

Is mass media beneficial or not for the information of the general public?

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Abstract:

The International Year of Physics reminds us, among other things, of the way in which Einstein became famous. In spite of all his remarkable scientific results, without the contribution of the press he would not have become so well known in the entire world as he was and continues to be after a century. And he is not the unique example of celebrity due to mass media (see Carl Sagan or Stephen Hawking). In 1969 the first man stepped on the Moon. It was maybe the first cosmic event, which became famous due to a live TV broadcast. Others followed, if we are to mention only the total solar eclipse of 1999 or Venuss transit of last year. Consequently, mass media can make a scientist famous, can also make an event understood and admired and can attract hundreds or maybe millions of people to science. The same mass media can also destroy a personality or an event. We shall give only two examples: the distrust of many people concerning the same Moon landing or the manipulation of millions of people by means of astrology. All this urges us to make a very thorough analysis of the way in which scientific information is communicated to the general public: well done, it can be beneficial; otherwise it may drive the new generations away from research, the understanding of the phenomena, the neglect of the environment and finally from the neglect and the destruction of our own planet.

1 Introduction

2005 has been the International Year of Physics. All of us have celebrated 100 years of relativity. But the same event has reminded us the way in which Einstein became famous.

A total solar eclipse was the best event to verify his theory. German astronomers went to Siberia for the total solar eclipse (TSE) of 21 August 1914. Unfortunately, the First World War started and they were taken prisoners. The experiment was not done, but the journals talked about it. It was also the chance of Einstein. His theory was not yet finished, so the expedition could be a fiasco.

But only in a few years, on 29 May, 1919 a new TSE was announced. Sir Arthur Eddington, a British royal astronomer went to observe it to the African island of Principe. The experiment proved the truth of the theory and Einstein became famous over night, but not only due to his scientific results. It was also the contribution of mass media. A British astronomer verifying a German theory! That was quite an event after the war between the two nations. On November 7, 1919 the London Times wrote: Revolution in science New Theory of the Universe Newtonian ideas overthrown.. On November 10, 1919: The New York Times published: Lights All Askew in the Heavens / Men of Science More or Less. Agog Over Results of Eclipse observations / Einstein Theory Triumphs. The Einstein image in mass media exploded.

Moreover, Intellectual Hero prior to the WW II link with the atom bomb. $E = mc^2$ not crucial for atomic energy but in popular culture as the sorrowful father of the atomic age, whose genius was used to tragic ends. T-shirts, mugs, cartoons, calendars, post cards, and also featured in popular films. A wild-haired, sock less, disheveled, eccentric genius with a heart-our popular culture hero, this is the currently accepted symbol of intelligence.

2 Back in history

It is maybe the most exciting example of the role of mass media but we have to go down in history to see how it evolved.

There was a monk and mathematician, Marin Mersenne (1588-1648), who could be considered the first post office for all scientists in Europe. It was an epoch of letters, but he succeeded to inform the large public about the scientific news.

On 5 January 1665, the judge Denis de Sallo published *Les Journals des savants*, maybe the first scientific journal for the large public.

The series of scientific journals had just started: *Philosophical Transactions* (1665-1678, 1683-1775) of the Royal Society published world news from science and technique. The number of such journals increased everywhere in the world.

3 Scientific journalism and scientists

In our days the public has to face an avalanche of news from all sciences, astronomy being the most exciting of them. How to manage it? Some scientists are ready to help them. Who are they? Difficult to say. It is enough to look at three of them to see that maybe the unique common particularity is their enthusiasm. The most famous was maybe Carl Sagan (1934-1996). As one of the *Time* covers shows, he was really a showman of science. He emphasized:

- the need for skepticism in critical thinking and the necessity for checking and corroboration of claims before accepting them;
- the role of the mass media in shaping our characters and opinions;
- more and more mass media operations are coming into the possession of fewer and fewer individuals or groups;
- the need for scientists to be communicators, to use the media and the classroom to explain to the masses the truths and beauties of science, instilling in them the sense of wonder, which drives people, like himself.

He was hopeful that the internet will be an antidote for this concentration of control over information. His criticisms of typical science instruction and the paucity of science writers for popular markets are right on target and worth being perused by science educators.

