

EDITORIAL

You surely know one of the variants of Ho and Hi's story.

The incident took place allegedly on 22 October 2137 BC (if such a date means anything), the day of one of the oldest total solar eclipses recorded in the Chinese annals.

Ho and Hi were the official astronomers of the Chinese Emperor of the time, but they much more preferred enjoying life and drinking than watching the sky. On that eclipse day, they neglected to take the measures necessary to frighten the monster devouring the Sun: there were no archers with their bows and arrows, there were no drummers nor hornblowers.

The Sun ultimately got out of trouble alone, but the Chinese Emperor, who had had a hard time recovering from his terror, got Ho and Hi beheaded for dereliction of professional duties. It is said that no astronomer has ever been seen drunk for an eclipse event since that fateful day.

The job profile of astronomers has also substantially evolved over all those centuries: from astrologers and prince counselors to expert educators in exact and natural sciences; from mere observers of the sky and predictors of simple periodical celestial events regulating crops, cults and everyday life, to high-precision calculators of the most complex phenomena; from time-keepers and surveyors to experts in a wide range of sophisticated specialized areas in science and technology.

If, over the centuries, our science has become both more rigorous and more diversified, it has nevertheless retained its fundamental human aim: understanding the universe, as well as the place and role of man in it. And we should never forget that it all comes down to a few photons reaching us from outer space¹.

¹With the exception of experiments carried out *in situ* by solar-system spacecraft in our immediate cosmic neighborhood.

And the collection of these photons by detectors, always more sensitive, more panchromatic and more imaginative, is the way that current daily astronomy is carried out, together with complex theoretical investigations, interactions with external fields, non-scientific disciplines, instrumental technologies, and information handling methodologies.

If history can help in putting in perspective the current astronomy-related activities and some of their recent significant trends²,

- how can we *factually* describe the astronomy world?
- how can we *quantitatively* evaluate its present-day productivity?
- what are its strategies as to selection of programs and investigations?
- how well are its recruitment and promotion policies working?
- how reliable are its publishing and communicating procedures?
- how does the astronomy community compare with other scientific sub-populations?
- how are its relationships structured with society at large?
- how are national and/or regional specificities modulating the above, if at all?

Additional issues are certainly also of interest, such as

- the definition of quality research and its evolution over time;
- the distinction between trendiest and best science;
- the relationships between administration and research;
- the management policies of big projects, of large institutions, of international consortiums, ...
- and so on.

In some countries, astronomers are supposed to do research, but also to teach, to supervise students and to carry out service activities (such as maintenance of databases, development of instrumentation, involvement in space projects, and so on), and sometimes one has the feeling that the last three aspects have more importance than the basic first one when comes the time for evaluating the individual merits for promotion or tenure. How do we compare factually such activities with, say, publications in refereed journals? Public outreach and ‘political’ activities of all kinds (committees, lobbying and so on) are also taking an increasing share of time.

All such themes can naturally be considered as sociological research axes.

For a community such as the astronomy one, sociology could be defined as “the systematic study of the development, structure, and function of a

²Trimble (1999) identifies seven trends over the last century: more people working in astronomy; new kinds of people working in astronomy; fewer journals in which astronomers publish regularly; technology as a drive; dominance of top-ranked institutions; international collaborations as the norm; and shifting lines between subfields.

human group conceived as processes of interaction or as organized patterns of collective behavior". Dynamics has however to be emphasized because of the rapid changes taking place nowadays in the community interactions, such as those induced by the electronic medium (e-mail, e-publishing, visibility via the web, and so on). Quantifying is fundamental as William Thomson (Lord Kelvin) expressed it well by saying in substance that one may think one knows a subject, but until one can measure it and calculate it, its knowledge remains of a vague and unsatisfactory kind.

Thus *quantitative socio-dynamics* of the astronomy community stands at the crossroads of sociology itself, of scientometrics³, of the rising fields of cultural astronomy and of ethnology of astronomy, as well as of the factual and quantified approaches scientists have increasingly of the dynamics of their own communities.

