Nature (Arabic edition)	Saudi Arabia	The Arabic edition of the British magazine « nature »
Al Faisal Scientific	Saudi Arabia	Published since July 2003 quarterly, then bimonthly
Science and Technology	Saudi Arabia	Monthly publication
Science and Technology for kids	Saudi Arabia	The arabic edition of the French magazine « Science et vie »
Science Magazine	Kuwait	The arabic edition of the « Scientific American » A monthly magazine published by the kuwaiti foundation for the advancement of science
Scientific progress	Kuwait	A monthly magazine published by the kuwaiti foundation for The advancement of science
Science and technology	Kuwait	A monthly magazine published by the kuwaiti foundation for the advancement of science

We note that the world's most important scientific journals got their Arabic editions since the beginning of this decade. The Arabic edition of National Geographic has appeared in October 2010 after 122 years of existence in the American version, and after it has been translated into 31 other languages before, the Arabic version of the French magazine « Science et vie » appeared in 2012 after it approached its year one hundred, as for the Arabic edition of the British magazine « Nature », it appeared in October 2012.

Only the Arabic version of SCIENTIFIC AMERICAN under the name of "Science Magazine" is the oldest-lived. It has been published since 1986. The reason for this early interest in translating the international scientific journal goes back to the publisher which is Kuwait Foundation for Advancement of Science, established in an imitation of "the American Association for Advancement of Science," the original publisher of the journal SCIENCE.

The Arabic versions of international magazines are issued in luxurious editions attractive to readers and adopted by non government organizations even though their founders or supervisors are close to the ruling families in the Arab Gulf countries, namely King Abdulaziz city for science and technology and the Kuwait foundation for the advancement of science.

The Arabic editions of scientific journals are limited to the East (machraq) and absent in the West (Maghreb) and the reason for this seems to be the fact that the eastern Arab countries are more strongly attached to the Anglo Saxon culture than the western ones which are more influenced by the French world of publishing, and it is well known that the British and the Americans are pioneers in the dissemination of scientific culture in addition to the fact that in the western Arab countries, organizations that are involved in the promotion of science, no matter how rare they are, do not enjoy the same financial support as that enjoyed by the Gulf organizations.

Besides, the biggest scientific and cultural organization is the ALECSO (Arab League Education, Culture and Science organization) publishes the Arabic scientific magazine for kids of which only Three thousand copies are printed, and one thousand is sold during the Sfax children book exposition, as for the rest, it is distributed to the different Arab capitals¹⁰. This magazine ceased for bureaucratic reasons and then it got published again without being

distributed but had to wait for visitors to the ALECSO headquarters to be collected. Lately, it was published in digital format on the internet, and it is not the limitation of financial resources that hindered its publication in tens of thousands of copies, nor was it the scarcity of demand on it, but what really hindered its circulation was the absence of the desire to diffuse scientific culture as in the bureaucratic environment, the appearance of a new issue of the magazine became a reminder to directors and supervisors in the organization that such or such a section still exists.

The story of « The Scientific Arab » magazine

The magazine « Scientific Arab » was first published in the year 2012 by the Kuwaiti ministry of culture and it was met by a great popular demand as it was selling 30 thousand copies and demand kept rising in a way that made the chief editor decide in the spring 2014 to increase its printing to 50 thousand copies like the most circulated magazines on the Arab market. But suddenly, the chief editor was dismissed and the magazine ceased publication. There was no explanation to what happened if it is not a war on science in the Arab Gulf.

Radio and Television :

The situation of scientific information in Arabic TV channels and radio stations is no better than its situation in scholarly magazines. The Arab Satellite Broadcasting Annual Report of the **ASBU*** claimed that in the year 2014 there were 1294 TV channels broadcasting for the Arab world, among which 95 were religious channels¹¹ against only one scientific channel which is « National geographic Abu Dhabi », in addition to some educational channels mainly in Egypt.