A special case is Stephen Hawking (b. 1942). It's not often that a physicist gathers together a large auditorium full of enthusiastic fans specially when tickets range in price from 28USD for students to a pricey 69.50USD. On April 27th at the University of Toronto's Convocation Hall, 1200 people welcomed him. The audience stood up to greet the 56-year-old, stricken with Lou Gehrig's Disease, with prolonged applause as he wheeled his wheelchair up to the front of the darkened auditorium, a lone light shining on his face. They came to hear him speak about the "theory of everything" an attempt to unify all the elements of physics in one single theory, from the tiny atom to the vast universe. As his computer synthesized voice rang out over the speakers, the hushed audience listened with attention to a man considered to be the most brilliant since Einstein.

Hubert Reeves (b. 1932). He is one of the most popular scientists in France, very present in the media, with his white beard and friendly smile. He promotes an optimist view of the universe and of our prominent place in it. He is the main guest of the annual “great mass” of popular Astronomy: “The night of the stars” at the national network France 2.

So, everyone could be an example why astronomy has to be transmitted to the large public and the success of everyone proves that people are hungry for scientific information.

4 Special astronomical events and mass media

From time to time different astronomical events attract the large public.

Maybe the first cosmic event, which became famous due to a live TV broadcast, was the first step of the man on the Moon. Everyone expected breathlessly the dream to become reality. But did men really land on the Moon? Look at the question which came up quickly in the journals. The famous Gallup answered: only 6% of the public believes the landing was faked and another 5% have no opinion.

Each eclipse, especially the total solar ones gathers millions of people to look at such spectacular phenomenon. Remember the transit of Venus in 8 June 2004, maybe the most disseminated event in the world, by TV, radio or internet.

5 Mass media and scientists

Certainly, we could ask the question: which is the role of mass media in promoting science, of the scientists themselves?

- for most of us it was the first step taken by science. Many years ago Jules Verne was the first book read by the young which were attracted to the mystery of science. Now it is useless to talk about the role of Discovery channel, scientific journals for amateurs or the internet.
- Journalism can be an interesting and rewarding career. And many of the necessary skills, such as curiosity, the ability to follow a complex argument, and problem solving to elicit information, may be found in science graduates.
- Science writers have to cover stories pertaining to various scientific disciplines - from energy and the environment to epidemics and astronomy.
- Specific scientific knowledge is less useful than the ability to grasp new concepts quickly and present them in a way that makes them entertaining and informative to a broad audience.

6 The malefic effect of scientific journalism

Such an effect exists. It is enough to mention the inflation of horoscopes in the mass media of any country. People like them more than anything else. The truth is that they are only creating an illusion of science, they are using science to win money and audience.

But false information comes not only from astrology. Life in the universe, this inexhaustible source for the amateurs of UFO, is one of the most distorted mass media subjects.

Even the space missions are not circumvented by false communication. Think of how many journalists create public fear. It is enough that they speak about the alignment of the planets, eclipses, fall of asteroids, or comets and what should be a source of knowledge becomes a source of terror.

7 Conclusions

This paper should be an alarm signal for our colleagues: scientists or journalists. We have to do more so that science is perceived in all its beauty and for profit of all mankind. But we would like to draw a few conclusions.

- *Scientific journalism training* The faculties of journalism have to introduce classes of natural sciences. Otherwise, with the weak knowledge received in the school and being themselves victims of the mass media, it is not difficult for the students to take what they know for good.
- *Advice for scientific news* All of us know that it is not pleasant to interrupt your work to explain why the sky is blue, why there is full moon and thousands of other questions. But if we don't make time for this, others will and public knowledge will suffer.
- *Better links between scientists and journalists* It is an advice for both sides. If everyone is working for himself, without any connection, any dialogue, the result will be negative for the public.
- *A more courageous attitude versus astrology* We complain of what is written in the journals but how many of us are daring to face such a delicate problem as astrology.
- *A deeper interdisciplinary analysis of scientific journalism: sociology, psychology, teaching, science* The cooperation between them will raise the level of the mass media and the public will be better informed. We'll know better why we do what we do and how to do it better. Maybe international bodies such as the European Astronomical Society should organize special working groups to create a strategy in this interdisciplinary field of interest.
- European funding for national scientific mass media is necessary, especially for poor countries where this is the last one on the budget or is practically missing.

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