



### Let us sacrifice

But are we ready to kill them? Perhaps not and in this respect, in our spirits, we are no different from those attending the Kumbha Mela who happen to carry on with a tradition because it has to be religiously followed. Every six years we religiously organize a Botanical Congress, just as a Kumbha mela every 12 years. Both had a grand purpose when they began, but both seem to have outlived their time and purpose. Unfortunately the practitioners of both seem very resilient to change – resilient even to contemplate such possibility. The only difference is that one of these groups is dubbed highly religious and the other very rational. May the tradition of Kumbha Melas in science be sacrificed at least as a symbolic evidence of the strength of self-correcting process of science – a culture that science boasts so much of.

### Note

1. The few private counters for tea and coffee in the conference hall were dismally small to cater to the needs of over 4000 delegates. I guess they were equipped enough only for catering to the meticulously functioning security and house maintenance staff of the conference centre.

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about 20 min for tea and 30 min for lunch, both of which were not served by the organizers nor were made available for payment in the conference halls (Note 1). The delegates had to invariably walk back and forth to a three-storied neighbouring plaza where locating a less populated eatout and grabbing what you can would have been an arduous and time consuming task. More often the task was only to decide between the next talk and the lunch.

### Large problems and small solutions

I am ashamed that I have not attended any of the Indian Science Congresses but most of those who did have invariably expressed that they are notoriously known for their bad organization. But I tend to feel that there is a need for the analysis of causes than pointing at the rot in such gatherings. The problem

may not seem to lie entirely with the organization *per se* or the capabilities for organizing it. Rather it appears to be a natural pathology of such large gatherings. Because, IBC, perhaps being one of those best organized congresses, was still not free from such syndromes in different ways though. Why are we carrying on with these large problems. Can we not find solutions to these?

It is true that there are a number of congresses where we do not find these pathological symptoms. One significant lesson from them seems to suggest that it is highly profitable for small groups of scientists with common interests to gather. In fact, even the large congresses of today began only as small gatherings. Such small meetings have always been more interactive, productive and manageable with respect to several problems. Thus a simple solution for the large problem of big congresses is perhaps to kill them!

## Database service centres for scientific research

V. K. J. Jeevan

Every scientific discipline boasts of a comprehensive abstracting source which helps to document the ongoing research, thereby offering the prospective re-

searcher vital references to tackle a particular research problem. It also helps to counter the duplication of research. Science & Technology (S&T) research

transcends national barriers and needs a level playing field for our researchers to deal with nascent research problems pursued the world over and to put this

nation in a better stage of societal progress. Along with qualified manpower and well-equipped laboratories, research also requires better facilities to provide 'right information in the right form at the right time'. When the modern temples of education and research were set up, enough thought was given to set up model library and information centres in them to supply the researchers with vital information resources. Education and research being largely still under government funding, and due to the static allocation of budget over the years, the money allocated for information facilities has not registered any desired increase so far. Since S&T information products are to be purchased from international publishers/producers (most of them based in US and Europe), an Indian library has to bear not only the annual increase in prices but also the depreciation of our currency against major international currencies. This has resulted in a major erosion in the journal base (total number of journals subscribed) of most of our institutions, thrusting our researchers to access less information out of the information generated. S&T experts and librarians tried to ease out the problem by evolving resource sharing ventures, though the prevalent communication infrastructure and the large size of the country hindered its progress. The collaboration among major libraries like those of IITs and IISc, the different library networks like INFLIBNET, DELNET, etc. the resource sharing initiatives of NISSAT (of DSIR), etc. have evolved as a result. Most of these initiatives concentrated on sharing journals, regarded as primary sources for research. Such sharing is difficult in the case of secondary sources like abstracting journals which help to identify the relevant articles in a primary source, though some initiatives to provide secondary information/database services on a national level through INSDOC, NCSI, etc. have taken place.

It is a known fact that increase in price, rupee depreciation, and budgeting force many of our libraries to drop their information acquisition. This author tried to gather the subscription details of major abstracting sources. None of them revealed the same as it was related to their marketing and commercial aspects. Some of them even said that they

will be able to gather total renewals. Libraries attached to resourceful institutions may be able to gather extra budgeting to counter fall in subscriptions of important information sources, whereas a few others manage to continue subscriptions by utilizing budgets over a two-year period, by renewing a few journals with budget of the next fiscal year. With over 30 lakhs of rupees, IIT Kharagpur was able to procure around 2000 journals in 1988 whereas in 1999 over 3 crores was needed to continue at best 800 of them.

### Chemical Abstracts

The subscription cost of the vital abstracting source of chemistry, *Chemical Abstracts*, is highlighted here to stress the need for database service centres. It is chosen due to its importance not only to chemistry and allied disciplines, but also due to its high subscription cost. *Chemical Abstracts* is published by Chemical Abstracts Service (CAS), a subsidiary of the American Chemical Society, the largest scientific society in the world. Our experience shows that *Chemical Abstracts* is consulted by researchers in core disciplines like chemistry and chemical engineering, as well as by related disciplines like water resources, environmental science, biotechnology and materials science. It is also of importance to interdisciplinary researchers in different branches of S&T.