A survey that was carried out on the production of scientific programs by *Arab Radio and Television Channels* and which covered 18 institutions either broadcasting instances or private production companies found out that the size of scientific programs was very limited. And maybe the figures relating to Tunisia were the most reliable where the surveyor estimates the ratio of scientific programs production to one percent of the total programs production, as for the broadcasting of scientific programs, it is estimated to 1.5

* ASBU means "Arab States Broadcasting Union" which is an organisation from the League of Arab States.

percent of the total broadcasting time. In the case of radio broadcasting these programs represent 3 percent of the total production and 2.8 percent of the total broadcasting time, whereas we believe that the most realistic ratio is only 1 percent if not below that, because of the insertion of some humanities programs among those dealing with science and technology.¹² (Guentara, 2006)

Perhaps the most famous "scientific" program in Arab television since it was started is "Science and Faith"* the goal of which is to highlight the "greatness of the Creator" and make science a servant of religion rather than a way to understand the world and change it.

PCST IN SOCIAL MEDIA

Social media has shown both its strength and efficiency in the popular uprisings of what was called « the Arab spring » in 2011. And the facebook usage rhythm in the Arab region was accelerated to increase from 16 million in 2010¹³ to around 82 million people in 2014¹⁴. The youth between 15 and 29 years of age represent 75 percent of Facebook users in the Arab region¹⁵. The Arab youth has found in social media, just what it was missing to spread scientific discourse, since all they need, is a computer and an internet connexion. And thus, hundreds of scientific pages were created on social networks using only a knowledge capital and "*with a total budget of exactly zero Dirhams*"¹⁶

Thus, social media has put an end to the conservative control that was sustained by oil money, on the scientific discourse via their control of traditional media. Scientific internet sites got to run various pages on the different social networks and especially facebook, twitter and youtube, where we counted in our survey 22 pages on facebook the first of which gathering over 57 million fans whereas the last gathered over 100 thousand fans , the table looks as follows :

* Science and Faith (al ilm wa al iman) is an egyptian program broadcasting in many arab channels. More than 400 episodes were produced between 1971 and 1997 and presented by *Mustafa Mahmoud* who is an Egyptian writer and journalist well known by his hostility towards Socialism, Liberalism and Secularism and his propaganda for an Islamic State. See his book "Political Islam and the upcoming battle" (alaslama alssiasi walmaarakat alqadima).

Table 2 : Arabic scientific pages on facebook :

Page's Name	Start Date	N° Fans 13/03/2016	Link	Slogan
National Geographic Abu Dhabi	July 2012	56 407 706	www.facebook.com/NatGeoAbuDhabi	
Dailymedicalinfo	Dec 2009	12 866 369	www.facebook.com/DailyMedicalinfo	Your health matters
WebTeb		4 855 274	www.facebook.com/Webteb.net	Information trust
Futurism			/www.facebook.com/mostaqbal.ae	Building the future together
Science & Industry	Oct 2010	2 188 655	www.facebook.com/3lom.sena3at	Industry starts thanks to science. And science ends in industry
Syrian Researchers	Feb 2012	1 725 185	www.facebook.com/Syrian.researchers	SCIENCE IS THE SOLUTION
ArabInvent	Feb 2011	1 689 793	www.facebook.com/arabinvent	Your first Arab source for world inventions
4 Tech		1 066 387	www.facebook.com/bbc4tech/info	BBC in Arabic
The world of Technology		949 969	www.facebook.com/tech.wd	Tech news in your hands
National Geographic العربية Magazine	Dec 2010	877 629	www.facebook.com/NatGeoAlArabiya	Your window on a world that you didn't live before
Scientific Horizons	Mar 2011	819 811	www.facebook.com/Scientifichorizons	Your window on science and knowledge and your eye on the future
I Believe In Science	Sep 2011	806 351	www.facebook.com/lbelieveInSci	I believe science: because it is the only cognitive approach that has proved its worth
Aljazeera Science and Technology	Nov 2014	778 098	www.facebook.com/AJASciTec	

