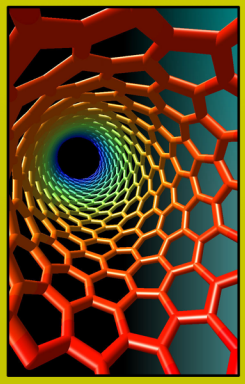


the multidimensional world of tibor braun

a multidisciplinary encomium for his

75th

birthday

This special volume of the ISSI Newsletter is sponsored by

Katholieke Universiteit Leuven (K.U. Leuven)
Steunpunt O&O Indicatoren van de Vlaamse Gemeenschap (SOOI)
International Society for Scientometrics and Informetrics (ISSI)

The Multidimensional World of Tibor Braun

A Multidisciplinary Encomium for His 75th Birthday

special volume of the e-zine of the international society for scientometrics and informetrics

vol. 03-S March 2007

Editorial Board

Editor in Chief: **WOLFGANG GLÄNZEL**
Co-Editor of special volume: **ANDRÁS SCHUBERT**
Technical Editor: **BALÁZS SCHLEMMER**

Published by **ISSI**

international society for scientometrics and informetrics

The Multidimensional World of Tibor Braun
A Multidisciplinary Encomium for His 75th Birthday

Special volume of the e-zine of the ISSI, vol. 03-S March 2007

© 2007, International Society for Scientometrics and Informetrics
© 2007, Márta Wacha (graphics on page 10)

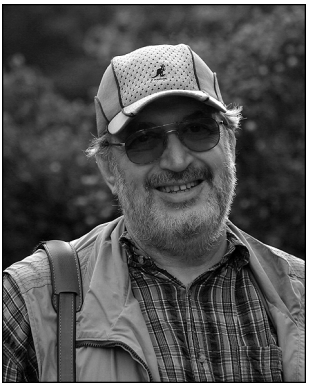
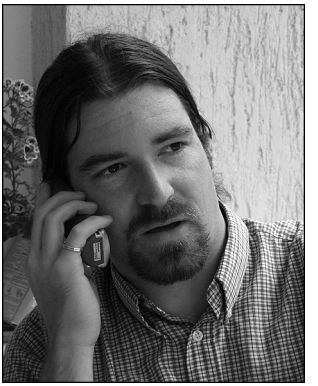
Cover & technical editing: Balázs Schlemmer

Printed by ACCO, Leuven (Belgium)
March 2007

Contents

Editorial

This special issue of the ISSI periodical presents a collection of papers to honour a great and multifaceted personality in science on the occasion of his 75th birthday. Twenty-five authors, colleagues and friends have submitted contributions; the letters, papers and notes shed light on many facets of Tibor Braun's activities, but they have nevertheless many common conclusions. Tibor's role as researcher in chemistry, information science and bibliometrics, his role as pioneer, organiser, promoter and gate-keeper, his impact on scientific research within his own fields of activity and even outside these areas – just to mention some of them. Besides this broad consensus, we can anyway draw a surprisingly new conclusion, too. We actually learn from this issue that Tibor is the living proof of the reality of perpetual motion, a perpetuum mobile that reliably works for 75 year as his friend Petre Frangopol convincingly reported; and based on Tibor's tireless work in the past and the present, Judit Bar-Ilan could extrapolate and predict his activity even for the following 45 years!

In this sense, we join the contributors and congratulants wishing Tibor all health, energy and prosperity he needs to continue his perpetual motion.

THE EDITORIAL BOARD

Letters to the Editor

Dear Tibor,

Let me send my best wishes and warmest congratulations to you and Clara for your 75th birthday. On the pleasant day I would like to present a special acknowledgement to you – it is your great academic career that inspired us to launch the study on the evolutionary rhythm of science.

For many years it had been a surprise to us why a scientist could be so productive and influential in two parallel fields. Few scientists like you could be a prominent chemist and a leading scientometrician at the same time. Five years ago before celebrating your 70th birthday, we launched a study on your academic career. The objective was to find a quantitative relationship between your chemical career and scientometric career and the rhythm of your scientific research. Indeed we discovered your rhythm curve and it is very beautiful. The extra gain was the creation of the rhythm indicator, a new indicator for presenting the rhythm of the evolution of science. During the past five years we have been working on this study and now a system of the rhythm indicators has been constructed. Thank you, Tibor. You give us inspiration and wisdom.

I wish Clara and you many happy returns of the day.

LIMING LIANG
Institute for Science Technology and Society,
Henan Normal University,
Xinxiang, 453007, P. R. China
E-mail: pllm@public.xxptt.ha.cn

A young boy, age 75!

Petre T. Frangopol

National University Research Council,
Ministry of Education and Research, Bucuresti (Romania)

The soul of Tibor is, as his many friends know, typically belonging to an adolescent. To be everyday in his office *exactly* at 6.00 a.m. and every afternoon in his lab at the Institute of Chemistry, Lorand Eotvos University, Budapest, Hungary, till late in the night, a constant program in the last several decades, this is, we should accept, a panacea found by Tibor Braun for his necessity of having, as much as possible, time and also, for stopping the advancement of his age, in preserving an old habit: working hard for *his bright ideas*.. A brilliant scientist working until today in two parallel fields, chemistry and scientometrics, he became a prominent chemist and a leading scientist in scientometrics, founder of five outstanding international scientific journals (*Fullerene Nanotubes, Scientometrics*, *Journal of Radioanalytical and Nuclear Chemistry, Radiochemical and Radioanalytical Letters, Carbon Nanostructures*), Tibor, only with this Spartan program, was able to accomplish his exceptional professional career, with an immense contribution. This is a short portrait of a young boy, Professor Dr. Tibor Braun, who is defying his age, having *only* 75 years, on March 8, 2007.

The globalisation of Tibor Braun achievements in Chemistry and Scientometrics are a lemma. No need for any demonstration. Simply, the enumeration of his scientific papers (over 350), citations (over 2700), Hirsch index (27), books (over 30 edited by top publishing houses around the world), is more than eloquent.

The scientometrics became not only a science but and an *Institution* when Tibor founded the journal *Scientometrics* in 1978 and became his editor in chief until today.

We started (1956) together our career in chemistry and radiochemistry in Bucharest, Romania, at the newborn Institute of Atomic Physics, where he worked until 1963, when he was obliged to choose between Romanian citizenship, the country where he was born, and the Hungarian citizenship inherited from his parents. He chose Hungary. Tibor has two native languages: Hungarian and Romanian and is fluent in other four: English, Spanish, German and French.

Professor Tibor Braun is one of the *pioneers of the Romanian radiochemistry,* particularly the radioanalytical chemistry (radiometric titrations, analysis by isotopic dilution, radiochromatography etc). He has his established place in the *History of the Romanian Chemistry* by his numerous books and scientific papers published in outstanding international journals, like *Nature, J. Inorg. Nucl. Chem., Mikrochimica Acta Revista de Chimie (Bucureşti)* etc, during his period of scientific activity in Romania.

On June 7th, 2006, the Senate of the Technical University of Cluj-Napoca, Romania, awarded him the *title of Doctor Honoris Causa of the University*. It was an emotional feast, bringing his friends and colleagues from all the University towns of Romania (Tg. Mures, Iasi, Timisoara, Bucuresti) even from abroad (USA) to Cluj-Napoca, where they arrived especially for this event. It was an unforgettable ceremony.

I should emphasize *sa noblesse de l'ame*, his unusual friendship: he will never refuse to do a service for someone, if he can do that. His vast scientific and humanistic culture, confer to him a charming personality, always jovial, ready to say the latest joke and to taste with you the philosophy of the humour.

Happy birthday Tibor from my wife Mioara and myself !

Received: 18 February 2007

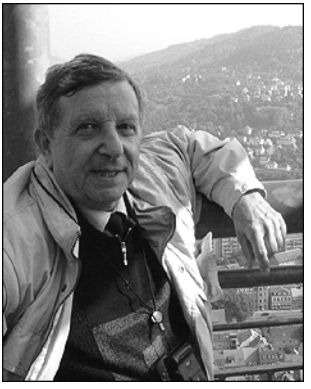
Address of congratulating author:

PETRE T. FRANGOPOL, DR. ENG.
Professor of Chemical Biophysics; Counselor, National University Research Council, Ministry of Education and Research, Bucuresti, Romania; Member of the Presidential Commission (established by the President of Romania) to elaborate the policies in the fields of education and research in Romania
Email: prallifrangopol@yahoo.com; pfrangopol@clicknet.ro

The dimension of Tibor Braun

Manfred Bonitz

Dresden (Germany)



In the multidimensional space of scientometrics Tibor Braun represents a unique dimension. He was awarded the Price medal in 1986. In a paper [1] devoted to all winners of this award up to 1993 I wrote:

"In our community Tibor is well-known as the founder of the journal Scientometrics. (The members of the editorial advisory board of this journal have elected the Price medal winners since 1984).

In many respects Tibor and Mike (Moravcsik) are very similar. Tibor never stopped working actively in his 'native' fields – analytical and radioanalytical chemistry – while continuing research in scientometrics. His highly-cited papers are spread equally over both fields.

The combination of serving science with scientific information, on the one hand, and doing scientometrics research on the basis of the same information, on the other, is unusual. Science policy, certainly in Hungary, and probably worldwide, has to be very much indebted to Tibor.

That's what I mean by making an analogy to Mike Moravcsik: all three dimensions: – active work in an established field, research in scientometrics, and involvement in science policy -, this combination is seldom found even among the Derek Solla Price medal winners."

Being a fish like Tibor, I wish him good swimming side by side in many years to come.

Reference

[1] M. BONITZ, The multidimensional space of scientometrics; the Derek John De Solla Price awards 1984 – 1993, Scientometrics, 29, No.1(1994)3-14.

Received: 08 February 2007

Address of congratulating author:

DR. RER. NAT. HABIL. MANFRED BONITZ
Halbkreisstrasse 17, 01187 Dresden, Germany
Email: bonitz@fz-rossendorf.de

Tibor: A Personal Reminiscence I.

Henry Small

Thomson Scientific, Philadelphia, PA (USA)

My first encounter with Tibor dates from June, 1978. My boss at ISI Mort Malin and I had been invited by Tibor to visit him at the Hungarian Academy Library. Tibor was kind enough to allow us to make some long-winded presentations at the Academy which were followed by an exotic meal of wild boar at a local bistro. I still recall the warm hospitality and friendly spirit that we were shown on that trip, the conversations over coffee and peach brandy in Tibor's office, dinner to gipsy music in a rustic wine cellar in the old city, our ventures into the countryside with Tibor as tour guide, looking for long lost relatives and a castle where the Turks were defeated by Hungarian women throwing hot pitch. Everywhere we were impressed with the spirit and determination of the Hungarian people. Despite the political difficulties Tibor faced during that period, he was able to found new journals, be a respected chemist, and foster the emergence of a new field of research, scientometrics. Quite an amazing achievement! We send our best wishes for the future. Long may he wave.

Received: 21 February 2007

Address of congratulating author:

HENRY SMALL
Thomson Scientific,
3501 Market Street, Philadelphia, PA 19104, USA
Email: henry.small@thomson.com

Tibor: A Personal Reminiscence II.

Subbiah Arunachalam

MSSRF, Chennai (India)

It was at the corporate office of ISI, Philadelphia, that I first met Tibor. It was in the mid 1980s. I was there for a few weeks as a guest of Gene Garfield and on that particular day I was waiting outside Gene's office as he was talking to another visitor. It was then two tall and genial gentlemen came there. One of them I knew as I had met him in India: Prof. Michael Moravcsik. And Mike introduced me to Tibor. Of course, I knew him by name both as a radioanalytical chemist and as the editor of Scientometrics.

It was a great day for me as I met three great scientometricists together. All three of them went on to win the Derek de Solla Price Award – indeed they were the first three winners.

Subsequently I had met him several times, mostly at international conferences. And I have read many of his papers, often written in collaboration with András Schubert and Wolfgang Glänzel. A few years after our first meeting Tibor invited me to join the editorial board of Scientometrics.

If today Scientometrics is an established field of study and research, Tibor has played an important role in it. As the editor of Scientometrics, he has helped attract a large number of young people to the field.

On his 75th birthday, scientometricists around the world have great pleasure in wishing Tibor Many Happy Returns of the Day and many more years of active research in both scientometrics and chemistry.

Received: 25 February 2007

Address of congratulating author:

SUBBIAH ARUNACHALAM
Distinguished Fellow,
MSSRF, Chennai, India
Email: subbiah.arunachalam@gmail.com

A Memoir of Professor Tibor Braun

Grant Lewison

Evaluametrics Ltd, Richmond, Surrey (UK)
School of Library, Archives and Information Studies, University College London (UK)

My first memory of Professor Dr Dr Braun Tibor (to give him his formal titles and Hungarian name order, though he came originally from Romania) was in April 1994. I had gone to Budapest for the meeting of the European Association of Science Editors – I'm not sure why, perhaps just out of a wish to see Hungary, at the time fairly newly released from the constraints of an Iron Curtain country. Professor Braun appeared and gave a marvellously entertaining address about journal gatekeepers and the plethora of scientific literature. Complaints about the sheer volume of material leaving the printing presses were not new: he remembered a Mr Barnaby bemoaning the flood of books in the early 16th century, although he was no mean contributor himself with over 20 to his credit (or debit?).

I must have gone up afterwards to introduce myself, a very new member of the bibliometrics community, as he invited me to visit him for a chat in his office in the elegant building of the Hungarian Academy of Sciences overlooking the River Danube, which separates Buda from Pest. It was a somewhat daunting experience for me as Professor Braun had reached the top of two quite different careers – as a chemist and as a bibliometrician and famed editor of *Scientometrics*. But he was remarkably informal and genial – I think this is a common observation about really distinguished people – and told me about his recent work on fullerenes, the third form of carbon which had been discovered in 1985 and for which he had created a new journal, *Fullerene Science and Technology*. Probably our discussion ranged much wider, but I was too much in awe of the Great Man to make any notes.

Six years later I had the opportunity of another talk with Tibor, as he had become to me over the intervening years through correspondence – mainly, I think, requests for reviews of articles for *Scientometrics*, and submissions of my own offerings. This was on Friday 1st September 2000 in the offices of The Wellcome Trust in London. For some reason he had declined lunch, but we had coffee from the Trust's sophisticated coffee maker and talked for well over an hour, mainly about bibliometrics and its application to the evaluation of biomedical research. By this time I had been with the Trust for over seven years and had become more conversant with recent developments, where high-speed computers had transformed bibliometric practice. It was, like our first meeting, very relaxed and I felt honoured to be talking so freely to one of the acknowledged masters of his field.

Subsequently we met briefly in Vienna, where Tibor and I were invited speakers at a small bibliometrics seminar on 3rd March 2003 and shared a platform to field questions from the floor. In July 2005 we met once more at the ISSI conference in Stockholm. Tibor attended the ISSI board meeting to discuss the relationship between the society and his journal, which had expanded over the years to become the central organ of the bibliometrics community. During the last few years, papers for review have been arriving on my desk thick and fast, always accompanied by a cordial letter and Tibor's greetings.

So, although my meetings with Tibor have not been numerous, they have left a firm impression on my mind of his warm and friendly personality, with a delightful sense of humour and an amazing capacity for work. It is hardly a surprise that, a decade after many men would have retired, Tibor is as firmly in the saddle as ever. May he continue to hold the reins of *Scientometrics* for many more years yet!

Received: 20 February 2007

Address of congratulating author:

GRANT LEWISON
Evaluametrics Ltd,
50 Marksbury Avenue, Richmond, Surrey, TW0 4JF, UK
School of Library, Archives and Information Studies,
University College London, Gower Street, London WC1E 6BT, UK
Email: glewisonxx@aol.com

Articles

¨Googling¨ Tibor Braun

Judit Bar-Ilan

Department of Information Science,
Bar-Ilan University, Ramat-Gan (Israel)

For Tibor Braun's 70th birthday, Loet Leydesdorff (2002) carried out a study based on all 37 documents he retrieved from the search engine AltaVista for the query *"Tibor Braun"*.

On the occasion of Tibor's 75th birthday I set out to examine who publishes information related to him on the Web. Currently, the major search engine is Google; its use has become so widespread that the Oxford English dictionary (2006) included the verb "to Google" in 2006, where "to Google" means "[t]o search for information about (a person or thing) using the Google search engine."

I have not only Googled but consulted two other major search engines as well: Yahoo! and Windows Live (formerly MSN search). Loet Leydesdorff only searched for the phrase "Tibor Braun", but I also searched for "Braun Tibor", since in Hungarian the surname comes first and also in catalogs the name of the author often appears as "Doe, John" and the phrase search "Braun Tibor" catches the occurrences of "Braun, Tibor" as well. The searches were carried out on February 16, 2007. The search engines limit the number of displayed results (the current limit is 1,000). In a few cases more than 1,000 results were reported by the search engines, in these cases the original query was split into subqueries to enable us to collect all the URLs reported by the search engines that contain either "Tibor Braun" or "Braun Tibor". This process resulted in 3663 unique URLs.

Table 1 displays the distribution of the most frequently occurring hostnames (i.e., the first part of the URL between "http://" and the first slash) in the whole set. From these results we can learn about the major Web-publishers of information related to Tibor Braun. Altogether 656 hostnames were

identified, 356 of them (54.3% of the hostnames) occurred only once. Table 2 lists all the hostnames that occurred twenty fives times or more. These twenty four hostnames (3.7% of the hostnames) cover 51.7% of the URLs. We see that most of the hostnames appearing in Table 1 are related to Tibor's scientific activities.

To conclude, let me wish Tibor a happy birthday and use the Jewish birthday congratulation "May you live till 120"!