General books are readily available on sociology of organizations, but there are not so many recent *quantitative* studies related to the sociology of science (see *e.g.* Adams 1998 and Senker *et al.* 1999). As far as astronomy is concerned, specific studies have been carried out by individuals on publications, citations, and productivity as well as on career aspects, organizations, communicating research, the e-phenomenon, and so on⁴.

Some of the considerations presented in this volume might appear naive to professional sociologists, in which case two comments would be in order:

- we actively looked for collaborations with sociologists, but those we contacted personally or via general invitations published in *ad hoc* newsletters were more interested by trendier things in their field than by quantitative studies with astronomers;
- the 'sociological' literature we could peruse is dramatically failing appropriate insight into the way scientific communities such as ours work in real life.

Therefore, there is definitely an interface to be built between the two communities with, on one hand, sociologists taking advantage of the well-defined, well-structured and compact astronomy population and, on the other hand, astronomers benefiting from the experience of another category of professionals.

The practical questions listed above are indeed expecting educated answers at the dawn of the 21st century and in a society that has now – after the end of the Cold War and long after the landing of Man on the Moon – other priorities (such as environment, health, security, unemployment) than space investigations or cosmological perceptions.

³*Scientometrics*, a term coined by Robert King Merton (1973), can be defined as measuring results and development of science, while doing this by analyzing publications is more precisely called *bibliometrics*.

⁴Refer to the bibliography at the end of this volume.

A few themes will be tackled in the present volume, which will normally be the first one of a series and which is, in any case, the first of its kind.

The book starts with a chapter by the Editor illustrating basic characteristics of the major categories of astronomy-related organizations round the world, setting a kind of background on how astronomy-related activities are currently structured over the planet. With the specific example of the *Astronomische Gesellschaft*, Werner Pfau then describes the sometimes hard life of professional societies through the convulsions of recent history and contemporary geopolitics.

The next three chapters relate to professional publications. Helmut A. Abt extensively illustrates how quantitative information can be obtained in many respects from astronomical publications and from citations. The subsequent contribution by Laurence Esterle and Michel Zitt is devoted to the analysis of indicators derived from publications and collaborations. Thirdly Stuart R. Pottasch shares his long experience as Editor in Chief of *Astronomy & Astrophysics* on the refereeing system in astronomy.

Going on with this theme of evaluation, two chapters detail the planning of space science experiments by two major agencies of the planet: J. David Bohlin for the US *National Aeronautics and Space Agency (NASA)* and Serge Volonte for the *European Space Agency (ESA)* – two different approaches also linked to two distinct ways of funding space science in the respective areas of the world.

After a general chapter by the Editor describing the various aspects and channels of astronomy-related communication, Terry J. Mahoney emphasizes the advantages of institutional editorial services assisting non-anglophone scientists in a basically English-speaking scientific world.

We then move to a couple of chapters dealing more particularly with the interactions of the astronomy-related world with the outside society. Jack Meadows puts popularization activities in a recent historical perspective and Raymond E. White describes a very interesting initiative – a series of dedicated conferences – bringing astronomers together with people from the arts and literature.

The book concludes with an extensive bibliography of publications relating to socio-astronomy and to the interactions of the astronomy community with the society at large.

It has been a privilege and a great honour to be given the opportunity of compiling this book and interacting with the various contributors. The quality of the authors, the scope of experiences they cover, the messages

they convey make of this book a unique publication – with an impressive breadth never achieved before.

The reader will certainly enjoy as much as I did going through such a variety of well-inspired chapters from so many different horizons, be it also because the contributors have done their best to write in a way understandable to readers not necessarily hyperspecialized in astronomy while providing specific detailed information.

I am specially grateful to L. Houziaux for writing the foreword of this book.

Finally, it is a very pleasant duty to pay tribute here to the various people at *Kluwer Academic Publishers* who quickly understood the interest of such a volume and enthusiastically agreed to produce it.

The Editor

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