Page's Name	Start Date	N° Fans 13/03/2016	Link	Slogan
Scientific Saudi	July 2012	383 659	www.facebook.com/ScientificSaudi	Delivering science for all
NASA In Arabic	Dec 2012	296 022	www.facebook.com/NasaInArabic	We begun by the translation of science to finish by product it
Egyptian Researchers	2014	225 331	www.facebook.com/EgyptianResearchers	First Egyptian Scientific Initiative .. with science we rise
Nature Arabic Edition	Oct 2012	198 560	www.facebook.com/NatureArabicEdition	Joined the pioneers of science
The Physicists	July 2012	188 195	www.facebook.com/ThePhysicistsArabic	Physics may tell us the truth of our existence
The Theory Of Evolution	Sept 2011	167 865	www.facebook.com/thetheoryofevolution	The Evolution is a scientific fact
The Aliens	Mar 2015	144 622	www.facebook.com/aliens.sci	Dissemination of scientific knowledge and the scientific method in the Arabic-speaking communitie
Scientific Researches	2014	135 344	www.facebook.com/Sci.Ress	Youth Scientific project for the dissemination of science and cultural awareness among the entire Arab world
The Moroccan Scientific Community	July 2012		www.facebook.com/MoroccanScience	voluntary Moroccan initiative for the dissemination of scientific news by smooth manner explanations
Iraqi Translation Project	Apr 2013	108 000	www.facebook.com/Iraqi.Translation	Because of decades of obscurantism does not end until to know the other who is successul .. we must translate.
<p>We took one hudred thousand fans as a threshold to insert our scientific page on facebook in our table so that our last classified scientific page will have more fans than those of the Arabic printed scientific press all together , as for pages with less than one hundred thousand fans, there hundreds of them and some of them grow to attract tens of thousands whereas others just dissappear.</p>				

We notice from the table :

First : Most of these pages were created after the popular uprisings in what got to be called « the Arab spring » in an attempt to democratize science and a hope for a deep social change.

Second : the most important scientific page was started after the « Arab spring » in Syria and during the war that is still raging now and this page is the page of *Syrian Researchers*, this page is not directed to academic researchers but to the general public. This makes us wonder if the understanding of science in time of war represents a priority in Maslow's hierarchy of needs ?.. As it quickly spread in the Arab world to reach one million fans by mid 2015, and , this figure was doubled during 2016, the page has 450 admins of Arab volunteers who publish video clips all day long in addition to articles in science fields and this may be considered as some sort of reaction to the Islamic Arab fighters in Syria and another aspect of the battle for modernity in the south mediterranean.

Third : these pages cooperatate togther in a way that one of them would publish some of what was already published by the others. In addition to that 15 pages among them launched a campaign to defend the theory of evolution. The page called *The Theory of Evolution* gains new fans even though slowly which is consistent with the claim that the book of *Richard Dawkins* « *the god delusion* » in its Arabic edition was downloaded more than 10 million times in the Arab world among which 3 million times in Saudi Arabia alone.¹⁷

Fourth : The Arabic page of National Geographic attracts more than 57 million fans whereas the same channel in its original English edition does not attract more than 41 million fans despite the fact that Arabic speaking people are fewer than English speaking people and have less access to internet. Even though the Arabic page is considered relatively inactive compared with its English equivalent . this turnout for scientific sites reflects the Arab public's thirst to this kind of knowledge.

Fifth : In the numeric era, the Scientific pages were launched thanks to Arab youth whether in their home countries or abroad for an age of Arab Enlightenment.¹⁸ The slogans on these scientific pages reflect the desire of these youth for social change, the slogan of the the page : **Iraqi Translation**

project is : « *Because decades of obscurantism do not end until we know the other who is successful, we must translate* », integrates with the slogan of **Nasa in arabic** : « *We begun by the translation of science to finish by producing it* » .