How many Web pages on Tibor can we expect by then? In 2002 only 37 URLs containing the name "Tibor Braun" were retrieved, in 2007 we located 1943 different URLs (here we excluded the URLs that contained the phrase "Braun Tibor" only). Since there are only two data points, there is not enough information regarding the growth function, but Figure 1 displays estimates regarding the number of pages mentioning Tibor in 2052 for linear growth (19,097 pages) and for growth according to the power law $y = 37 \cdot x^5$ (5,958,887 pages), where a unit of x stands for five-year time periods starting from 2002.

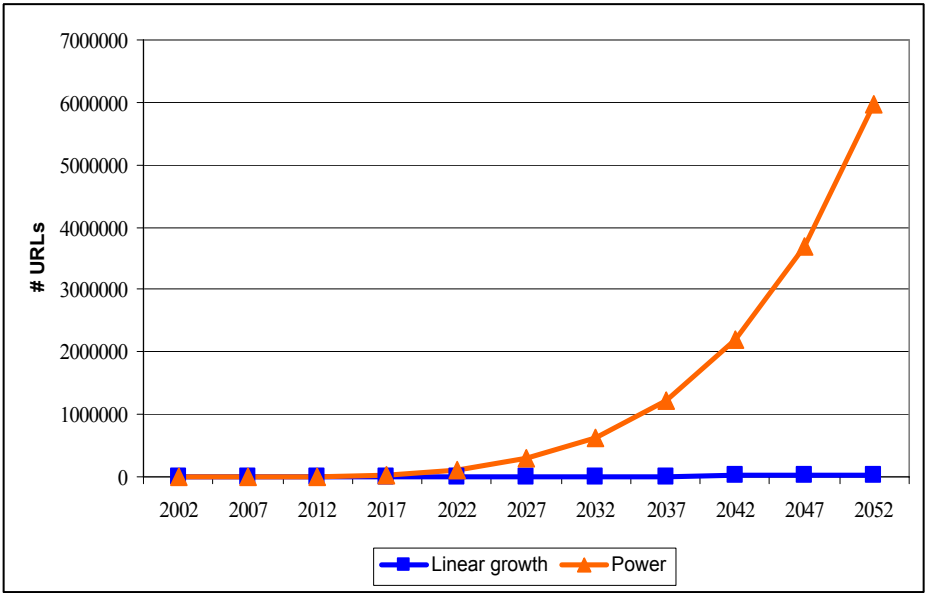


Figure 1: Estimated number of URLs per year mentioning Tibor Braun

Table 1: Most frequently occurring hostnames

Hostname	**# occur-rences**	**% of total URLs**	**Explanation**
www.amazon.com	403	11.00%	Amazon bookstore
www.es.hu	267	7.29%	Élet és Irodalom – A weekly Hungarian newspaper about literature and politics

eprints.rclis.org	140	3.82%	E-LIS – an open archive for library and information science
www.kfki.hu	110	3.00%	KFKI – Research Institutes of the Hungarian Academy of Sciences
www.akkrt.hu	103	2.81%	Akadémiai Kiadó – co-publisher of Scientometrics
www.matarka.hu	97	2.65%	MATARKA – Hungarian Periodicals Table of Contents Database
www.amazon.ca	86	2.35%	Amazon Canada
www.springerlink.com	61	1.66%	Springer – co-publisher of Scientometrics
www.akademiaikiado.hu	57	1.56%	Akadémiai Kiadó – co-publisher of Scientometrics (same as akkrt.hu)
www.matud.iif.hu	56	1.53%	Magyar Tudomány – Journal of the Hungarian Academy of Sciences
www.allbookstores.com	53	1.45%	Bookstore
epa.oszk.hu	52	1.42%	EPA – a bibliographic database and register of the Hungarian e-periodicals
w3.oszk.hu	46	1.26%	Hungarian National Szécsényi Library
216.109.125.130	40	1.09%	Yahoo!'s cache
tmt.omikk.bme.hu	39	1.06%	Tudományos és Műszaki Tájékoztatás (Scientific and Technical Information) – journal on library and information science in Hungary
www.informatik.uni-trier.de	38	1.04%	DBLP – Computer science bibliography (indexes some information science journals as well, including Scientometrics)
www.mta.hu	38	1.04%	A Magyar Tudományos Akadémia – The Hungarian Academy of Sciences
sunserv.kfki.hu	35	0.96%	KFKI – Research institutes of the Hungarian Academy of Sciences (same as www.kfki.hu)
www.spartakchess.com	32	0.87%	Spartak Chess Club in Subotica, Serbia – mentions another Tibor Braun
www.amazon.de	31	0.85%	Amazon Germany
www.garfield.library.upenn.edu	30	0.82%	Eugene Garfield's site: Essays of an Information Scientist, Price Award winners, HistCite

zumy.net	29	0.79%	Chess site, probably mentions same Tibor Braun as www.spartakchess.com
www.ingentaconnect.com	26	0.71%	Ingenta – A distributor of online content, indexes Scientometrics
www.rsc.org	25	0.68%	Royal Society of Chemistry – European organization for advancing chemical sciences and publisher

References

Leydesdorff, L. (2002). *The globalization of an author*. Retrieved February 17, 2007, from http://tibor-braun.freeweb.hu/braun70/!loet.html

Oxford English Dictionary (2006). *To Google*. Retrieved February 17, 2007, from http://dictionary.oed.com/cgi/entry/20003031?query_type=word&querywor d=google&first=1&max_to_show=10&sort_type=alpha&result_place=2&sea rch_id=EIwr-nbOBIv-2400&hilite=20003031

Received: 18 February 2007

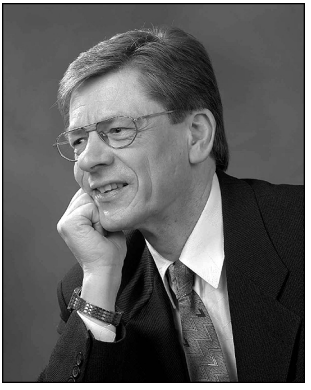
Address of congratulating author:

JUDIT BAR-ILAN
Bar-Ilan University, Faculty of Humanities, Department of Information Science,
Ramat-Gan 52900, Israel
Email: barilaj@mail.biu.ac.il

Hungary – and Tibor Braun – on Top! Dedicated to Tibor Braun on the Occasion of His 75th Birthday

Ronald Rousseau

KHBO, IWT, Oostende (Belgium)
University Antwerp, IBW, Wilrijk (Belgium)



Introduction

Using topic searches in the Web of Science we collected a number of topics in which Hungary was among the top producers (as a country). In particular, we determined the influence of Tibor Braun on these results.

Methods

We first collected all publications by Tibor Braun and considering title worlds, tried to determine 'topics' in which Hungary ranked high as a country. This list was augmented by five words, which were not directly related to Tibor Braun, but were, of course, related to Hungary or Hungarian science. The list of these topics is shown in Table 1 (first column). For each of these topics we further determined the total number of published articles (in the Web of Science), the h-index (based on citations to these articles) (Hirsch, 2005), the position of Hungary in the ranked list of countries (using the ANALYSE feature of the Web of Science), the percentage contribution of Hungary, and the most productive country (often Hungary itself). Finally we determined the number of articles about the topic, written by Tibor Braun. Data were collected on a special day: Valentine's Day, 2007. Recall that an h-index for topics, as used in this article, has been proposed by Banks (2006).

Results and comments

Results are summarized in Table 1, ranked according to Tibor Braun's contribution. They are further discussed in this section.

Table 1 Queries related to Hungarian science and numerical results
A: topic; B: number of articles (T); C: Hirsch index; D: rank occupied by Hungary according to production; E: percentage of articles published by Hungary; F: most productive country; G: number of articles published by Tibor Braun

A	B	C	D	E	F	G
scientometric*	535	22	2	11.6	USA	24
scientometric* AND indicator	143	15	1	25.3	HU	18
"world flash"	19	5	1	89.5	HU	17
scientometric* AND countr*	91	11	2	13.2	INDIA	11
version AND fact* (in title)	218	24	12	3.7	USA	7
hungar*	20,669	67	1	37.8	HU	6
"world science"	166	12	4	3.6	USA	6
gatekeep* AND chemistry	9	3	1	55.6	HU	5
citation AND rank*	507	27	12	1.6	USA	5
radiofulleren*	5	1	1	80.0	HU	4
gatekeep* AND editor*	51	9	2	5.9	USA	3
"British science"	194	10	4	2.1	ENGL	3
gatekeep* AND scientom*	2	0	1	100.0	HU	2
Hirsch AND journal*	28	8	3	7.1	USA	2
"publication lapse"	2	1	1	100.0	HU	2
hungar* AND science	707	27	1	58.0	HU	1
version AND fact* AND world	3	2	1	33.3	HU	1
interneuron* AND hippocamp*	3236	136	6	6.4	USA	0
"SCF theory"	237	39	2	16.0	USA	0
Balaton	421	26	1	71.5	HU	0
puszta	23	8	1	69.6	HU	0
Erdos OR Erdoes	1449	27	2	8.8	USA	0

Not surprisingly, Tibor Braun contributed, in absolute numbers, the most to the topic "scientometric*", and this often in combination with the word "indicator*". On his own he puts Hungary on the number one spot for the topic "world flash". Clearly, he is also very active as a gatekeeper. We further notice two special "Tibor Braun" topics: namely "publication lapse" and "radiofulleren*".

535 articles on "scientometric" are included in the WoS. Among these the most-cited one is an article co-authored by Tibor Braun: the famous scientometric datafiles, published in the journal *Scientometrics* in 1989 (Schubert et al., 1989). This same article is also the most-cited one on the topics "scientometric* AND indicator" and "scientometric* AND countr*". Not surprisingly, also on the topic "world flash" an article co-authored by Tibor Braun heads the list (Braun et al., 1988).

Table 1 further shows that as a country Hungary performs excellent on the topics "interneuron* AND hippocamp*", a topic in neurology, and "SCF theory", (self-consistent field theory), a topic in molecular physics. From earlier investigations (STIMULATE-6, 2007) we knew that countries usually perform

well in relation to geographical locations situated in the country. This turned out to be the case for Hungary when considering the topic "Balaton".

When performing these searches we found a number of false hits (which we did not remove). Using the search query "Hirsch AND journal*" we were aiming at the h-index for journals, as introduced by Braun et al. (2005). Yet, this search query also retrieved articles containing the words *Hirschmann* and *journalism*. Similarly, the query "gatekeep* AND editor*" retrieved many editorials using the word gatekeeper(s). The most-cited article on "citation AND rank*" is Garfield's article published in *Science* in 1972 (Garfield, 1972).

The relation between the total number of publications (T) and the h-index is not linear at all. Removing the data for hungar*, interneuron* AND hippocamp* and "SCF theory" yields a good fit for $h = \sqrt{T}$. Indeed, using non-linear regression we find $h = T^{0.494}$, with $R^2 = 0.83$, as best fitting power relation. This corresponds nicely with the power law model for citations, for which it has been shown that $h = T^{1/\alpha}$ (Egghe & Rousseau, 2006). The square root corresponds to Lotka's inverse square law. We further note that the Spearman rank correlation between T and h is 0.96 (using all data).

Conclusion

Not considering topics with less than twenty published articles we see that Hungary, a country with a population of slightly more than 10 million people, publishes more than 10% of all articles in the WoS about the topics: "scientometric*", "scientometric* AND indicator", "scientometric* AND countr*", "hungar*", "hungar* AND science", "SCF theory", "Balaton" and "puszta". While for some of these topics, such as "hungar*" this is quite expected, it is less expected for a topic such as "SCF theory". Thanks to the influence of Tibor Braun Hungary also leads in topics related to scientometrics.

References

Banks, M.G. (2006). An extension of the Hirsch index: indexing scientific topics and compounds. Scientometrics, 69, 161-168.

Braun T., Glänzel, W., and Schubert A. (2005). A Hirsch-type index for journals. The Scientist,19(22),8.

Braun T., Glänzel, W., and Schubert A. (1988). World flash on basic research – The newest version of the facts and figures on publication output and relative impact of 100 countries 1981-1985. Scientometrics, 13, 181-188.

Egghe, L. and Rousseau, R. (2006). An informetric model for the Hirsch index. Scientometrics, 69,121-129.

Garfield, E. (1972). Citation analysis as a tool in journal evaluation. Science, 178, 471-479.

Hirsch, J.E. (2005b). An index to quantify an individual's scientific research output. Proceedings of the National Academy of Sciences of the USA, 102(46), 16569-16572.
Schubert, A., Glänzel, W. and Braun, T. (1989). Scientometric datafiles – a comprehensive set of indicators on 2649 journals and 96 countries in all major fields and subfields 1981-1985. Scientometrics, 16, 3-478.
The STIMULATE – 6 Group (2007). The Hirsch index applied to topics of interest to developing countries. First Monday, 12(2).

Received: 17 February 2007

Address of congratulating author:

RONALD ROUSSEAU
KHBO (Association K.U.Leuven), IWT, B-8400 Oostende, Belgium
E-mail: ronald.rousseau@khbo.be

Born in Spring

Hans-Dieter Daniel

Swiss Federal Institute of Technology Zurich,
ETH Zurich (Switzerland)

Kalyane and Sen (2003) have, quite right, pointed out that there are not many individuals in the world like Tibor Braun who have made an indelible mark in the field of scientometrics and shouldered the responsibility of running an international periodical for decades. Tibor was born on March 8, 1932. A sizable literature has demonstrated that born in spring is not without risk.

Epidemiological studies show, for example, that deliberate self-harm (DSH) has a significant season-of-birth occurrence ($p=0.047$), peaking in spring (Rock et al., 2006). Data from the Northern Hemisphere report an excess of spring births of individuals who later develop schizophrenia when compared with the general population (McGrath & Welham, 1999). The few studies carried out on affective disorders revealed a significant increase of births in the first quarter of the year in bipolar disorders and major depressive disorder (Castrogiovanni et al., 1998). The results of a study carried out by Rogerson (1994) lead to the conclusion that those born during the spring period are more likely to be left-handed than are those born during the fall and winter. Natale and Adan (1999) found an eveningness preference among students born in spring, which probably has a negative effect on university examination outcomes.

Fortunately, another epidemiological study found out that people born in spring show the lowest (5.5%) prevalence of atopic dermatitis (Kusunoki et al., 1999). Some authors even found a significant relationship between birth date and sporting success: tennis players born in the first half of the year have an advantage over those born in the second half of the year (Giacomini, 1999). Findings of a birth

cohort study reported by Lawlor et al. (2006) provide some hints about the causes of Tibor's success in science: reading ability at age 9 and arithmetic ability at age 11 varied by season of birth, with highest scores among those born in spring (February-April).

And, not surprisingly, a science history study revealed a relationship between season-of-birth and stance taken in the scientific revolutions associated with the theories of relativity and evolution (Holmes, 1995): aggregating both scientific debates, December to April houses 82 per cent of the combined proponents' birth dates but only 24 per cent of those of the antagonists; in contrast, May to July accounts for none of the proponents' but 60 per cent of the antagonists' births (chi-square=18.0, $P<0.001$).

Success in science obviously depends on revolutionary birthdays. However, people born in spring should know how to cope with the season-of-birth as a risk factor. Ask Tibor for effective coping strategies.

References

Castrogiovanni, P. et al. (1998), Season of birth in psychiatry – A review. Neuropsychobiology, 37(4): 175-181.

Holmes, M. (1995), Revolutionary birthdays. Nature, 373: 468.

Giacomini, C. P. (1999), Association of birthdate with success of nationally ranked junior tennis players in the United States. Perceptual and Motor Skills, 89(2): 381-386.

Kalyane, V. L., Sen, B. K. (2003), Research productivity of Tibor Braun: an analytical chemist-cum-scientometrician. Annals of Library and Information Studies, 50(2): 47-61.

Kusunoki, T. et al. (1999), Month of birth and prevalence of atopic dermatitis in schoolchildren: dry skin in early infancy as a possible etiologic factor. Journal of Allergy and Clinical Immunology, 103(6): 1148-1152.

Lawlor et al. (2006). Season of birth and childhood intelligence: Findings from the Aberdeen Children of the 1950s cohort study. British Journal of Educational Psychology, 76: 481-499.

McGrath, J. J., Welham, J. L. (1999). Season of birth and schizophrenia. Schizophrenia Research, 35(3): 237-242.

Natale, V., Adan, A. (1999). Season of birth modulates morningness-eveningness preference in humans. Neuroscience Letters, 274(2): 139-141.

Rock, D., Greenberg, D., Hallmayer, J. (2006), Season-of-birth as a risk factor for the seasonality of suicidal behaviour. European Archives of Psychiatry and Clinical Neuroscience, 256(2): 98-105.

Rogerson, P. A. (1994), On the relationship between handedness and season of birth for men. Perceptual and Motor Skills, 79(1): 499-506.

Received: 23 February 2007

Address of congratulating author:

PROF. DR. HANS-DIETER DANIEL
Swiss Federal Institute of Technology Zurich (ETH Zurich)
Professorship for Social Psychology and Research on Higher Education,
Zähringerstrasse 24, CH-8092 Zurich
Email: Daniel@gess.ethz.ch

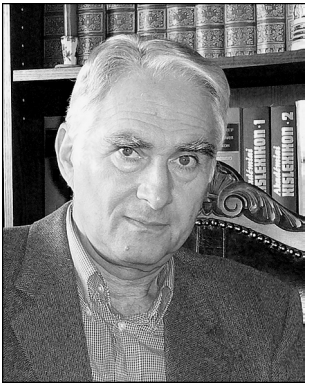
The Braun Score – Connecting Scientometricians

Péter Vinkler

Chemical Research Center, Hungarian Academy of Sciences

"Scientometrics is not the science of science
but a science on science for science"

P. Vinkler



I. Newton stated he could see further "by standing on shoulders of giants". According to his enemies the statement would refer to R. Hook of whom Newton was jealous. Newton wanted to express that he did not acknowledge the priority of Hook concerning either the nature of gravity or the origin of colours. Hook was namely a rather short man. Newton and some other great scientists were (or are) lonely stars in the sky of science. Another outstanding scientists (like, e.g. N. Bohr), however, were unselfish enough to establish schools and support younger colleagues as well. Tibor Braun represents a scientist with similar character. He is one of the founding fathers of scientometrics, and he is *the* founding father of the Budapest scientometric school and Scientometrics, which is the flag-ship of the fleet of scientometricians.