### Production cost of Chemical Abstracts

*Chemical Abstracts* (Report, American Chemical Society, ACS Publications Marketing, NW, Washington DC, USA, p. 8) covered 1 million articles in its first 30 years, whereas in 1996 alone it accounted for around 7 lakhs articles (roughly 1.5 million in two years currently). The American Chemical Society has assessed that the page budget of a journal increases by about 10% annually. They have also identified two processes, viz. the publishing process and distribution process behind the production of a journal. The first process encompasses all those procedures like receiving manuscripts, peer reviews, editorial mechanics, electronic script gen-

eration, etc. to produce the first copy. The printing of multiple copies and their mailing are done in the distribution process. It was estimated that 70 to 80%

**Table 1.** Steady decrease of rupee value/US dollar

Year	Exchange rate in Rs/US dollar
1988	15.0
1989	17.8
1990	18.9
1991	20.1
1992	31.5
1993	32.5
1994	31.55
1995	31.6
1996	35.1
1997	36.1
1998	39.4

**Table 2.** Subscription price of *Chemical Abstracts* (paid by IIT, Kharagpur)

Year	Amount
1961	Rs 989
1962	Rs 989
1963	\$ 507
1964	\$ 507
1965	\$ 710
1966	\$ 710
1967	\$ 710
1968	\$ 1060
1969	\$ 1060
1970	\$ 1477
1971	\$ 1477
1972	\$ 2471
1973	\$ 2427
1974	\$ 2427
1975	\$ 2945
1976	\$ 3045
1977	\$ 3068
1978	\$ 3777
1979	\$ 3792
1980	\$ 4620
1981	\$ 4632
1982	\$ 5360
1983	\$ 6360
1984	\$ 6400
1985	\$ 7200
1986	\$ 7800
1987	\$ 9300
1988	\$ 10245
1989	\$ 11349
1990	\$ 12098
1991	Rs 2,70,364
1993	RS 5,91,408
1994	Rs 5,68,846
1995	Rs 5,93,290
1996	Rs 6,39,515
1997	Rs 6,64,351
1998	Rs 7,16,470

**Table 3.** Annual rate of increase of marked price of *Chemical Abstracts*

Year	Subscription rate (US\$)	% of increase over previous year
1988	10900	10.10
1989	11900	9.17
1990	12800	7.56
1991	13900	8.59
1992	15100	8.63
1993	16300	7.95
1994	16800	3.07
1995	17400	3.57
1996	18100	4.02
1997	18900	4.42
1998	19800	4.76

of operating costs are spent to produce the first copy. Around 25 to 33% extra money is involved to generate the CD-ROM (Electronic Infomedia) from the first copy to further design search/retrieval software and user interface.

CAS employs specialists in Chemical Sciences and Information Sciences to produce the *Chemical Abstracts*. The first copy production costs can be saved to some extent if the journal publishers transmit informative abstracts (abstracts with maximum information about the topics dealt in the article concerned) about their journal articles to CAS. The costs of indexing the abstracts as per subject and other fields can be reduced only by intelligent machine indexing tools. The distribution costs are largely decided by the quantum of pages and number of subscriptions.

#### Subscription cost of *Chemical Abstracts*

The exchange rate (US\$) as paid by IIT, Kharagpur for journal subscriptions

over the last ten years is summarized in Table 1. The amount paid for subscribing *Chemical Abstracts* (in US \$/Indian rupee) as per old records is given in Table 2. This table is different from Table 3 on two counts: firstly, degree granting institutions are eligible for a special grant by which they get some reduction and secondly, it includes handling charges also.

#### City based information centres

We have seen that it has become increasingly difficult for every library to duplicate costly information sources. To meet this challenge, the government could set up city based 'Data and Information for Science Centres' (DISCs) in places like metros, state capitals, etc. where a host of higher education and research entities are located, and come up with some legislation that the resources subscribed at these centres will be of use to all researchers in and around such a facility. Like the arrangement of special prices and reprints for books, the government, research councils, and the publisher/distributor fraternity can mediate with the international publishers to favour reduced subscription rates for developing countries. The publishers can also benefit in the long run, because when the budget can procure more, libraries may subscribe to more journal titles. This will ultimately increase the total number of unique journal titles available in the country. The National Science Library is functioning in INSDOC, New Delhi and the objectives of this concept may be modified so that at least one copy of a

journal of importance to S&T research can be subscribed at some institution, permitting access by researchers working elsewhere.

DISCs should be set up with a provision to hold print as well as electronic versions (most of the publishers offer special combined price, for e.g. the price of *Chemical Abstracts* on Compact Disc in 1998 was \$ 22,100, but only \$ 7800 for those who wish to add it to their print subscription) of major abstracting/indexing sources in S&T, like *Chemical Abstracts*, *INSPEC for Physics and Engineering*, *Mathematical Reviews*, *Biological Abstracts*, *Engineering Index*, *Current Contents*, *GEOREF*, *MEDLINE*, etc. Such centres should also hold better computing and communication infrastructure tolerating queries and novice search by users and provide search results at nominal cost. The facilities available in Information Centres like INSDOC, DESIDOC, NCSI, information facilities of national institutes/laboratories, etc. may be augmented and tested for services as a first step, before setting up more DISCs and realizing their objectives in the future.

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## SCIENTIFIC CORRESPONDENCE

### Identification of quantitative trait loci associated with grain filling duration in rice (*Oryza sativa* L.)

Growth period of cultivated rice (*Oryza sativa* L.) is divided into three distinct phases, namely GS1 (vegetative phase), GS2 (reproductive phase or period between maximum tillering and 50 per cent flowering) and GS3 (grain filling

phase or between flowering and maturity)<sup>1,2</sup>. Most of the variation in duration of rice varieties is attributed to the variability in GS1 phase, while GS2 and GS3 are considered to be relatively unvarying<sup>3</sup>. In fact, it is a standard practice

to add thirty days to days to flowering and derive maturity duration. The relative time taken by the plant in each of these phases has a bearing on the grain yield. Between GS2 and GS3 phase, the latter is most important for determining