What is worth noting is the fact that Arabs contribute only with 3.2 percent of the global gross domestic product*, and produce only 1.6 percent of the scientific articles** whereas they represent about 5 percent of the global population, besides, those articles have a slow impact factor, as for the patents that they register, these are very few and not one Arab university figures among the top five hundred universities in the world which makes the present Arab understanding of science a great scandal. Perhaps , the French senate was right in claiming that the ignorance of science by public could lead to a new obscurantism which is profitable to extremists and terrorists.¹⁹

However 95 percent of the students arrested in Tunisia in relation with terrorist cases belong to scientific branches. They might be specialists but they do not possess a scientific culture . we might need to carry out a new search to verify this hypothesis. But what is certain is that the public's understanding of science falls within the framework of the battle of modernity on the south coast of the Mediterranean.

CONCLUSION :

Conservatism controls the scientific discourse in traditional mass media in the Arab world. First the Ottoman Turks forbade the introduction of the printing machine to the muslim world. Then, after it was introduced, it was hoarded . Then the conservatives dominated the printed press in a way that stalls were jammed with all kinds of publications but scientific magazines which were nearly absent. Next they dominated Arab space channels: any scientific discovery was emptied of its content to the profit of propaganda for intelligent design and the might of the great creator in an attempt to get people back to the religious camp any time Science opened new horizons for thinking. Furthermore, the administrative bureaucracy with a tendency to red tape and

* According to the International Monetary Fund, the Arab produce 2 400 million US dollars over a Global Gross Domestic Product of 73 188 million US dollars. Retrieved from <http://knoema.fr/nwnfkne/world-gdp-ranking-2016-data-and-charts-forecast>

** According to the International Bank the Arab published 36 107 over 2 183 993 scientific articles which were published all around the world in 2014. Retrieved from <http://data.worldbank.org/indicator/IP.JRN.ARTC.SC>

inactive, was allied with the conservative movement, against science. They don't spend on scientific researches and they support a distorted understanding of science that mingles with religion.

The social uprisings in what is known as the « Arab spring » which coincided with the spread of new communication media and especially social media opened a path for social expression . The youth started by creating tens of scientific pages which very quickly attracted millions of fans among the public ending thus the domination of the conservative trend on scientific discourse. These pages started to publish all day long translations of what is published by western scientific pages such as IFLS , and they covered daily the most recent scientific discoveries mainly in astronomy. They also work on the promotion of the evolution theory and the purification of science from religious superstition and keep up to date with the most important technological innovations and inventions in the march of human civilization. It's the war of rationality online. And the fact that public is more engaged than governments in science communication makes a necessity of a new paradigm other than "public engagement".

NOTES

¹ “ the Committee on the Public Understanding of Science ” was founded in 1985, on the recommendation of a special committee within the British Parliament through the coordination of the efforts of three prestigious institutions in science, namely “ Royal Society ”, “ The Royal Institution ” and “ British Association for Advancement of Science ”

² Mission to Mars blasted by religious watchdog <http://www.euronews.com/2014/03/07/mission-to-mars-blasted-by-religious-watchdog>

³ Russel, Bertrand. The impact of science on society, 1968, New York: AMS PESS
Retrieved from <https://archive.org/details/TheImpactOfScienceOnSociety-B.Russell>

⁴ Laroui, Abdullah. *al-aydyw/wjya al-arabia al-mueasira* [The Contemporary Arab Ideology] , 1995. Casablanca: al-Markaz al-Thaqafi al-Arabi

⁵ Zakaria, Fouad. *al-tafkir al-ilmi* [Scientific thinking], 1978, Kuwait, National Council for Culture, Arts & Letters

⁶ Deeb Thaer, tarjamat aleulum wamasayiruha fi alththaqafat alerby: muhawalat fi siyasat alhtarjima [Translation of science and their destinies in the Arab culture: An attempt in translation policies] Tabayyun, vol 2, n 6, autumn 2013, Doha Arab Center for Research and Policy Studies

⁷ *at-takrir al-arabi alqamees li tanmia athaqafia* [The fifth Arab report for cultural development], 2012, Beirut, Arab Thought Foundation, p 7 Retrieved from <http://arabthought.org/en/5th-annual-arab-report-cultural-development#.V8b6ujUbs6Y>

⁸ Scientific progress indicates in the editorial of its number 67 of december 2009 that it increased the number of its printed copies from three thousand to five thousand and then to ten thousand. And according to what was mentioned by those in charge of the social network site of « Middle East nature » magazine the Arabic edition of this magazine is distributed in 10 thousand copies.