Tibor's oeuvre cannot be regarded as monochromatic "Brown" because his books and journal papers adorn scientometrics and chemistry with all colours of the spectrum. From his halo other scientometricians may also enjoy some sparks. Scientometricians, similar to other scientists are keen on being acknowledged by fellow-scientometricians. Herewith, I suggest an index representing the share by others from Tibor's halo in scientometrics.

The *"Braun Score"* represents the ratio of the number of hits for the *name of a person* and *T. Braun* and *scientometrics* related to the total number of hits for T. Braun and scientometrics. With Google as a general search engine I obtained 24300 hits for *T.*

Braun and scientometrics, but only 987 hits searching for those with Google Scholar. Accordingly, P. Vinkler's Braun Score, e.g. (444 and 104 hits, respectively) will be in percentage equal to 100 (444/24300) = 1.83 or 100(104/987) = 10.54, respectively.

The names in Table 1 were partly selected randomly from the lists of participants at different conferences on scientometrics, partly by special points tackled neither here nor elsewhere. But, everybody may easily calculate his or her Braun Score (BS). The data were obtained 13th February 2007, temperature: 10 °C outside and 22 °C inside. The calculations were normalized after testing the experimenter's (P.V.) head with a bottle of dry red wine.

The exact meaning and characteristics of the BS values do not seem to be darker than those of the widely used scientometric indicators. Nevertheless, I may ask everybody for referencing this paper whilst applying the idea or method for connecting people (or topics) according to the method presented.

The Braun Score may be regarded as a similar measure in scientometrics as the Erdős Number in mathematics. The Erdos measure equals the number of "hops" needed to connect the author of a paper with the prolific late mathematician Paul (Pál) Erdős. An author's Erdős Number is 1 if he has co-authored a paper with Erdős, it is 2 if he has co-authored a paper with someone who has co-authored a paper with Erdős, etc.

Everything and everybody is connected with each other on earth. The question is only: how and how many times does this occur? (Further questions may be raised, e.g., where or (for elderly researchers) for what purpose?) Investigating the dynamics of the links between persons connected by (a) common factor(s) is highly relevant.

I wish growing Braun Scores to each member of the scientometric community, because this would indicate increasing successful involvement in scientometrics. First and foremost, however, I wish to express warmest congratulations and good wishes for the best of health and further fruitful scientific activities to Professor Tibor Braun on the occasion of his 75th birthday.

Table 1. Braun Score values (in per cent) for some scientometricians

Author	Number of hits with Google	Braun Score (in per cent) (A)	Number of hits with Google Scholar	Braun Score (in per cent) (B)	$\frac{BS(B)}{BS(A)}$
I Ajiferuke	111	0.46	23	2.33	5.07
A Basu	136	0.56	27	2.74	4.89
J Bhattacharya	147	0.60	24	2.43	4.05
K Börner	58	0.24	5	0.51	2.13
L Bornmann	69	0.28	14	1.42	5.07
HD Daniel	247	1.02	25	2.53	2.48
L Egghe	510	2.10	142	14.39	6.85
E Garfield	10700	44.03	388	39.31	0.89
W Glänzel	693	2.85	257	26.04	9.14
I Gomez	452	1.86	136	13.78	7.41

P Ingwersen	339	1.40	77	7.80	5.57
L Liang	189	0.78	25	2.53	3.24
T Luukkonen	308	1.27	96	9.73	7.66
H Moed	724	2.98	268	27.15	9.11
M Moravcsik	459	1.89	104	10.54	5.58
Ü Müst	56	3.11	10	1.01	0.32
O Persson	486	2.00	127	12.87	6.44
Solla Price	422	1.74	147	14.89	8.56
V Trimble	118	0.49	20	2.03	4.14
AFJ van Raan	541	2.23	289	29.28	13.13
P Vinkler	444	1.83	104	10.54	5.76
J Vlachy	314	1.29	60	6.08	4.71

Remarks

Number of hits for Braun T. (and) scientometrics:
Google: 24300
Google Scholar: 987
The ratio of hits with Google to those with Google Scholar (24300/987 = 24.62) may characterize the measure of involvement of T. Braun and scientometrics (and Scientometrics) in the entire Web.
Keywords: *Braun T* (and) *scientometrics* (and) *second name* (and) *initial(s)* of the first *name(s)* of one of the persons listed

Received: 23 February 2007

Address of congratulating author:

PÉTER VINKLER
Chemical Research Center, Hungarian Academy of Sciences, H-1025 Budapest,
Pusztaszeri út 59-67, Hungary.
E-mail: pvinkler@chemres.hu

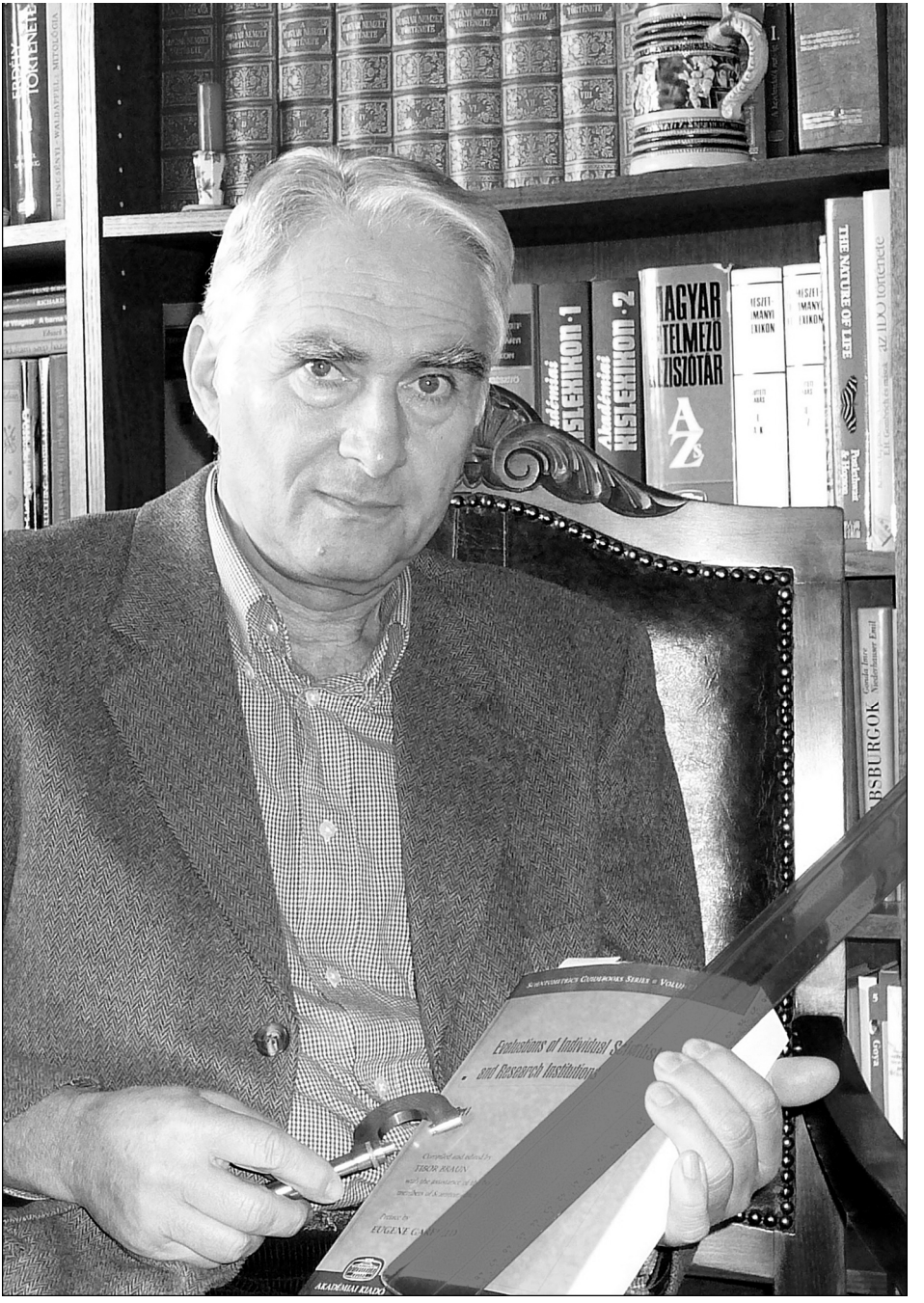


Fig 1 Péter Vinkler measuring science

Tibor Braun in the Galaxy of Scientometrics

Olle Persson

Inforsk, Department of Sociology, Umeå University, Umeå (Sweden)

In science, the citations to the works of a given scientist are embedded in a wider citation context. This happens to anyone that gets cited. Closest to the author we will find other scholars of the same discipline. If we travel farther in time and space we will visit other knowledge domains. The positioning of scientists will to a large extent be determined by the citing behaviour of his colleagues, especially for those that are highly cited by others.

Within the discipline of scientometrics, Tibor Braun is clearly among the most cited authors. He belongs to the inner core of the intellectual base of the field, together with Derek Price and Gene Garfield This is what we see at a distance when approaching the galaxy of scientometrics (Persson, 2000).

Now, we can also visit a specific planet and see which other planets are circling around it (see Figure 1). The map is an illustration of what we would see if we travelled to Tibor's planet. It is based on 439 papers citing Tibor's papers in the journal *Scientometrics*. The nearest neighbouring planets are some of the most influential scholars of the field. This is really what we could expect, since one will always be most frequently co-cited with the most cited authors.

However, what is of particular interest here is the navigation purpose that such a map might serve. One could say: "If you read Tibor, you should also read Gene, Derek, Francis, Wolfgang, András, Henk, Ton, Robert, Grant etc". This is similar to the showing of related books at the internet book sellers: "Authors who have cited this author have also cited these authors". The map also gives directions, and many more names to follow up. If one travels to the south it appears that studies of scientific collaboration

would turn up, while citation impact will be among the hot issues as one goes to the north.

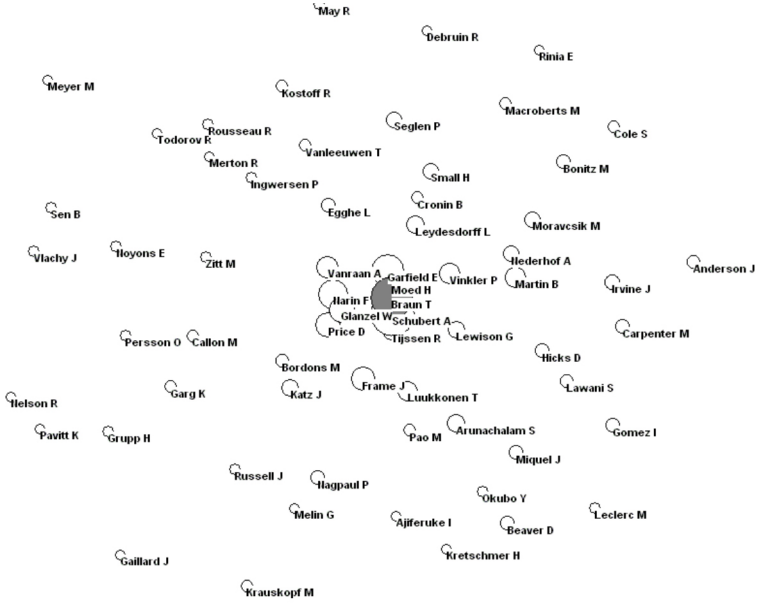


Figure 1. The co-citation context of Tibor Braun
Note: Based on 439 papers citing Tibor Brauns's papers in the journal Scientometrics

But what can we find on Tibor's planet? Of course, we will find a set of papers bearing his name. We will also find which items are mostly cited by clicking on the Citation Report button of Web of Science. In addition to Tibor's h-index, which is quite high, we will find a set of top-cited papers by Tibor, Wolfgang and András, revealing the publication activity, citation impact and collaboration of countries. This correlate quite well with the most frequent keywords associated with the 439 citing papers: science, indicators, impact, journals, countries, collaboration. This is not stardust. Tibor is a real planet, a still shining star in the galaxy of scientometrics!

Reference

Persson O. (2000), A tribute to Eugene Garfield – Discovering the intellectual base of his discipline, *Current Science*, 79(5) 590-591.

Received: 19 February 2007

Address of congratulating author:

OLLE PERSSON
Inforsk, Department of Sociology, Umeå University, SE-901 87 Umeå, Sweden
E-mail: olle.persson@soc.umu.se

The position of Tibor Braun's Œuvre: Bibliographic journal coupling

Loet Leydesdorff

Amsterdam School of Communications Research (ASCoR),
University of Amsterdam (The Netherlands)

Abstract

At the occasion of Tibor Braun's 75th birthday, I introduce the method of *bibliographic journal coupling* for the analysis of the knowledge base of a document set; in this case, the set of 183 articles published by Tibor Braun. The method enables the user to visualize the knowledge base of author-based or institution-based sets in terms of the journals which are cited in the sets.

Introduction

At previous occasions, I analysed the semantic space spanned in terms of co-occurrences of words (co-words) by Braun's—at that time 81—publications (Leydesdorff, 1992) and, five years later, of the 37 webpages which could be retrieved using the *AltaVista* search engine at the time (Leydesdorff, 2002). In this study, I complement these studies by analysing the position of Tibor Braun's *œuvre* using bibliographic coupling within the set of 183 documents authored by him. The bibliographic information about these documents was downloaded from the ISI *Web-of-Science* on 7 February 2007, using the search string "au = Braun T and ci = Budapest".

Two papers are bibliographically coupled if they share a common reference (Kessler, 1963). Bibliographic coupling thus reverses co-citation analysis by asking the question about the internal citation structure of a document set (Garfield, 2001). This structure represents the knowledge base of a set (Garfield *et al.*, 2003). This representation of the knowledge base can be refined by using the journal names in the references as the coupling agents. The technique enables us to visualize the historical knowledge base of a set, while bibliographic coupling itself reveals only the results of the coupling in the present.

Methods

The software for this analysis is freely available from my website at
http://www.leydesdorff.net/software/bibcoupl/index.htm and
http://www.leydesdorff.net/software/bibjourn/index.htm,
respectively. The first program can be used for bibliographic coupling itself and the second for the refinement proposed in this papers. Both programs use

downloads from the ISI Web-of-Science as their input, and generate files which are in the format of Pajek. Pajek is a visualization program which is freely available for academic usage at http://vlado.fmf.uni-lj.si/pub/networks/pajek/ (De Nooy *et al.*, 2005).

The output files are co-occurrence matrices and cosine-normalized matrices (Leydesdorff & Vaughan, 2006). The cosine is equivalent as a similarity measure to the Pearson correlation coefficient except that this measure does not normalize to the arithmetic, but to the geometric mean (Jones & Furnas, 1987). This is convenient in the case of non-normal distributions (Ahlgren *et al.*, 1993). Cosine values fit into a vector space which, for various reasons, reveals more about structure in the data than the raw (co-occurrence) data (Leydesdorff, 2007 and forthcoming; Salton & McGill, 1983).

Results

a. bibliographic coupling

Figure 1 shows the results of bibliographic coupling among these 183 documents in which Tibor Braun is at least one of the co-authors. The bibliographic coupling is based on 2,221 references in these documents; 122 (co-)authors are involved.

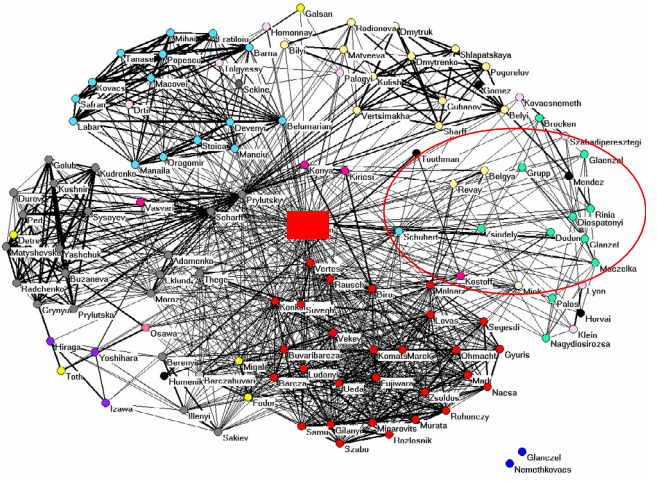


Figure 1: 122 authors bibliographically coupled to Tibor Braun's œuvre.

The figure informs us that Braun's activities are not limited to Scientometrics. From the perspective of scientometrics as a specialty, only a group of scholars on the right side of the picture are co-authors in this domain. This result raises questions about Braun's other collaborations. The names of the collaborators are not sufficiently informative for indicating these collaborations.

b. The knowledge base of Braun's network

The shift to not using the 2,221 cited documents as units for the coupling among the 122 authors involved, but the journals cited within these document enables us to make the co-authorship patterns visible in terms of scientific specialties. The 2,221 references were published in 236 sources more than once. The cosine-normalized matrix of this set of 236 sources is visualized in Figure 2. Labels are suppressed because the figure would no longer be readable.

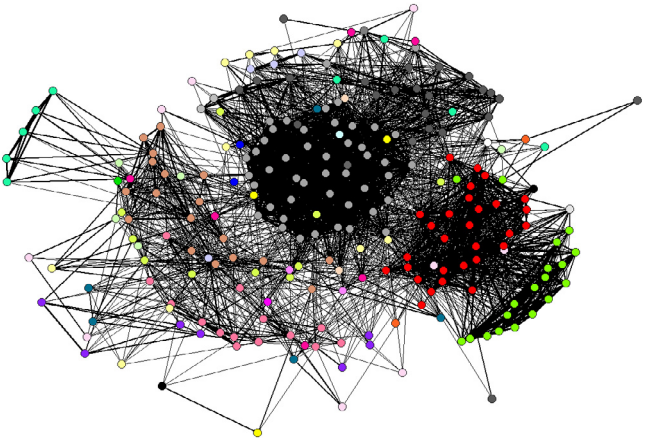


Figure 2*: 236 journals (and other sources) cited by the 183 documents of the set (N = 2,221).*

Only 18 of these cited journals are part of the *k*-core of the journal *Scientometrics*. This group is made visible in Figure 3.

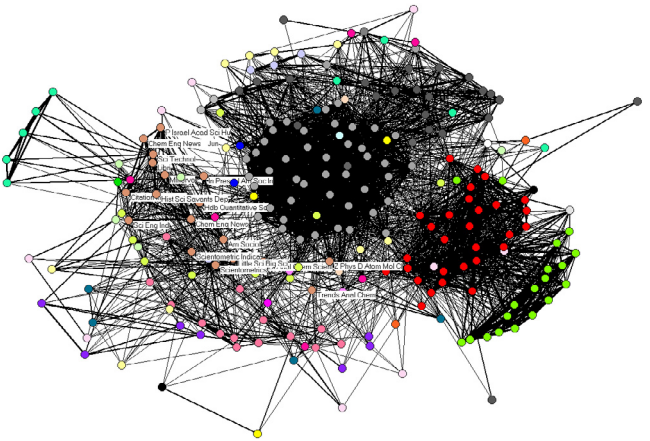


Figure 3*: the* k*-core of* Scientometrics *(n = 18)*

Figure 3 illustrates again the relatively marginal position of scientometric work in Braun's *œuvre*. In addition to *Scientometrics*, Braun also initiated the journal *Fullerene Science and Technology* in 1992. This journal was renamed into *Fullerenes Nanotubes and Carbon Nanostructures* in 2002.

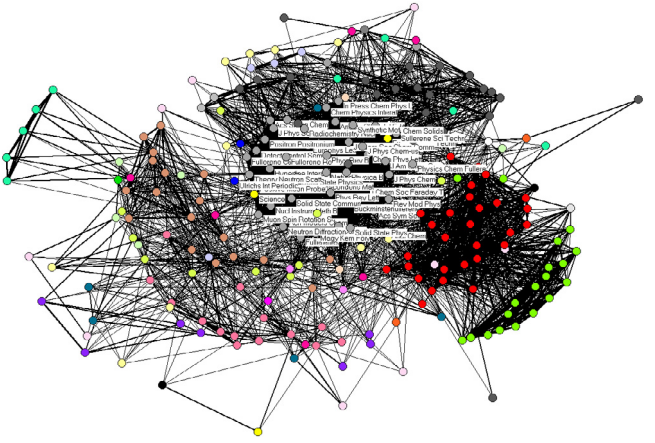


***Figure 4**: 47 journals in the* k*-core of* Fullerenes

The mere size of the cluster suggests that this set of journals is central to Braun's *œuvre*.

Figure 5 completes this presentation by showing the labels for all journals.

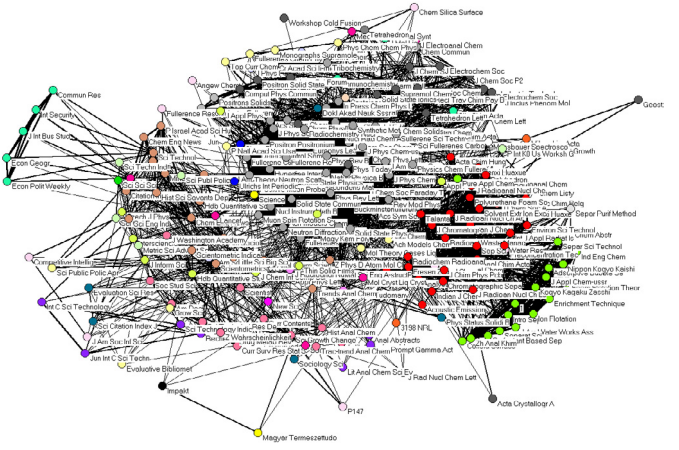


***Figure 5**: labelled set of 236 sources of 2,221 citations in Braun's œuvre.*

c. Powerlaws

Since one can wonder whether Braun's citations of journals follow a specific type of distribution, let me report on the following findings.

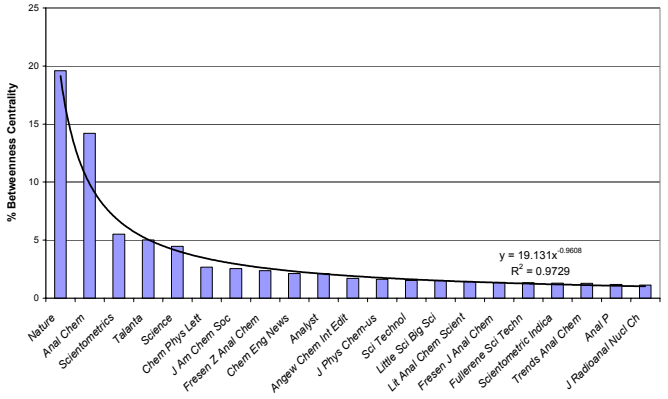


***Figure 6**: 21 journals with more than one percent betweenness centrality*

Figure 6 first shows the initial part of the distribution of the 236 journals represented in Figures 2 to 5. The betweenness centrality of the 21 journals contributing more than one percent to this measure follow a powerlaw (Katz, 2000). However, the tale of the distribution (207 journals) follows an exponential curve (Figure 7).

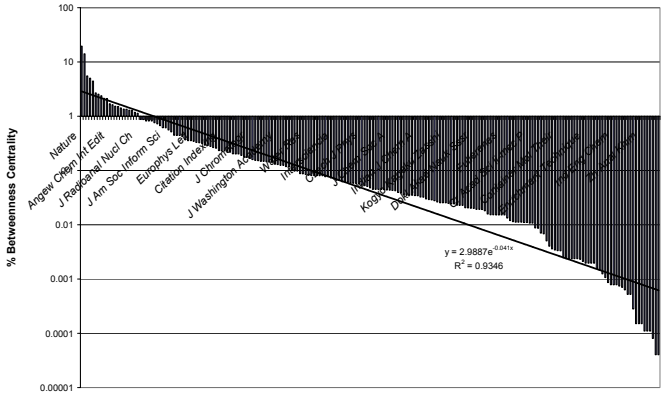


***Figure 7**: 207 journals with more than zero betweenness centrality*

In another context, Leydesdorff & Bensman (2006) found the opposite effect for aggregated journal-journal citations: in that case, the tale followed a powerlaw, while the initial part ("the hook") did not (Price & Thelwall, 2005). In summary, this author-based set is organized differently from a journal set. While aggregated journal citation networks are self-organizing, an author set is organized

hierarchically. For example, Braun is very much the centre of this set as being a co-author in all the publications. This is illustrated in Figure 8 using the measure of betweenness centrality.

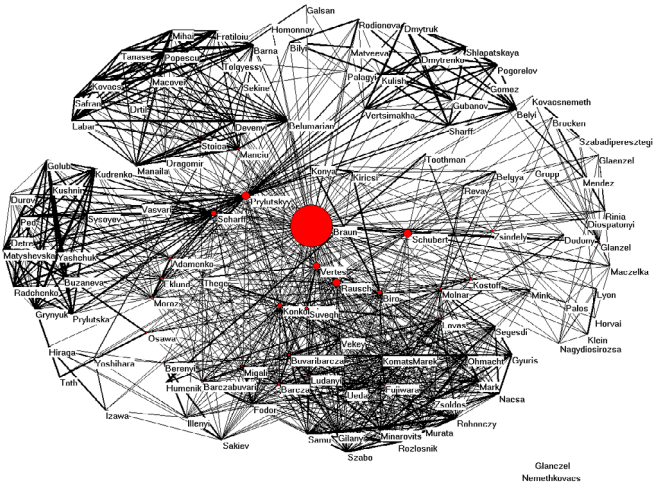


***Figure 8**: Betweenness centrality of Tibor Braun's* œuvre *among a set of co-authors.*

The result of Figure 8 is an artefact of my representation. ☺

Conclusion

The above results show that your œuvre has become central to an interdisciplinary network. Congratulations with your 75th birthday!

References

Ahlgren, P., Jarneving, B., & Rousseau, R. (2003). Requirement for a Cocitation Similarity Measure, with Special Reference to Pearson's Correlation Coefficient. *Journal of the American Society for Information Science and Technology,* 54(6), 550-560.

De Nooy, W., Mrvar, A., & Batagelj, V. (2005). *Exploratory Social Network Analysis with Pajek*. New York: Cambridge University Press.

Garfield, E. (2001). From bibliographic coupling to co-citation analysis via algorithmic historio-bibliography. Speech delivered at Drexel University, Philadelphia, PA, November, 27.

Garfield, E., Pudovkin, A. I., & Istomin, V. S. (2003). Why do we need algorithmic historiography? *Journal of the American Society for Information Science and Technology,* 54(5), 400-412.

Jones, W. P., & Furnas, G. W. (1987). Pictures of Relevance: A Geometric Analysis of Similarity Measures. *Journal of the American Society for Information Science,* 36(6), 420-442.

Katz, J. S. (2000). Scale Independent Indicators and Research Evaluation. *Science & Public Policy,* 27(1), 23-36.

Kessler, M. M. (1963). Bibliographic coupling between scientific papers. *American Documentation,* 14, 10-25.

Leydesdorff, L. (1992). The Organization of the Semantic Space of an Author. (At the occasion of Tibor Braun's 60th birthday.). *Psientometrics* 60, 19-24; at http://www.leydesdorff.net/psi92/braun60.pdf.

Leydesdorff, L. (2002). "The Globalization of an Author," a webpage <http://www.freeweb.hu/tibor-braun/braun70/!loet.html> for the 70th birthday of Tibor Braun, the Editor of Scientometrics. *at http://www.leydesdorff.net/psi92/index.htm.*

Leydesdorff, L. (2007). Visualization of the Citation Impact Environments of Scientific Journals: An online mapping exercise. *Journal of the American Society of Information Science and Technology,* 58(1), 207-222.

Leydesdorff, L. (forthcoming). "Betweenness Centrality" as an Indictor of the "Interdisciplinarity" of Scientific Journals. *Journal of the American Society for Information Science and Technology*.

Leydesdorff, L., & Bensman, S. J. (2006). Classification and Powerlaws: The logarithmic transformation. *Journal of the American Society for Information Science and Technology,* 57(11), 1470-1486.

Leydesdorff, L., & Vaughan, L. (2006). Co-occurrence Matrices and their Applications in Information Science: Extending ACA to the Web Environment. *Journal of the American Society for Information Science and Technology,* 57(12), 1616-1628.

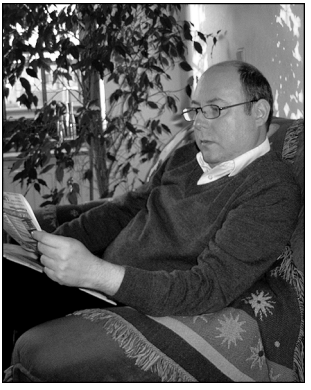
Price, E., & Thelwall, M. (2005). The clustering power of low frequency words in academic webs. *Journal of the American Society for Information Science and Technology,* 56(8), 883-888.

Salton, G., & McGill, M. J. (1983). *Introduction to Modern Information Retrieval.* Auckland, etc.: McGraw-Hill.

Received: 15 February 2007

Address of congratulating author:

LOET LEYDESDORFF
Amsterdam School of Communications Research (ASCoR), University of Amsterdam, Kloveniersburgwal 48, 1012 CX Amsterdam, The Netherlands
E-mail: loet@leydesdorff.net



Bibliometrics and science policy. Reflections on Tibor Braun's scientometric policy contribution

Koenraad Debackere, Wolfgang Glänzel

K.U.Leuven, Dept. MSI, Leuven (Belgium)

Science and innovation have become corner stones of modern economic policy. Ever since Robert Solow published his seminal 1957 paper (*Review of Economics and Statistics*), linking R&D to economic development, the role of science and innovation in society has received ample attention. Scientific activity is by now considered to be endogenized. Indeed, concepts like the ones found in Henry Etzkowitz's *Triple Helix* or in Richard Nelson and Sidney Winter's work on *Evolutionary Economics* have convinced researchers and policymakers of the fact that science and innovation neither happen in a vacuum nor in splendid isolation. They are an integrated part of society's economic system. One of the effects of these insights has been the sharp increase in R&D funding, both in the public and the private sector, over the last fifty years. This evolution has further emphasized the validity of the statement by Derek de Solla Price that *over 90% of all researchers that have ever been active are active today*.

Given the by now well established importance as to the effects of R&D on economic progress and social welfare, policymakers have been striving for ways to measure outcome and impact of R&D spending. Bibliometric research, starting out as the application of mathematical and statistical methods to books and other media of communication, initially did not have many, if any, policy ambitions. On the contrary, by understanding the potential limitations of bibliometric data and indicators all too well, bibliometrics' researchers have demonstrated much reticence in jumping onto the policy bandwagon. The ambition to summarize a complex endeavour into a few simplified indicators and numbers, usually raises

eyebrows and forces scientists to critically reveal and assess the boundaries of any claims that can be made on the basis of such data and indicators. Despite this reticence, bibliometrics' research has not been able to withstand the appeals and the pressures originating on and from the policy scene. Tibor Braun, as the editor of the leading journal in the field of bibliometrics, *Scientometrics*, has often found himself in the midst of this debate. This undoubtedly has offered him the possibility to view the progress and application of bibliometric work from a unique and encompassing perspective. What might he have observed? I will try to hypothesize and speculate on it. Let me start by stating that it must have been a fascinating and sometimes sinuous journey.

Bibliometric research has increased dramatically in sophistication ever since its initial inception. The advent of information technology, the progress made in statistical analysis and data mining techniques for exploring and exploiting huge databases, the ever increasing capacities for data storage, retrieval and treatment, have enabled this continuous and sustained increase in sophistication. Tibor's journal stands witness to this evolution, both as far as enabling technologies are concerned and as to the advances in mathematical and statistical analyses deployed on the ever-increasing bibliographic datasets that have become electronically available. In the meantime, the cumulative knowledge base of bibliometric facts, laws, theories and interpretations has reached a critical mass that has led to bibliometrics becoming recognized and legitimized as an established scientific discipline and a worthwhile field of scientific inquiry. Amongst Tibor's many lifetime achievements, this one counts extremely heavily: he enabled many young people's scientific careers into this new, emerging field.

According to all standards and attributes characteristic of a scientific community, bibliometric researchers indeed form a scientific community. They have their own journal and literature base, their conference circuits, and their institutions. They have become increasingly visible as chairs and departments at universities and research institutes. As a scientific discipline, bibliometrics has reached maturity and Tibor has been amongst those who have been able to see the field develop from an embryonic endeavour into this developed state. This is a rewarding achievement. However, as with all scientific disciplines that develop and grow, external pressures on the field have mounted along this process. Bibliometrics has not escaped this trend. The tools developed by bibliometric research have captured the attention of the experts at the funding side of the research enterprise. They also are under continuous pressure to account for the resource allocations they make. Obviously, this quest for accountability has led to the need to assess and to measure the results obtained with the allocation decisions. In the eye of the expert policymaker, bibliometrics just offers a much desired tool base. One of the most coveted components in this toolbox is the citation.

Unlike in bibliometrics, where citations are used as measure of reception of scientific results, science policy regards citations as an expression of impact or even quality. If literature is cited frequently, then this approach seems to be reasonable: good reception and considerable citation impact can be considered an expression of quality, too, as outstanding bibliometric indicators in general reflect a good state of the corresponding science system. On the other hand, if the citation rate of a given paper set is low, bibliometrics cannot immediately conclude on the quality of underlying research. Of course, the situation becomes problematic if at the institutional or even national level, citation indicators remain constantly low in a given science field. However, to draw valid conclusions, further research on the causes is then necessary. Although citation measures significantly correlate with other quality measures, the science policy re-interpretation of citations as an element of the reward system has severe consequences.

The role of self-citations is perhaps the most striking example for the mentioned consequences. If the citation expresses reward, self-citations distort the system as such. Consequently, self-citations are considered potentially falsifying the impact of research. Possible repercussions on the authors' citation behaviour are that they might feel urged to avoid self-citations which, in turn, might distort 'natural' communication behaviour in a self-organizing system. The Figure presents the relationship of different interpretations of the citation in information sciences and science policy schematically.

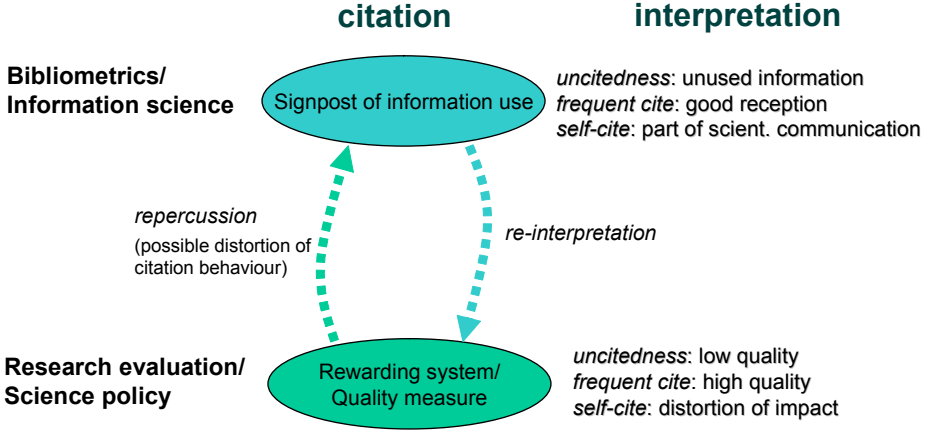


Figure: The process of re-interpreting the notion of citation and its consequences

Possible distorted behaviour based on policy use and misuse of bibliometric data has already been hypothesized. Consistent policy use of bibliometric indicators might potentially induce changes in the publication, citation and collaboration behaviour of scientists (both positive and negative): If bibliometric tools have an effect on decision-making in science policy and the scientific community

recognizes the feedback in terms of their funding, then there might be measurable repercussions on their behaviour, too. Re-interpretation and "perspective shift" as mentioned above might even catalyse this process.