⁹ Mufadhal, Waheed Muhammad)K the reality of Arabic scientific information and the current challenges, in « Scientific progress » Nbr 67, Dec. 2009 P. 21

The magazines that we omitted are : World culture, the Oryx (Awadhihi), Scientific miracles, Al-khafji, and Hira magazine

¹⁰ Boulila, (Mustapha), Scientific Arabic magazines in Tunisia : Between public concerns and the scarcity of edition and distribution, a research master's dissertation in information and communication sciences, the Institute of press and information science, Tunis, 2012

¹¹ High Committee for Coordination among Arab Satellite Channels, Annual Report on Arab Satellite Broadcasting ,Arab States Broadcasting Union, Tunis, 2014, p. 279

¹² Guentara, Mohamed, *Intaj albaramej al ilmia wa al teknouloujia fi al ithaat wa telfiziounet al arabia*, Arab States Broadcasting Union, Tunis, 2006, p. 15

¹³ Arab Social Media Report, Dubai School of Government, May 2013 , p. 7. Retrieved from www.ArabSocialMediaReport.com

¹⁴ Arab Social Media Report, Dubai School of Government, June 2014 ,6th edition , p. 3. Retrieved from www.ArabSocialMediaReport.com

¹⁵ Arab Social Media Report, Dubai School of Government, January 2011 ,Vol.1, No.1 , p. 7. Retrieved from www.ArabSocialMediaReport.com

¹⁶ "Traditional Arab media, particularly TV, have failed to communicate science well to the general public (...) with a total budget of exactly zero dirhams, I am very proud of what we produced said astrophysicist Nidhal Guessoum about his page on facebook and twitter."

Science revolution via social media, Nadia El-Awady, NATURE MIDDLE EAST, Published online 3 August 2015
<http://www.natureasia.com/en/nmiddleeast/article/10.1038/nmiddleeast.2015.129>

¹⁷ El Ghazzali. (2014). The god delusion. Retrieved from <https://richarddawkins.net/2014/11/the-god-delusion/>

¹⁸ Alduhishy, Muath. Malek, Mouhannad. (24 SEPTEMBER 2015). Popular uprising spreads science. NATURE. VOL 525. 455

El-Awady, Nadia. (2015). Science revolution via social media. NATURE. 3 August 2015.
doi:10.1038/nmiddleeast.2015.129

¹⁹ session extraordinaire de 2002-2003,rapport d'information N° 392 , p 6

REFERENCES

Arab States Broadcasting Union ,Annual Report on Arab Satellite Broadcasting , Tunis, 2014

Guentara, Mohamed, *Intaj albaramej al ilmia wa al teknouloujia fi al ithaat wa telfiziounet al arabia*, Arab States Broadcasting Union, Tunis, 2006

Arab Thought Foundation *at-takrir al-arabi alqamees li tanmia athaqafia* [The fifth Arab report for cultural development] , 2012, Beirut

Charfi,Faouzia Farida.La science voilée [The Veiled Science] , 2013. Paris: Odile Jacob

Laroui, Abdullah. *al-adywlyjya al-arabia al-mueasira* [The Contemporary Arab Ideology] , 1995. Casablanca: al-Markaz al-Thaqafi al-Arabi

Russel, Bertrand. The impact of science on society, 1968, New York: AMS PRESS

Trefil James, Why Science? Teachers College Press, 2008

Zakaria, Fouad. *al-tafkir al-ilmi* [Scientific thinking], 1978, Kuwait, National Council for Culture, Arts & Letters