Tibor Braun has seen all those evolutions. Not only did bibliometrics develop into a legitimate scientific discipline. It also became embedded in the standard language and toolbox of policymakers. This is not necessarily to be regretted. It demonstrates that bibliometric research has attained a high level of legitimacy and credibility, also within a broader societal context. It is up to us, bibliometric researchers, to maintain proper standards of validity, robustness and integrity throughout the work and questions, scientific or policy ones, that we pursue. The challenge is ours. We hope that Tibor will be able to watch and monitor the endeavours of our work for many years to come.

Received: 11 February 2007

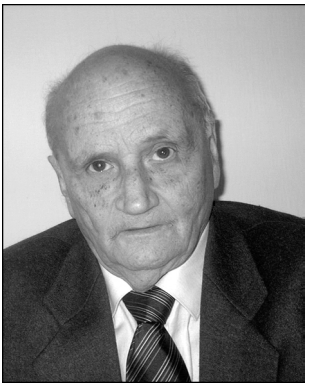
Address of congratulating authors:

KOENRAAD DEBACKERE, WOLFGANG GLÄNZEL
Katholieke Universiteit Leuven,
Faculty of Economics and Applied Economics (ETEW),
Dept MSI, Naamsestraat 69, B-3000 Leuven, Belgium
Email: Koenraad.Debackere@econ.kuleuven.be;
Wolfgang.Glänzel@econ.kuleuven.be

Barnaby Rich and the Use of Scientific Indicators in the Future

Sándor Zsindely

Budapest (Hungary)



One of the favourite themes of scientometrics Tibor Braun has been interested in is the problem of the so-called Barnaby Rich effect.[1] It can be defined as a high output of scientific writings accompanied by complaints of excessive productivity of other authors. This phenomenon is named after an English gentleman who in 1613 lamented on "the abundance of idle matter [i.e. the multiplicity of books] that is every day hatched and brought fourth into the world" but which did not impede him to publish a lot of printed matter about a variety of themes, and was not afraid that he could accused of contribution to the "pollution", "floods" and "eutrophication" of the contemporary literature.

Since the publication of a short communication in this topic by Tibor[1] I did my best to look for a Hungarian scientist, who could perhaps be mentioned as an other example for the effect in question. It seemed as I have found him in my own family.

One of my grand-grand fathers, Sándor Hegedüs (1847 – 1906) started his career as a journalist but he attained as an economist soon a renowned personage. He published articles in Hungarian, Austrian and French journals about politics, finances, statistics, sociology, but as an editor of one of Hungary's most popular newspapers he wrote more than 4700 editorials during his lifetime, in three languages.[2] If he had complained of floods or abundance of printed matters found in all forms of publications in the world, he could have been the man I looked for. But this was not the case. None sort of such a lamentation could I find either in his publications, or in his letters to his family, but I must admit, I have not read, of course, all his articles.

However, I discovered in my family archive an anecdote, which gives a hint for me. Once, as my grand-grand father moved in a new flat, one of the furniture movers was very proud of being transported all the chests full of books upstairs *on his head* in the new library room. Hegedüs said him that this is really a respectable achievement but he himself has (the contents of) all those books *in his head*.

I suppose that somebody who can manage to compile a collection of really relevant information concerning his/her interest (i.e., the core literature of his discipline) in his private library and is able to store the content of the books arranged on the shelves in his head as well, cannot be considered as a Barnaby Rich candidate. The flood of publications of dubious value will not influence that type of scientist if he/she can distinguish between worthy and worthless literature.

One can say that was easy more than hundred of years before. May be. But, thanks to scientometry, this is not an impossible task to be fulfilled also in our time. Now we have handbooks, compilations, catalogues, indexes, etc., in printed, and other forms, not to speak about the web, which help considerably the scientists to find the relevant information he/she needs. Moreover, a whole squadron of publishers, editors, advisors, gatekeepers, fund awarders, and many other people safeguards those information transmitters that provide the scientist with the necessary knowledge. If all these persons were work properly, then, principally, only the best of the best would arrive to the addressed scientist, and could find a place in his/her head.

But, to err is human. Therefore, not only the books, journals, articles, notes, letters, communications, proceedings and what kind of ever information sources exist in sciences must be revised, controlled, evaluated, scrutinized and criticized but also those persons too, who fulfil the task of "guarding the gates". For these reason many methods have been developed, including e.g., the number of publications, patents, price awards, honorary memberships, scientific degrees, editorial seats, as well as citation rates, *h* indexes etc., of the editors-in-chiefs, editors, co-editors, editorial and advisory board members, and other persons working in the relevant publishing houses. Some scientometricians hope that with the help of all that, not only the abovementioned individuals could be evaluated, categorized or ranked but e.g., the scientific journals they edit, as well.[3] Accordingly, we must only known some factors and indicators and we are able to select the appropriate information disseminator for our work. And then all things will be all right, the scientists will have an adequate method for select the most appropriate journal for publishing their articles; and the readers will be also satisfied with the quality of publications they get.

However, this is for the moment a little complicated. Due to my opinion, nowadays, only few people can distinguish between so many parameters, not to speak about using them for evaluation. One of the fortunate, without doubt, is Professor Tibor Braun. He is not only an expert of scientific indicators, factors and indices; moreover, he has an extraordinary talent to invent new ones. You

have only to cast a look at his publication list and you can see the large variety of such items[4]. I mention here only the latest one, the gatekeeper index.[3] Because neither Tibor could avoid his destiny, and was also very thoroughly evaluated, we can get a very scrutinized overview of his publication activity as a chemist as well as a scientometrician.[5] We can stated that with the knowledge Tibor has, it is not a hard task for him to put that all in his head.

For the majority of the scientific society, however, a modern, computer-based solution must be worked out to find the most appropriate channel for publication taking into account all the scientific indicators, factors, indices and other parameters invented until yet.

I am sure that it will not be long before we have some software with an adapter named e. g., JOUTER (from "journal" and "router") for our computer, and with the help of that we must only send the text of the article to be published and the name of the journal selected for to a given web site. After a few seconds the "preliminary electronic publication peer review" (PEPPER) will be done, with the help of all known scientific indicators, factors and indices built in the software. The result will appear on the screen.

For instance, somebody will publish an article entitled "The immortality of forest maybeetle (*Melolantha melolantha*)" in the *European Journal of Irreproducible Research E. Entomology,* he could receive the following evaluation of his/her work:

"Your article entitled … can most probably be published in the journal you have chosen for. It is much the more as the journal has editors from more than eight countries with an extra high maybeetle population, and five of the members of the advisory board have a garden with more than twelve fruit-trees."

Of course, this modern method will be able also to look for the most relevant publications in a given topic. It will be possible e.g., to get information about the use of contemporary scientific indicators on a very simple way. You must only type the name of a very distinguished author, namely that of Professor Tibor Braun in the respective rubric, and the success will be warranted. And if you would ask for all the names of scientists who has been and are working in the community of scientometricians, you must only list the name of those who have been cited Tibor since long and are cited him now as well. And the persons on that list will be identical with those who congratulate him on his 75th birthday.

Happy birthday, Tibor!

References

1. T. Braun, S. Zsindely, Growth of the scientific literature and the Barnaby Rich effect,
   Scientometrics, 7 (1985) 529 – 530.
2. Szinnyei József, Magyar írók élete és munkái (The life and works of Hungarian writers), Vol. 4, Hornyánszky publ. Budapest, 2000, p. 606 – 610 (in Hungarian).
3. T. Braun, I. Dióspatonyi, S. Zsindely, E. Zádor, Gatekeeper Index versus Impact Factor of science journals, Scientometrics, in press.
4. http://tibor-braun.fw.hu
5. V.I. Kalyane, B.K. Sen, Research productivity of Tibor Braun: An analytical chemist-cum scientometrician,
   Annals of Library and Information Studies, 50 (2003) 47 – 61.

Received: 18 February 2007

Address of congratulating author:

SÁNDOR ZSINDELY
Budenz út 28, H-1021 Budapest, Hungary
Email: s.zsindely@mail.tvnet.hu

Tibor Braun – The Global Gatekeeper

Wolfgang Glänzel*,, Bart Thijs*, Balázs Schlemmer***

*Steunpunt O&O Indicatoren, K. U. Leuven (Belgium)
**Hungarian Academy of Sciences, IRPS, Budapest (Hungary)

Introduction

Daniel[1] called them guardians of science, Crane[2] gatekeepers. Tibor Braun is one of them.

Editors-in-chief, their referees and members of their editorial and advisory boards are examining, evaluating and selecting papers, and are in this manner responsible for what is finally published in their journals. Thus they are the gatekeepers of scientific journals. Tibor has found that the influence of gatekeepers upon the quality of the journals they guard can be measured, and that the editors-in-chief perform their gate-keeping function in close co-operation with the board members of their journals rather than alone[3]. Thus bibliometrics is able to distinguish them from other authors.

Some of them are truly *global* gatekeepers, where world-wide recognition is only one side of the coin, and globality in the world's scientific landscape, namely multidisciplinary impact is the other one[4]. Let us therefore have a closer look at the world-wide and multidisciplinary reception of Tibor Braun's bibliometric œuvre.

As the editor-in-chief of an interdisciplinary international journal like *Scientometrics* he has the best chances to be not only read and cited outside Hungary but outside the field of bibliometrics as well. In what follows, we will focus on Tibor Braun's scientometric work independently of where it has actually been published.

The international impact

Tibor made his first steps as a bibliometrician around 1975 being a young but nonetheless famous scientist in his thirties. Not much later, in 1978 he launched

the journal *Scientometrics*, became its managing editor and thus a real gatekeeper in our field. The easiest way of measuring Tibor's impact abroad is looking at the distribution of citations over countries. A graphic presentation can be found in Figure 1. The data substantiates again: Hungary is one of the very centers of bibliometric research in the world.

Outside Tibor's own institution, the *Chemical Research Centre of the Hungarian Academy of Sciences* and the *Budapest University of Technology and Economics* are the most important citers in Hungary. The Netherlands are above all represented by the *Leiden University* and the *University of Amsterdam*, India by *NISTADS*, the USA by the *Office of Naval Research* in Arlington, *Thomson-ISI* in Philadelphia and the *Oak Ridge National Laboratory*. The most important citers in Germany are *RASCI* in Berlin and the *Fraunhofer ISI* in Karlsruhe; the *University of* Sussex (UK), *OST* in Paris and *INRA* in Nantes (both France), the *Katholieke Universiteit Leuven* (Belgium), *CINDOC* in Madrid and the *University of Granada* (both Spain), the *Agricultural University of Athens* and the *National and Capodistrian University of Athens* (Greece) as well as the *Universidad Austral de Chile* are among the world's most important recipients of Tibor's ideas as measured by citations.

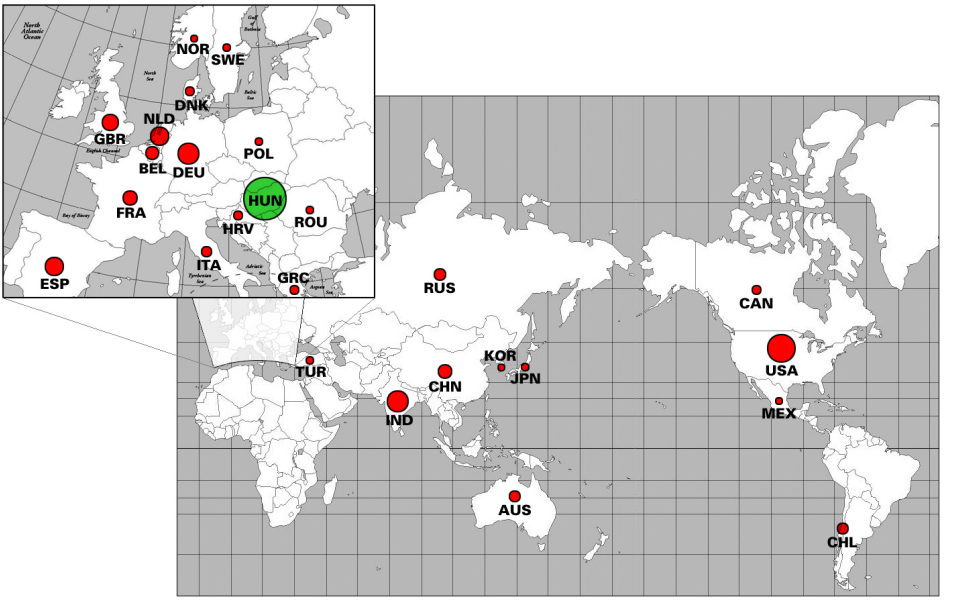


Figure 1 The 26 countries most frequently citing Tibor Braun's bibliometric work

The multidisciplinary impact

Without any doubt *Scientometrics* is and remains the central publishing organ of and for bibliometricians. About one half of all citations received by his bibliometric work came from his own journal *Scientometrics*. This is obviously not only a mere

by-product of author and/or journal self-citations[5,6]. The rest is distributed over a nearly endless list of journals. We have counted some 200 different journals representing not less than 107 ISI Subject Categories from almost all fields in the natural sciences, life sciences, technical and applied sciences, in mathematics, in the social sciences as well as in the humanities. Table 1 presents the most important journals in terms of citations to Tibor's bibliometric work. Each of them cited his papers at least ten times.

Table 1 The 26 journals most frequently citing Tibor Braun's bibliometric œuvre

Journal	**Share**
Scientometrics	48.7%
TRAC-Trends in Analytical Chemistry	3.2%
JASIST	2.2%
Journal of Radioanalytical and Nuclear Chemistry	1.9%
Research Policy	1.8%
Current Science	1.8%
Czechoslovak Journal of Physics	1.7%
Information Processing & Management	1.7%
Journal of Information Science	1.4%
Analytica Chimica Acta	1.3%
Magyar Kémiai Folyoirat	1.3%
Fresenius Journal of Analytical Chemistry	1.2%
Journal of Chemical Information and Computer Sciences	1.0%
Analytical Chemistry	1.0%
Current Contents	1.0%
Journal of Scientific & Industrial Research	0.8%
Medicina Clinica	0.6%
Journal of Analytical Chemistry	0.6%
Research Evaluation	0.6%
Scientist	0.6%
Fusion Technology	0.5%
Inorganica Chimica Acta	0.5%
Science	0.5%
Analusis	0.4%
Fullerene Science and Technology	0.4%
Nature	0.4%

To conclude, we think that the above examples convincingly substantiate Tibor Braun's global and sustainable gate-keeping activity with outstanding international and multidisciplinary impact for three decades. On the occasion of his 75th

birthday we wish Professor Tibor Braun successful gate-keeping for still another long period.

References

[1] Daniel, H.-D., The guardians of science. Fairness and reliability of peer review. VCH-Verlag, Weinheim, 1993.

[2] Crane D, Gatekeepers of science – Some factors affecting selection of articles for scientific journals, American Sociologist, 2, 1967, 195-201.

[3] Braun, T., Keeping the gates of science journals. In: H.F.M. Moed, W. Glänzel, U. Schmoch (Eds), Handbook of Quantitative science and Technology Research. The use of Publication and patent statistics in studies on S&T Systems. Kluwer Academic Publishers, Dordrecht, The Netherlands, 2004, 95-114.

[4] Glänzel, W., Private communication. 19 February 2007.

[5] Schubert A., Braun T., Reference-standards for citation based assessments, Scientometrics, 26 (1), 1993, 21-35.

[6] Glänzel, W., Thijs, B., Schlemmer B., A bibliometric approach to the role of author self-citations in scientific communication, Scientometrics, 59 (1), 2004, 63-77.

Received: 19 February 2007

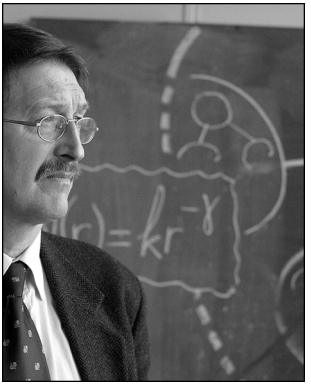
Address of congratulating authors:

WOLFGANG GLÄNZEL, BART THIJS, BALÁZS SCHLEMMER
Steunpunt O&O Indicatoren,
K. U. Leuven, Dekenstraat 2, B-3000 Leuven, Belgium
Email: Wolfgang.Glänzel@econ.kuleuven.be,
Bart.Thijs@econ.kuleuven.be,
Balazs.Schlemmer@econ.kuleuven.be

About Chemistry and Bibliometrics and the Consequences for Statistics – Some Thoughts on the Occasion of the 75th Birthday of Professor Tibor Braun

Anthony F.J. van Raan

Centre for Science and Technology Studies, Leiden University (Netherlands)



Tibor: chemist and bibliometrician. What is the connection between chemistry and bibliometrics? The answer is: affinities. In chemistry atoms are combined in many ways to build more complex things called molecules. This is certainly not a random process: atoms have different 'affinities' to each other, depending on their electronic characteristics. They belong to different families: noble gases, alkalis, metals, etc. Chlorine is extremely fond of hydrogen. Carbon, hydrogen and oxygen do like each other in many different ways, and that is why we exist. Molecules range in size from just one atom to compounds of very many atoms.

Publications are like atoms. They belong to different families (fields of science) and they have different affinities depending on, for instance, their reference characteristics. With these affinities single publications are combined to more complex things, like bibliographic-coupling or co-citation based structures. These structures are bibliometric molecules.

Let us look somewhat closer at bibliometric affinities in terms of citing and cited publications. We keep it very simple. Say each citing publication has only one reference (see Fig. 1, citing publications 1 to 7, and cited publications a to g), so there is just one possibility per (citing) publication to link up with another (cited) publication. We see the result of this wiring procedure: most of the links go the publication b! Some bibliometric statisticians consider this outcome as a purely stochastic phenomenon. Indeed, you can simply calculate the probability that publication a will

have 0 incoming links, publication b will have 5 incoming links, and so on.

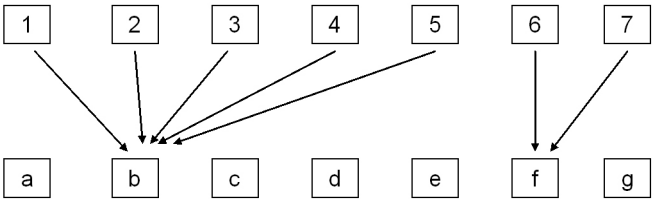


Fig. 1: Citing and cited publications

But this is not the nature of bibliometric reality. Bibliometrics is chemistry, and publication b is an atom with high affinity. Other publications prefer to link with it, there is 'preferential attachment', to speak in the language of the network-makers.

Of course, bibliometric reality is more complicated than in our simple example. Publications do not have just one reference, the number of their references is log-normally distributed around a specific value, for instance 10, see as an example in Figure 2 the distribution function of the number of references in condensed matter physics publications. But the wiring of these log-normally distributed references (outgoing links from the citing publications) as incoming links to the cited publications remains extremely skew, see Figure 3 as an example of the distribution function of citations (incoming links) to chemistry publications.

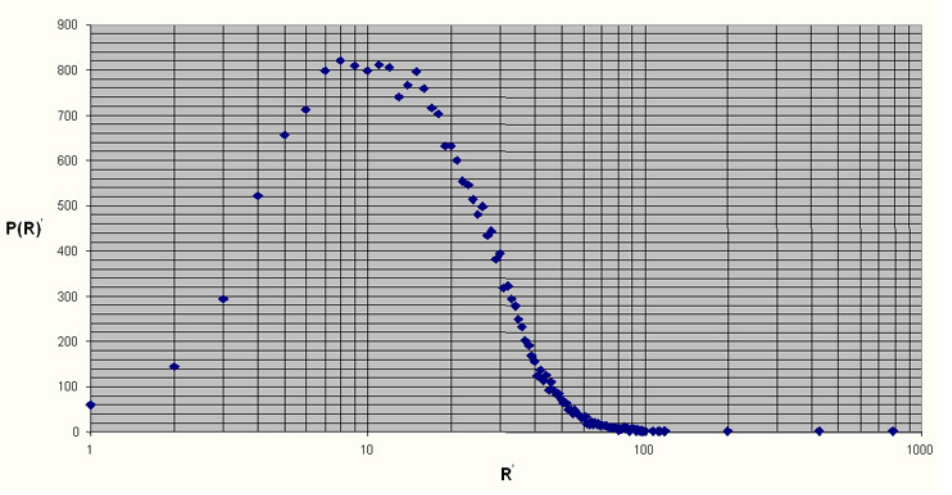


Fig. 2: Example of the distribution of outgoing links: number of publications P(R) with R references, condensed matter physics publications

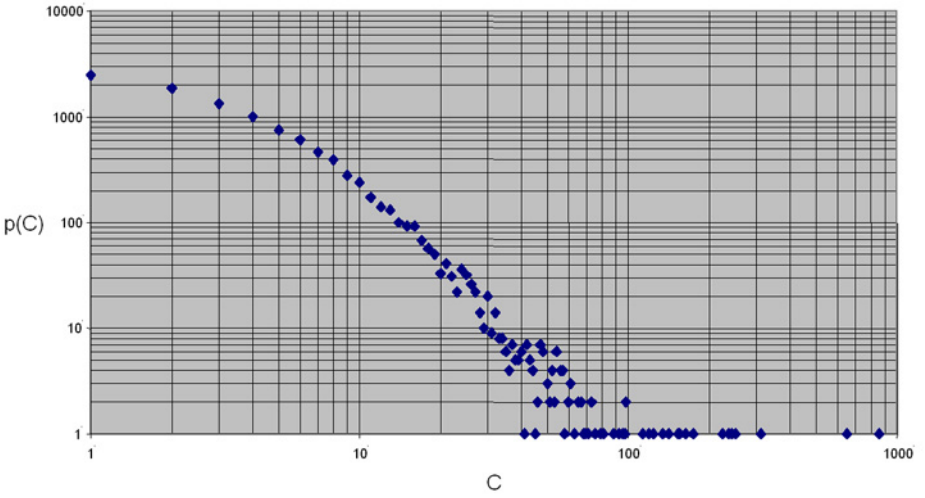


Fig. 3: Example of the distribution of incoming links: number of publications P(C) with C citations, chemistry publications in the Netherlands

This nicely illustrates the effect of bibliometric affinities resulting in a citation network structure dominated by preferential attachment. All other structures follow from this basic process. Like in chemistry. Happy birthday Tibor!

Received: 25 February 2007

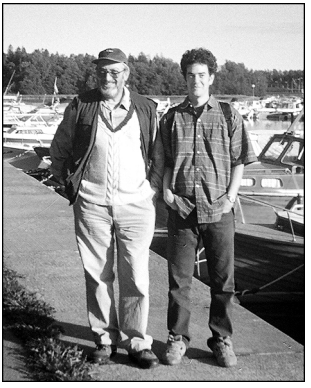
Address of congratulating author:

ANTHONY F.J. VAN RAAN
Centre for Science and Technology Studies (CWTS),
Leiden University,
PO Box 9555, 2300 RB Leiden, The Netherlands
Email: vanraan@cwts.leidenuniv.nl

A Novel Fullerene Derivative: $C_{75}TB^{*}$

Gábor Schubert[a], András Schubert[b]

[a] Chemical Research Center,
Hungarian Academy of Sciences, Budapest (Hungary)
[b] Insitute for Research Policy Studies/ISSRU,
Hungarian Academy of Sciences, Budapest (Hungary)



Abstract

A novel fullerene derivative: $C_{75}TB$ was identified using *in silico* experiments. The complex can be derived from the C_{76} fullerene with carbon-terbium substitution. Tautomer structures were determined, and some intriguing details on this new fullerene – metal complex are also given.

Introduction

The results of a quick literature search using the Web of Science (WoS) database (see Fig. 1) reveal a regrettable oversight by the scientific community of certain higher fullerenes. Similarly to the unjust suppression of the East and West Poles as compared to the North and South ones, the odd-numbered fullerenes in the C_{70} – C_{80} range are unfairly neglected; as a matter of fact, C_{75} (as well as C_{77}) remained completely unmentioned in the literature of the 1975 – 2006 period.

[*] Because of an unfortunate and irreparable software error, the formula of the title compound is written in all uppercase throughout the paper. Any similarity of the formula, in full or in part, caused by this error to the initials of any person called Tibor Braun is purely coincidental.

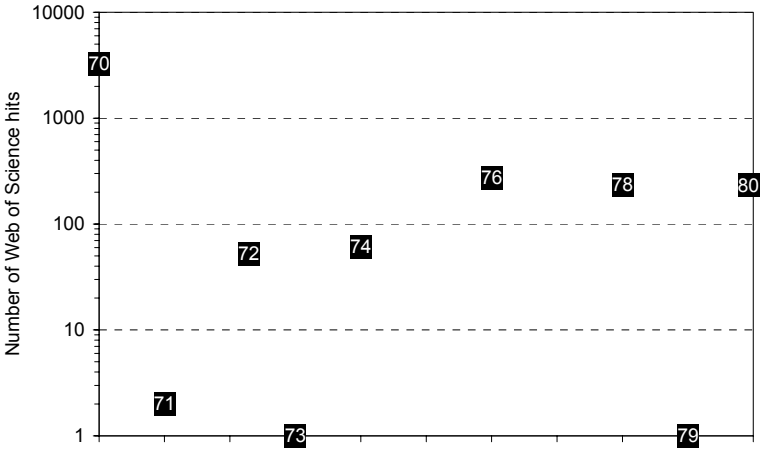


Fig. 1. The number of WoS hits for higher fullerenes (C_{70} – C_{80}) in the period 1975-2006

The research leading to the findings reported in this paper was basically motivated by the authors' strong commitment to remedy this injustice.

Literature background

The C_{76} fullerene was first proposed by Diederich et al. (1991). The idea of capturing rare earth metals (including Tb) inside of fullerenes is also well known (see: Gillan et al., 1992). There were also experimental studies where a so-called dopeyball was formed, i.e., one carbon atom of the fullerene was substituted by a heteroatom (Christian et al., 1992). The aim of our study was to describe a new heterofullerene with carbon – terbium substitution. Heterofullerenes were previously mainly consisted of boron and nitrogen (azafullerenes) derivatives of different C_n caged compounds. Hummelen et al. (1999) reviewed the most important types of heterofullerenes.

Method

"The method employed I would gladly explain,
While I have it so clear in my head,
If I had but the time and you had but the brain
– But much yet remains to be said."

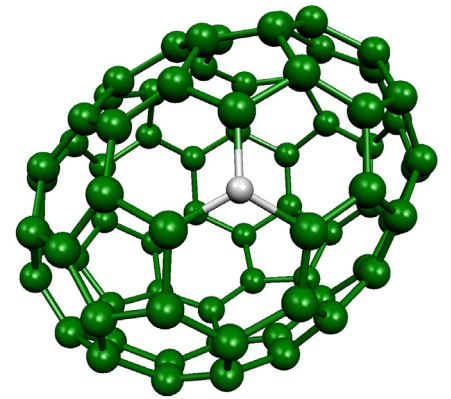
(Carroll, 1876)

Actually, we used pure speculational and computational chemistry to reveal the possible nature of C_{75}TB species.

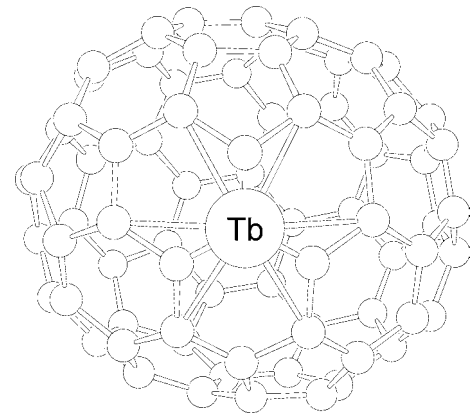
Results

The molecule has a molecular weight of 1059.7. Its color is dark green, as it can be clearly seen on Fig. 2a (at least in the online version). This fact will hopefully make it popular in green chemistry (see, e.g., Anastas & Warner, 1998).

The *in silico* experiments suggested several possible tautomer forms. Apart from the eggplant-shaped tautomer shown in Fig. 2a, a spherical form has also been found, where the terbium atom is sorrounded by not less than 9 carbon atoms. This form is shown in Fig. 2b. The authors' preference is the (a) form not only for its nicer color, but also since its shape reminds more closely to a person whose initials are, purely coincidentally, contained in the formula of the compound.



(a)



(b)

Fig. 2. The eggplant (a) and the spherical (b) tautomeric form of $C_{75}TB$

Application aspects

As practical applicability is concerned, $C_{75}TB$ successfully competes with any other fullerene derivatives. It is completely useless. (But let us remind the reader to the promising "green chemistry" connection.)

On the positive side, it appears to be biocompatible, at least the authors didn't experience any harmful or toxical effect while studying C_{75}TB other than the usual non-specific symptoms of *in silico* experimentation: headache, low-back pain, mouse elbow, etc.

Perspectives of future works

The authors' next project is doing justice to the other completely neglected higher fullerene: C_{77}. The results of these studies are expected to be published after about two years.

References

Anastas & Warner, Green Chemistry: Theory and Practice, 1998
Carroll, The Hunting of the Snark, 1876.
Christian et al., Chem. Phys. Lett., 199, 373, 1992
Diederich et al., Science, 252, 548, 1991
Gillan et al., J. Phys. Chem., 96, 6869, 1992
Hummelen et al., Top. Curr. Chem., 199, 93, 1999

Received: 20 February 2007

Addresses of congratulating authors:

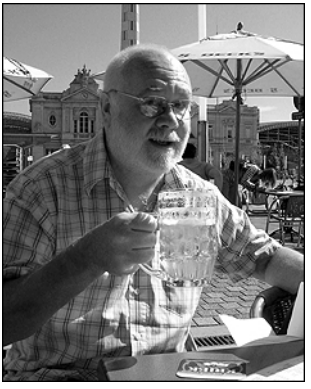
GÁBOR SCHUBERT
Chemical Research Center, Hungarian Academy of Sciences, H-1025 Budapest, Pusztaszeri út 59-67, Hungary
Email: schubert.gabor@iif.hu

ANDRÁS SCHUBERT
Insitute for Research Policy Studies/ISSRU, Hungarian Academy of Sciences, Nádor u. 18, H-1051 Budapest, Hungary
Email: schuba@iif.hu

Should the h-index be discounted?

Quentin L Burrell

Isle of Man International Business School



Dedication

This note is dedicated, with affection and sincere respect, to Tibor Braun on the occasion of his 75th birthday.

Introduction

Hirsch's h-index, which aims to give an easily understood, single number index to quantify the impact of a scientist's writings, has an immediate appeal but there are several drawbacks that have been noted. For instance, citation habits as well as author productivity vary greatly over different scientific fields. Mathematicians by-and-large tend to work in isolation, make few references and expect few citations – notwithstanding the likes of Paul Erdős whose collaborations were legendary and output prodigious! On the other hand, in the biosciences much published work is produced by teams, leading to large numbers of co-authors, many publications, long lists of references and the accumulation of large numbers of citations. It is precisely such conditions that enhance the possibility of an individual author having an inflated h-index since there is no account taken of the author's actual contribution to any paper of which s/he is a co-author, such authorship alone is sufficient to attract accreditation.

There is also the fact that the h-index rewards longevity. In his original paper Hirsch (2005) suggested, on the basis of a very simple deterministic model, that an author's h-index should be proportional to the (current) length of the publication career. This was supported, at least approximately, by Burrell's (2007a) theoretical stochastic model. It seems that the first empirical study to track the development of an individual's h-index index over

extending periods of time is that reported by Liang (2006) and it was on the basis of this, together with the theoretical considerations, that Burrell (2007b) suggested that the h-rate rather than the h-index be used in comparative studies, at least within a discipline. Use of the h-rate also opens up the possibility of more detailed scientometric investigation of an author's career development. We will not pursue this further here but mention two other drawbacks to the h-index.

Multi-authorship

There is a long history of debate over how author credit should be assigned in the case of multi-author papers – should it be full credit to all authors, credit only to the first-named author or some sort of reduced/fractional credit? Clearly there should be similar concerns when considering the contribution that co-authored papers make to the calculation of an author's h-index. If the author's contribution to the paper is discounted, surely the credit in terms of citations received should also be discounted?

This will be particularly important for teams of workers who habitually ascribe joint authorship to all members of the team irrespective of the actual contributions. For instance, imagine a "team" of four workers who, although working independently, agree that all four should be credited as authors for any published piece of research so that they all essentially quadruple their research outputs, at least so far as publications are concerned, without any real increase in productivity. This sort of arrangement would tend to inflate the h-index – according to Burrell's (2007a) stochastic model, the h-index is approximately proportional to the log of the publication rate so some sort of discounting would seem to be in order. Of course, if any of an author's papers contributing to the h-index is multi-authored, then applying any sort of discounting could well remove that paper from the h-core, and hence reduce the index.

Self-citation

The h-index is determined by the combination of an author's total output, determined in turn by productivity and longevity, and the citations received, which again will depend upon productivity and longevity. However, citations are an aspect that can be directly influenced by the author through self-citation. For instance, imagine an author who, at the outset of his/her career, decides to cite routinely every one of his/her previous publications. Then with the second publication the author's h-index will be at least one, after four publications it will be at least two, and so on. Hence an author can guarantee an h-index of at least one half of his/her total number of publications! It is not suggested that all self-citations are gratuitous but, as it currently stands, the h-index takes no account at all of the number of self-citations, treating all citations equally. If one deleted all

self-citations then this could very well lead to a decrease in an author's h-index, possibly a substantial one.

But surely there should be some discounting. For instance, if a paper receives 100 citations, 80 of which are self-citations, surely the "impact" of this paper within the wider community is less than that of one whose 100 citations include only 20 self-citations?

In late 2000 on the SIGMETRICS list, the author suggested a way of discounting self-citations that penalised most those authors who self-cite the most by discounting according to the number of self-citations. The idea is that if a paper has received a total of N citations, of which a proportion p are self-citations, then each of the (1-p)N non-self-citations should receive full weight but the pN self-citations should be discounted by a factor of 1 – p. Hence the suggested discounted citation score (DCS) for a cited paper is

$$DCS = (1-p)N + (1-p)pN = (1-p)(1+p)N = (1-p^2)N$$

For instance, using the above example, if 80 out of 100 citations are self-citations, the DCS is 36; if just 20 out of 100, the DCS is 96.

Again, such discounting, leading to a reduced citation count for a paper in the h-core could result in it being removed from the core and consequently reducing the index.

Concluding Remark

The suggestion of discounting the citations score in cases of multi-authorship, possibly by fractional counting of citations, and/or discounting self-citations, possibly by using the DCS, will in each case tend to reduce an author's h-index. Some authors will suffer more than others. Some may find that their h-index disappears! It would be interesting to see empirical investigations of the results of implementing either or both of these suggestions in various subject fields.

References

Burrell, Q. L. (2007a). Hirsch's h-index: a stochastic model. *Journal of Informetrics*, 1(1), 16-25.

Burrell, Q. L. (2007b). Hirsch index or Hirsch rate? Some thoughts arising from Liang's data. *Scientometrics* (To appear).

Hirsch, J. E. (2005). An index to quantify an individual's scientific research output. *Proceedings of the National Academy of Sciences of the United States of America,*102(46), 16569-16572.

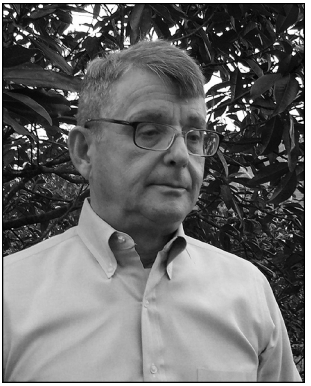
Liang, L. (2006). h-index sequence and h-index matrix: Constructions and applications. *Scientometics*, 69(1), 153-159.

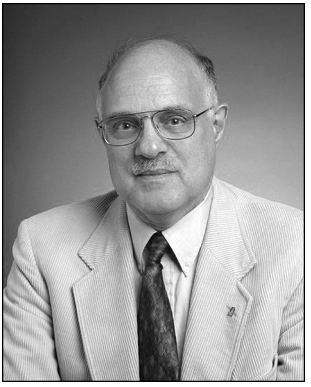
Received: 21 February 2007

Address of congratulating author:

QUENTIN L BURRELL
Isle of Man International Business School, The Nunnery, Old Castletown Road,
Douglas, Isle of Man IM2 1QB, via United Kingdom
Email: quentinburrell@manx.net

Short Communications





Tibor Braun, the Journal *Scientometrics*, and the International Development of a New Discipline

Stephen J. Bensman and Donald H. Kraft

Louisiana State University, Baton Rouge (USA)

We have known Tibor Braun as a colleague for several years, mainly through his writings and his editorship of *Scientometrics*. He has done a very good job with the journal, having it become a primary source of material on citations and their use, especially in terms of describing various scientific disciplines.

Tibor's background and work as a chemist prepared him well for his work in scientometrics. Throughout its history, chemistry has been always a leading discipline in the bibliographic control of scientific literature. Chemistry was also the field in which Eugene Garfield, inventor of the *Science Citation Index*, began his career.

Through his editorship of *Scientometrics*, Tibor has played a very important role in serving as a bridge between two traditions of scientometric studies, which developed independently. One tradition was the Anglo-American tradition, which created scientometrics through the development and integration of bibliometrics with the history and sociology of science. Among the key figures in the development of this tradition were S.C. Bradford, J.D. Bernal, D.J. Urquhart, B.C. Brookes, Derek J. de Solla Price, Robert K. Merton, and Eugene Garfield. The other tradition was the Marxist tradition of science studies that developed in the Soviet Union after the Russian Revolution of 1917. Garfield (personal communication, Feb. 22, 2007) points out that the word "scientometrics" originated in the Russian word "naukometriya," which was coined by Vasilii Vasil'evich Nalimov, a Soviet statistician. Nalimov and Mul'chenko (1969) published a book with that title, which in 1971 was translated into English under the title *Measurement*

of Science: Study of the Development of Science as an Information Process. According to Garfield (1982, Feb. 22, p. 7), this book provided the theoretical foundation for the work of many other Soviet and East European scholars studying the structure of science. *The Oxford English Dictionary Online* (2007) traces the probable etymology of the English word "scientometrics" to the translation of the Nalimov and Mul'chenko book's title. Both it and Garfield (1979, Nov. 12, p. 5) pinpoint the first appearance of this word in the English language to the translation of the Russian word "naukometricheskie" by Rabkin (1976a; 1976b) in his reviews of science studies in the USSR.

These two traditions began to merge at the Second International Congress of the History of Science and Technology held in 1931 at the Science Museum in London, where a Soviet delegation of theoreticians, historians, and scientists led by Nikolai Bukharin ("*Science*," 1931) set forth before Western intellectuals for the first time the view of science then predominant in the USSR. These Soviet reports greatly influenced the radical British scientist J.D. Bernal, whose ideas on scientific information and the relationship of science to society had a profound effect on both Price and Garfield. However, it was not a one-way street, and Garfield (1982, Feb. 22, p. 7) reports that Nalimov became familiar with Price's work in the late 1950s and early 1960s.

The establishment of the journal *Scientometrics* marked the start of a close integration of these two traditions. This can be seen in the composition of its intial editorial board, which included M.T. Beck (Hungary), G.M Dobrov (USSR), Eugene Garfield (USA), and Derek J. de Solla Price (UK/USA) as editors-in-chief with Tibor Braun (Hungary) as managing editor. Garfield (1982, Feb. 22, p. 7; 2001) writes that Nalimov helped found the journal, whose title was taken from the term that he coined. Its publication by the Akademiai Kiado in Budapest with such an editorial board is symbolic of its role as a bridge between these two worlds. Garfield (1979, Nov. 12, pp. 8-9) considered the establishment of the journal *Scientometrics* as a sign of this discipline coming of age.

Don Kraft, a co-author of this note, can personally testify to Tibor Braun's continuing role as a bridge between the Anglo-American and Continental European scientometric traditions. Don has been the editor of the *Journal of the American Society for Information Science and Technology* (*JASIST*) for over twenty years and has been fortunate enough to have enticed Tibor to serve on the *JASIST* Editorial Board. This has helped attract articles on bibliometrics, especially the theoretical and mathematical work and the current work on webometrics; and these articles have supplemented the research found in the pages of *Scientometrics*.

All we can say is happy birthday, Tibor; may you enjoy the day and have many more birthdays and productive years.

Stephen J. Bensman and Donald H. Kraft

References:

Garfield, E. (1979, Nov. 12). "Scientometrics Comes of Age," Current Contents, No. 46, 5-10. (http://www.garfield.library.upenn.edu/essays/v4p313y1979-80.pdf).

Garfield, E. (1982, Feb. 22). ""In Tribute to V.V. Nalimov: Renaissance Scholar and Scientometrician Par Excellence," Current Contents, No. 8, 5-15.
(http://www.garfield.library.upenn.edu/essays/v5p417y1981-82.pdf)

Garfield, E. (2001). "Reminiscences of Vassily V. Nalimov," Scientometrics, Vol. 52, No. 2, 165-166.
(http://garfield.library.upenn.edu/papers/nalimovscientometrics52(2)p165y2001.pdf)

Nalimov, V.V., & Mul'chenko, Z.M. (1969). Naukometriya: izuchenie razvitiya nauki kak informatsionnogo protsessa. Moskva: Nauka.

The Oxford English Dictionary Online. (2007). Oxford, England: Oxford University Press. (http://dictionary.oed.com/)

Rabkin, Y.M. (1976a). "Measuring Science in the USSR: Uses and Expectations," Survey: A Journal of East & West Studies, Vol. 22, No. 2, 69-80.

Rabkin, Y.M. (1976b). "Review of Naukometricheskie issledovaniia v khimii (Scientometric Studies in Chemistry), Moskva, Izd-vo Moskovsogo universiteta, 1974," Social Studies of Science, 6, 128-132
(http://www.jstor.org/view/03063127/ap010005/01a00090/0?frame=noframe&userID=82273cf8@lsu.edu/01cc99331100501b86c24&dpi=3&config=jstor)

Science at the cross roads: Papers presented to the International Congress of the History of Science and Technology held in London from June 29th to July 3rd, 1931, by the delegates of the U.S.S.R. (1931) London: Kniga.

Received: 26 February 2007

Addresses of congratulating authors:

STEPHEN J. BENSMAN
LSU Libraries,
Louisiana State University, Baton Rouge, LA 70803-3300, USA
Email: notsjb@lsu.edu

DONALD H. KRAFT
Department of Computer Science,
Louisiana State University, Baton Rouge, LA 70803-4020, USA
Email: kraft@bit.csc.lsu.edu

Celebrating the worldwide impact of Tibor Braun – a pioneering analytical chemist and gatekeeper of scientometrics

Eugene Garfield[1], Soren Paris[2]

[1] Chairman Emeritus, ISI, Philadelphia, PA (USA)
[2] Thomson Scientific, Philadelphia, PA (USA)

HistCite™ is a software tool for analyzing and visualizing citation linkages among a collection of scientific papers. The data are bibliographic records with cited references from the "Web of Knowledge" database. For Tibor we created two HistCites. The first is a collection of his papers from 1972 to 2006. The second includes these same papers as well as the papers citing them.

The software is capable of creating a "Historiograph," that is, a chronological mapping of well cited papers. There are two basic types of historiographs including those which display the papers that are cited in the Web of Science database, (the GCS map) and those which map the papers that are relatively highly cited in the specific HistCite collection, that is, the local citation score map (the LCS map). What stands out immediately from viewing these historiographs of the Tibor Braun collections is that the papers self-organize into two distinct groups, those in the field of analytical chemistry and those in the field of scientometrics.

In addition to tracking the network of citations among a collection of papers, HistCite can bring to light a diverse array of statistics and analyses.

By looking at the country analysis, we can see that the top 5 countries citing his work are Hungary, USA, Japan, India and Germany. There are 67 countries that cite Braun et al at least once.

Since 1995, there is an average of 81.3 papers per year that cite Tibor's work.

It is worth noting that he has an H-Index of 28.

The most popular word in the titles of the papers citing Braun is "polyurethane." It is found in 238 of 1714 papers. The subset of these 238 papers and the papers in the local collection that cite them produces a total of 5955 citations.

Tibor's 28 papers which use the word "polyurethane" are cited 869 times, an average of 31 cites per paper. By comparison, only 12% of the papers in this collection are cited 31 times or more.

Turning to Tibor's work in the field of scientometrics it is important to distinguish the papers that bear his name as co-author and the papers published in the journal he founded, namely "Scientometrics." Readers are referred to the separate HistCite collection which lists the 2140 items indexes in WOS, up to the fall of 2006. Of these, it is noteworthy that the pioneering compilation:

Scientometric Datafiles – A Comprehensive Set Of Indicators on 2649 Journals and 96 Countries in All Major Science Fields and Subfields 1981-1985
Scientometrics 16 (1-6): 3
In the most-cited record listed.

For bibliometricians it is worth noting that the link "cited references" provides a complete citation index for the entire output of the journal—some 23,600 cited references ranked by citation frequency. The top 200 most cited are included here. http://garfield.library.upenn.edu/histcomp/scientometrics/list/or-pubs.html

As a final statistical note it is significant that the journal has now been cited over 12,000 times in dozens of other journals. This is easily verified in the Journal Citation Reports. Clearly Tibor has much to be proud in the almost thirty years of the journal's life.

Eugene Garfield and Soren W. Paris
Philadelphia, PA. USA

A limited display of the Braun HistCite files can be accessed here: http://garfield.library.upenn.edu/histcomp/index-braun.html

Received: 23 February 2007

Address of congratulating authors:

EUGENE GARFIELD
Founder & Chairman Emeritus,
ISI, 3501 Market Street, Philadelphia, PA 19104, USA
President & Founding Editor, The Scientist,
400 Market Street, Suite 1250, Philadelphia, PA 19106, USA
Email: garfield@codex.cis.upenn.edu

SOREN PARIS
Thomson Scientific, 3501 Market Street, Philadelphia, PA 19104, USA
Email: Soren.Paris@contractor.thomson.com

Unsquaring the Wheel: A (Mostly) Astronomical Encomium for the 75th Birthday of Tibor Braun

Virginia Trimble

Dept of Physics & Astronomy, University of California, Irvine (USA)

"Reinventing the wheel" is an English/American cliché for developing a method or device that in fact already exists. "He has reinvented the wheel; only his is square" means that the new version is not so good as the old one. Among many services to the community performed by Scientometrics and its editor has been the prevention of many square wheels. A large fraction of investigators of scientometrics and related quantitative measures of how science is done dome to the field from some older branch of learning – biology, economics, chemistry, sociology, or even astronomy. Indeed Tibor must like astronomers, because he keeps three of us on his boards, and I am not at all sure that we do our fair share of the work.

In any case, coming from diverse disciplines, new-fledged scientometricists are quite likely to invent methodologies for themselves, some of which may be improvements; some of which undoubtedly are not. Truth be told, I slightly mis-reinvented Kaplan-Mayer survival curves 20 years ago, while trying to figure out how to display data showing that it pays off in the long run to go to a prestigious graduate school.

With this aspect of the journal in mind, I looked through the issues published in 2006, seeking out questions and ways of answering them that have been used for some other discipline and asking, "have astronomers done this? what do we know about it in our field?" I ended up with three, then four, classes:

3. Little or nothing formally known about the astronomical case, but would be interesting to try to find out
2. Astronomical evidence exists, but anecdotal or partial compared to other field
1. Comparable amounts of information available in both
0. Astronomical information exists, but the question or method did not appear in 2006 issues of Scientometrics.

Since there are 26 letters in the English alphabet (I'm betting that Hungarian has more, so Tibor should feel free to add to the list!), I stopped at 26 topics. These are lettered A to Z and ordered 3,2,1,0 in the above classes. The ways the various questions and methods are phrased would not withstand careful grammatical analysis in any language. And it is left as an exercise for the reader to identify the 2006 Scientometrics papers that triggered each thought.

A(3). Effects/benefits of international collaborations for scientists in developing countries
B(3). Lazy/shorthand substitutes for full citation counting – Hirsch number, ranking by journal impact factors (would be particularly egrious in astronomy, since high impact of Science, Nature driven by biomedicine)
C(2). How credit ought to be shared among authors, institutions, facilities...
D(2). Significance of government funding and policy decisions for research productivity, student numbers and success rates, etc
E(2). Gender and social class issues
F(2). Appropriate choice of distribution functions and statistical methods
G(2). How often is a meeting abstract the only trace of a significant result?
H(2). Journal quality and quantity: are there journals we could do without? Role of new journals in validating new fields. Murder, suicide, and accidental deaths of journals
I(2). Importance of rejected, never published, or devastatingly modified papers
J(2). How much do you need to know to start, and succeed, in a given field?
K(2). Patents, inventions, start-up companies, and the chances of getting rich from "pure" science
L(2). How helpful is standardization of nomenclature, units, etc?
M(2). What is the public perception of particular sciences, and how can we improve it? Contributions to education and public understanding
N(2). What should the ratio be of folks in "my" field to folks in "your" field to maximize, e.g., institutional prestige?
O(1). Numbers and effects of self citation – individual authors; groups of authors; journals; whole national communities
P(1). Matthew effects (individuals; groups; facilities; countries; journals…)
Q(1). Importance of being at a high-prestige institution (access to state of the art facilities, more funding, better colleagues...not the whole story).
R(1). Scientometric indications of bad/wrong/fraudulent science (polywater, cold fusion; SN 1987A pulsar; rotation of external galaxies...)
S(1). At what age do scientists write their most influential papers? (why?)
T(1). Propagating errors about the actual science; in citations
U(0). Temporal changes in mean paper lengths, numbers of authors, numbers of citations per paper
V(0). Comparison of productivity and impact of facilities per se
W(0). Existence of high and low prestige subfields; effects on careers of students working in them
X(0). Impact of major shifts in personel – Europe to US 1933-47; in and out of war work; ...
Y(0). Ongoing changes in national and discipline origins of folks in "our" fields

Z(0). Correlations of publication and citation records with length of time to PhD; breadth or narrowness of early work; early recognition; other things that would help us advise students.

It seems very probable that I have reinvented some wheels here. Nevertheless (1) might the standard request for a referee's report include a question about whether the ideas/methods could be useful in other fields, and (2) most sincere congratulations and good wishes to Prof. Tibor Braun upon this auspicious occasion.

Received: 14 February 2007

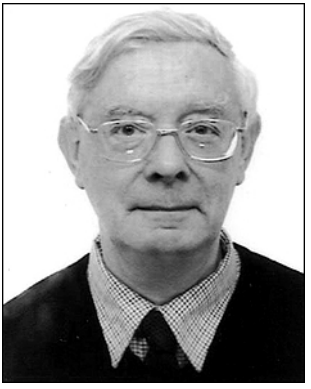
Address of congratulating author:

VIRGINIA TRIMBLE
Dept of Physics & Astronomy,
University of California, Irvine, CA 92697-4575, USA
Las Cumbres Observatory Global Telescope Network,
6740B Cortona Dr., Goleta, CA 93117, USA
Email: vtrimble@astro.umd.edu

Tibor Braun and the Pioneering Role of Chemists in Science

Jack Meadows

Seagrave, Leicestershire (UK)



Scientometrics has a long pre-history. Papers on relevant topics can be found scattered around the literature throughout the first half of the twentieth century. What is not always realised is how many of these early initiatives came from chemists. Here are two examples.

One of the first attempts to examine literature use via citation counting was made by P.L.K. Gross and E.M. Gross in 1927. They both worked in the Chemistry Department of a North American college, and the purpose of their exercise was to try and determine what was the essential literature that chemists needed to have available. In the following decade – the 1930s – S.C. Bradford in London was interested in the related question of how papers on a given topic were distributed across a range of different journals. Bradford had been trained as a chemist, and the need to track down papers relating to applications of chemistry was part of the drive that led him to formulate his 'law of scattering'.

Chemists had this deep interest in their literature from early on because chemistry was in many ways the pioneering discipline in modern science. Physics, by way of contrast, only became the integrated subject we know today well after chemistry had established itself. Henry Armstrong gave his Presidential address to the Chemical Society in London in 1894. He discussed the basic problem facing chemists – it sounds very familiar today:

'Chemical literature is fast becoming unmanageable and uncontrollable from its very vastness. Not only is the number of papers increasing from year to year, but new journals are constantly being established. Something must be done in order to assist chemists to remain in touch

with their subject and to retain their hold on literature generally.'

He and his colleagues responded to the problem by developing a system of abstracts. (This project was overtaken in the early twentieth century by *Chemical Abstracts* published by the American Chemical Society, who introduced it, interestingly enough, because they thought American research was being overlooked in Europe.) But Armstrong continued to think about the growth of the chemical literature, not least its impact on chemical research. One result he noted was the growth of specialisation. While recognising the logic of specialisation, he was unhappy about narrowing of vision that it implied. Twenty years after his Presidential Address, he commented sadly:

'In my early days I knew quite a number of well-read chemists. I rarely meet one now among the younger generation; in fact, the tit-bit habit is upon us everywhere and we tend more and more towards blind specialism.'

He was, of course, over-pessimistic. Tibor Braun has shown that the tradition of chemists studying the nature of the research literature still continues. In doing so, he has demonstrated that not all modern chemists can be accused of a narrowness of vision.

Received: 16 February 2007

Address of congratulating author:

JACK MEADOWS
Emeritus Professor,
Department of Information Science, Loughborough University, UK
Email: jack.meadows@btinternet.com

Tibor Braun: A Gate Keeper of European Scientometrics

Paul Wouters

The Virtual Knowledge Studio, KNAW, Amsterdam (The Netherlands)

The first time I met Tibor Braun was virtual. I was having interviews in the United States in 1991 with the members of the first team of Eugene Garfield who had together created the Science Citation Index in the second half of the 1950s, and thereby created the data source that would become most popular in Scientometrics. At the time, I had the strong impression that the field would not have existed without the SCI. This impression was reinforced by the often data-driven nature of the papers that I had been reading, many of them in the journal Scientometrics. However, my interviewees made clear that this could not be the complete story. The creation of the journal Scientometrics had come as a complete surprise to them, as more than one bibliometrician told me. This was interesting, since the creation of a specialised journal is one of the indicators of the professionalisation of a field, in a way of its very existence. As we all know, the journal Scientometrics was first published in September 1978, and at that time it already had a respectable editorial board in which all the names of the prominent scientometricians were present. Apparently, the initiator of the journal had been able to overcome the initial resistance that my interlocutors seemed to refer to. So I decided that my attempt at understanding the history of the Science Citation Index and the field of scientometrics would perhaps be incomplete without an interview with this person, a certain Tibor Braun who worked at the Hungarian Academy of Sciences. Since he did not seem to participate in the series of scientometric conferences I had attended, I decided I had to travel to Budapest.

This led to my second encounter with Tibor Braun, this time face to face in his office in Budapest. Although I had been working as a science journalist for more than 8 years, and felt I had enough experience in interviewing researchers, including Nobel Prize winners, I still felt as a novice in the field of science history. So I worked hard at the preparation of this interview. I read all issues of the first year of the journal. I worked my way through all publications written by Braun himself. And of course I sent a letter requesting for an interview. I received a polite albeit somewhat formal reply with the request to send in the questions beforehand. So I did.

Showing up in his office after an exhausting and hot train ride from Amsterdam, prof. Braun turned out to be extremely well prepared. He had been so kind to make a set of copies of selected documents from his archive, pertaining to the early history of the journal Scientometrics, and the exchange in those days with Eugene Garfield and Henry Small. He went through the questions with painstaking attention to the details. He was not easily deflected from the course he had planned to take with me. The dynamics of the interview was certainly quite different from the ones I had had with

Gene Garfield, Henry Small, Robert Merton and Joshua Lederberg. It felt more like an examination by a kind but very stern professor than like an interview. I had hoped, and I think I had expressed this wish in the preparation of the interview, to get access to the archive of the journal Scientometrics. I was especially interested in the question how the peer review of the journal was organised, since some of my interviews with scientometricians had raised questions about the selection process that the journal was using. Here, however, I ran into a wall: there was no question at all of me getting access to the files of the journal. As prof. Braun explained friendly, but without any hesitation: "It is like with the archive of the Nobel Prize. The archive will be accessible for historians after 50 years but not sooner." Although the interview had been interesting, and I was impressed by the academic and professional record of prof. Braun, I felt I had failed to add the inside story about the creation of the journal to my history of the Science Citation Index. What I had was the official story which is of course based on true facts but lacked the thrills of the inevitably political manoeuvres with which the creation of a scientific journal always is accompanied.

Looking back to the interview and having overcome my initial disappointment, I now feel that the way the interview went, actually reflected, in an illuminating way, the role that Tibor Braun had set out to fulfill. His vision of the field was strongly influenced by the work of Nalimov and a European tradition in information science and scientific information handling which differed in interesting ways from the tradition in the US. His editorship of the journal has given shape to this vision. At the occasion of Tibor Braun's 60th birthday, Loet Leydesdorff characterised Tibor Braun's intellectual profile in a scientometric way (Leydesdorff 1992). My recollection points to an aspect that perhaps does not show up immediately in the academic record per se, but has nevertheless had a strong influence on scientometrics. It is a familiar role for the sociologist of science: Tibor Braun has been one of the key gate keepers of scientometrics. I applaud him for that.

Reference:

Leydesdorff L. (1992). 'The Organization of the Semantic Space of an Author,' *Psientometrics* 60(1), 19-24.

Received: 21 February 2007

Address of congratulating author:

PAUL WOUTERS
Programme Leader Virtual Knowledge Studio for the
Humanities and Social Sciences
Royal Netherlands Academy of Arts and Sciences,
Cruquiusweg 31, NL-1019 AT Amsterdam, Netherlands
Email: paul.wouters@vks.knaw.nl

Happy Birthday to a Scientometrician who Became Citizen of the World

Manuel Krauskopf

Millenium Institute for Fundamental and Applied Biology,
Universidad Andrés Bell, Santiago (Chile)

Scientometric analyses were seldom used in Latin America, particularly during the earlier days of this discipline. *Scientometrics*, the Journal, has played a fundamental role in the acquaintance of bibliometrics as a science, which has flourished with a complex set of methodologies and new concepts that can better be depicted in Spanish by the word *epistemometría*.

Tibor Braun's activism, effort and systematization clearly strengthened by his solid scientific formation as a well known chemist researcher, enriched the sociological meaning of scientometrics which has become a valuable tool for serious public policies decision making.

When Tibor Braun was invited to Chile for the first time to visit CONICYT, the Chilean higher organism committed to science and technology, I noticed immediately, being president of that organization, that he was a true citizen of the world. Not only that he dominated many languages including Spanish but his scientific acquaintance on the state of the art of science and technology in the whole world was impressive. His maps depicting countries proportionally to scientific and technological contribution have become classics today.

When somebody asked him how was it possible that he became so knowledgeable and spoke so many and diverse languages he recurred to a short joke: a small mouse chased by a hungry cat managed to enter a small cave through a hole in the wall. The mouse was exhausted and its respiration was anxious. Thinking what to do next, it suddenly occurred to her that if she could bark the cat would run away. As it did, the cat got scared and ran away. Another mouse that was in the cave approached her and asked: How do you know how to bark? The mouse replied: My mother taught me that if I could speak many languages it would be very useful in my adulthood.

Tibor indeed speaks many languages, but in addition he dominates the science of sciences and has been a crusader to install a serious approach to value science in a world that needs science and develops within a knowledge driven economy as a platform for innovation. Certainly, by these means he helps governments, entrepreneurs and intellectuals. Latin America as a region has only to thank Tibor Braun for his invaluable contribution.

I feel privileged and honored to greet him in his 75th birthday. *Muy Feliz Cumpleaños, querido Tibor*. This is the proper occasion to recognize the worldwide contribution of a great scientist, a great man, and a great friend.

Received: 25 February 2007

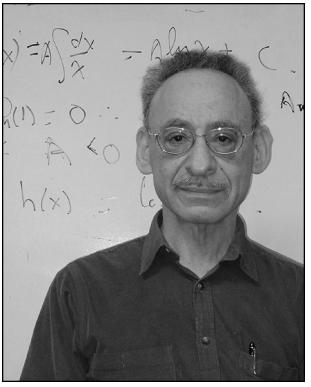
Address of congratulating author:

MANUEL KRAUSKOPF
Millenium Institute for Fundamental and Applied Biology,
Universidad Andrés Bell, Santiago, Chile
E-mail: mkrausk@unab.cl

The Editor as Warrior

Abraham Bookstein

University of Chicago (USA)



Tibor Braun is distinguished in many ways: eminent as a chemist; beloved as a colleague; and, of course, as Editor, indeed the personification, of Scientometrics. It is in this last role that I have come to know Tibor, being both an author and referee for the journal. Yes, "referee", for some odd reason, the most feared term in the publishing lexicon.

As everyone knows, being an editor is a lot of fun. And most fun is his interactions with his referees – something like the joy of juggling cats. The purpose of the referee is greatly misunderstood by the layman. Most think the ruseferee's role is to ensure the quality of a journal. In fact, it is to provide entertainment and amusement for the editor. When his day at the office becomes dull, it is to his referees that an editor turns. A joyous occasion like this demands a happy topic; it is in this spirit that I offer this contribution to the theory of referee management.

A novice referee usually poses no real challenge. He generally responds to his natural instinct of turning and running when he sees the editor – no challenge for the reasonably athletic editor, who, in any case quickly learns to identify his referees by the shape and condition of their heels.

It is usually to the seasoned referee that the editor must turn for his pleasure. For the older referee has probably, at some point in his life, been himself an editor, and in this capacity has had the opportunity of picking up all the tricks of other referees. He knows, for example, that running away is futile. Instead, when he sees his editor at a conference, he runs toward him, with a big smile and outstretched hand, and tells him that the review is, after all these months, now complete and is sitting upstairs in his hotel room. He will be sure to have it with him the

next time they meet. Then, after hearing this four or five times over the course of the conference, the editor finds that the referee, along with his report, has disappeared for home. An experienced editor knows that when hears that the review is upstairs, it is time to begin hunting for a new referee.

In fairness, one has to admit that the referee is not fully at fault. He is, after all, a very busy person and has many demands on his time. For example, writing to another editor about why his own paper hasn't yet finished the reviewing process. It is easy to understand his frustration, knowing that his paper has been in the editor's hands for a full 48 hours, and, for some incomprehensible reason, he has not yet received the referee reports, brimming over with praise for his contribution.[1]

In all seriousness, I have had contact with Tibor, both as an author and (I am afraid) as a referee. He always impressed me with his gentleness, understanding and common sense. Over the years, I have found that when two bibliometricians/scientometricians meet, at some point Tibor's name comes up. I don't recall a harsh word ever being said, an achievement unbelievable within a scholarly community. It is an honour and a pleasure for this grateful author and penitent referee to be able to say: Happy birthday Tibor, and many happy returns.

Received: 23 February 2007

Address of congratulating author:

ABRAHAM BOOKSTEIN
University of Chicago,
1010 E 59th Street, Chicago, IL 60637
Email: a-bookstein@uchicago.edu

[1] Folk wisdom has it that it is a sin to write a scholarly paper that doesn't have at least one footnote and one integral sign. Query: does this paper sin?

Celebration of Tibor Braun's 75th Birthday Together with COLLNET

Hildrun Kretschmer

Tibor has demonstrated unusual organizational and managerial skills as the founder and Editor-in-Chief of the international journal *Scientometrics* since several decades. I met him first in the early 1980s at Berlin workshops where he has encouraged many young scientists in our field. We have been deeply impressed with his dedication to furthering the development of research groups or networks. One of these networks is our COLLNET, a global, interdisciplinary research network for studies in "Collaboration in Science and in Technology". The task of the network members from more than 20 countries is to gain fundamental knowledge about collaboration in science for the future organization of research and development as well as for the fields of application in science and technology policies.

COLLNET was established in January 2000 and its first official Meeting in conjunction with the Second Berlin Workshop on Scientometrics and Informetrics was held in September 2000 in Berlin, Germany. By offering a dedicated issue of his journal *Scientometrics* for publication of selected papers presented at this workshop and the historical note "Foundation of a global interdisciplinary research network (COLLNET) with Berlin as the virtual centre" Tibor has made our invisible network visible. This special issue of *Scientometrics* (November-December 2001) is one of the most important milestones in the development of our network. Thus, after this first COLLNET Meeting six other meetings have taken place at several locations all over the world. Finally, the *Third International Conference on Webometrics, Informetrics, Scientometrics and Science and Society &Eighth COLLNET Meeting* will now be held in New Delhi, India, on March 6-9, 2007.

Let all of us COLLNET investigators use this occasion to celebrate Tibor's 75th birthday together COLLNET on March 8 in New Delhi during the plenary talk of the Co-Editor of *Scientometrics,* Wolfgang Glänzel.

With cordial congratulations,
The COLLNET group.

Received: 13 February 2007

Address of congratulating author:

HILDRUN KRETSCHMER
COLLNET Co-ordinator
Borgsdorfer Str. 5, D-16540 Hohen Neuendorf, Germany
E-mail: kretschmer.h@t-online.de

Afterword

Referees' Comment Ignored by the Editor

This volume presents a careful compilation of papers and pieces on and around the work of Professor Tibor Braun. We will conceal from the reader that we have also received critical comments that we did not consider serious in any sense but we will nevertheless summarise in the following. The decision concerning value and earnestness of these remarks is left to the benevolent reader.

1. Vinkler: The Braun Score. Connecting Scientometricians

On page 1 of his manuscript, the author describes his experiment: "The data were obtained 13th February 2007, temperature: 10^{o} C outside and 22^{o} C inside. The calculations were normalized after testing the experimenter's (P.V.) head with a bottle of dry red wine." Unfortunately, the author fails to mention the temperature of the red wine. However, without this information, the experiment is completely irreproducible.

2. Schubert and Schubert: A Novel Fullerene Derivative: C_{75}TB

Referee #2: This is a brilliant paper. Nonetheless, the authors are strongly advised to refer to the following relevant classical work. S. Lem, Doskonała próżnia (A Perfect Vacuum), Czytelnik, Warsaw 1971.

3. Trimble: Unsquaring the Wheel

The author mentions that she had to stop at 26 topics when compiling her list since the English alphabet has only 26 letters. Therefore, she suggested using the Hungarian one in order to be able to extend the list. Our Chinese referee found the proposed solution insufficient.

4. Glänzel, Thijs, Schlemmer: Tibor Braun – The Global Gatekeeper

Referee#3: This paper is not very innovative: The authors made rather fruitless attempts to fill in the remaining white spots map of knowledge (cf. Figure 1).

5. Persson: Tibor Braun in the Galaxy of Scientometrics

The author's revelation on page 1 ("Authors who have cited this author have also cited these authors.") can be considered a typical representation of the tautograph-ic principle. He should therefore refer to the study by Lupus Splendidus[1] on the consequences of Schubert's tautographic principle for the scientosophy.

> [1] L. Splendidus, Über die Kunst eine unzitierbare Schrift zu verfassen und dennoch jedweden Kriterien der gelehrten Kommunikation gerecht zu werden, unter besonderer Berücksichtigung der Bedeutung des Schubertschen tautographischen Prinzips für die Szientosophie, 1996, published on the occasion of A. Schubert's 50th birthday.

Addendum

Addendum

Finally, it is our pleasant duty to announce the names of those colleagues and friends of Tibor who were, because of the extremely tight deadline given by Editor, not able to contribute to this volume, but who have expressed their wish to congratulate Tibor Braun on the occasion of his birthday. Herewith, we kindly acknowledge best wishes expressed by

HARIOLF GRUPP,
Fraunhofer ISI, Karlsruhe (Germany)

JACQUELINE LETA
Universidade Federal do Rio de Janeiro,
Instituto de Bioquímica Médica, Rio de Janeiro (Brazil)

MARTIN MEYER,
SPRU, University of Sussex (UK)

HENK MOED,
CWTS, University Leiden (Netherlands)

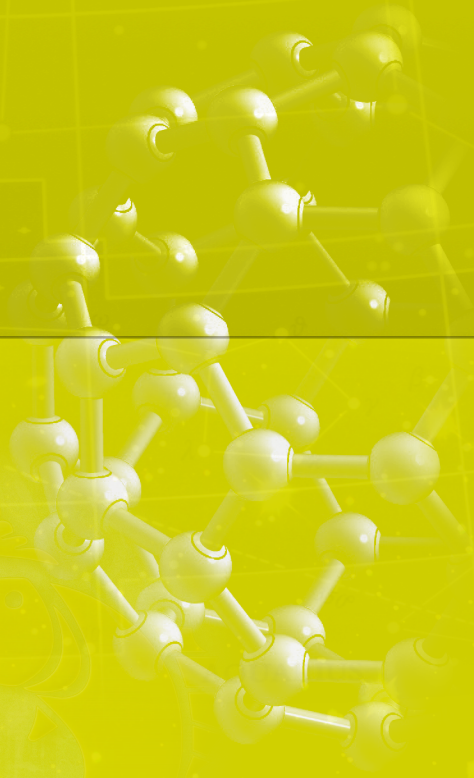
BLUMA PERITZ,
Emeritus Professor, The Hebrew University of Jerusalem (Israel)

ED RINIA,
NWO, Den Haag, (Netherlands)

JANE RUSSELL,
UNAM, Mexico City (Mexico)

Acknowledgement

The Editors wishes to thank all congratulants, authors and sponsors for having contributed to this very special issue.



Steunpunt beleidsgericht onderzoek 2007-2011
O&O-indicatoren

KATHOLIEKE UNIVERSITEIT
LEUVEN

ISSI 2011
ISSI
international society for scientometrics and informetrics