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Replacement of an In-House Current Awareness Bulletin by *Chemical Abstracts* Section Groupings[†]

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An in-house current awareness bulletin that had been published for more than 50 years was replaced with *Chemical Abstracts* Section Groupings. Net cost savings are about \$150,000 a year. Most of the clients are pleased or at least satisfied with the change.

The Central Research Department of the Du Pont Company published an in-house current awareness bulletin for more than 50 years. This paper reports the results of a study carried out in 1971-1972 on the feasibility of replacing the bulletin with a commercially available service, *Chemical Abstracts* Section Groupings.

CURRENT JOURNAL BULLETIN

The *Current Journal Bulletin* (or CJB) was a weekly publication of abstracts of articles in current issues of scientific periodicals. Because the interests of the Du Pont Company are broad, the bulletin covered chemistry, physics, biology, and engineering. To facilitate use of the bulletin, abstracts were assigned to one or more of 20 classes (Table I). A detailed subject guide (Table II) was included with each issue to guide users to specific topics of interest.

A very popular section of the bulletin was the Highlights Section which selected items closely related to Du Pont research interests or of particular scientific interest, such as the first reports of the helical structure of DNA and the total synthesis of chlorophyll.

The abstracts (Figure 1) were either edited author abstracts or abstracts prepared directly from the articles. Original abstracts were written for articles from foreign language journals and for articles that did not have author abstracts such as the communications in the *Journal of the American Chemical Society*. At various times we covered

journals in the German, French, Italian, Dutch, and Russian languages. The bulletin was designed to be easy to scan with short abstracts, liberal use of chemical structures, short underlined headings in capital letters, and citations following the abstracts. The final version of each issue was typed on large pages and inexpensively reproduced by a photoreduction technique. The bulletin was very popular with research people. In all surveys to evaluate information sources, the CJB was rated as the most useful source.

Over the years, like the literature itself, the bulletin grew. In 1959, the bulletin covered about 800 journals and published about 50,000 abstracts a year, about 1000 per issue. Coverage included nearly all the scientific periodicals subscribed to by the Lavoisier Library, Du Pont's largest collection of technical literature. By 1972, as journals increased rapidly in size and frequency of issue, coverage was reduced to 275 journals but even then we were publishing 60,000 abstracts a year, an average of 1200 per issue.

These 275 journals were selected by the CJB staff as being most representative of research interests. We tried to choose broad, basic journals rather than narrowly specialized ones, journals that would report work of interest to many of our scientists rather than to three or four on a specific project. It was a hard job, a very unsatisfactory one. We had some help from our clients who would send recommendations for adding or deleting journals, mostly adding. The staff had grown to a supervisor, seven full-time technically trained abstractors, and ten clerical workers. The Library was subscribing to about 1300 journals, so the bulletin was fighting a losing battle trying to handle the current literature and furnish current awareness to many scientists in numerous areas of research.

[†] Presented in the Symposium on "User Reactions to CAS Data and Bibliographic Services," 169th National Meeting of the American Chemical Society, Philadelphia, Pa., April 7, 1975.

SULFONAMIDE DERIVATIVES: CYCLOPOLYMERIZATION

A series of new N,N-diallyl- and N,N-dimethylallylalkanesulfonamides was prepd. by the reaction of diallyl- or dimethylallylamine with the requisite alkylsulfonyl chloride. Radical polymn. gives sol. polymers which do not contain any residual double bonds. Evidence for a cyclopolymer structure contg. 6-membered rings was obt'd. from spectroscopic comparisons with model piperidine derivs.

A. Cranshaw and A. G. Jones. *J. Macromol. Sci. Chem.* **A6**, 65-72 (1972), No. 1.

Figure 1. Sample abstract from the Current Journal Bulletin.

Table I. Classification Scheme

A.	General
I.	Organic Chemistry
II.	Organo-Inorganic Chemistry
III.	Catalysis
IV.	Polymer Science and Technology
V.	Radiation Chemistry
VI.	Photography; Graphic Arts
VII.	Engineering
VIII.	Metals; Corrosion
IX.	Inorganic Chemistry
X.	Biochemistry; Molecular Biology
XI.	Medicinal Chemistry; Applied Biochemistry
XII.	Agricultural Chemistry
XIII.	Physical Chemistry
XIV.	Physics
XV.	Crystal Structure
XVI.	Analytical Chemistry
XVII.	Instruments; Laboratory Aids
XVIII.	Electronics and Electrical Technology
XIX.	Pollution Control

Table II. A Section of the Subject Guide

	Section
Oils	
Drying	IV
Plant	XII
Operations Research	VII
Optical rotary dispersion	XIII
Optics	XIV
Orbitals	
Atomic	XIV
Molecular	XIII
Ore treatment	VII
Organic chemicals	I
Analysis	XVI
For animal hormones	XI
Crystal structure	XV
Enzymic reactions	X
As fuels	VII
For pest control	XII
Physical chemistry	XIII
For plant hormones	XII
Polymerization	IV
Spectra	XIII
Synthesis	I
Catalytic	III
Photochemical	V
For therapeutics	XI

In the 1960's circulation of the bulletin increased to a peak of about 2200 in 1969, then gradually fell as economic times worsened in the early seventies and managers sought ways to reduce expenses. The cost of publishing the bulletin was distributed by charging each department a flat rate for each subscription ordered. Thus, managers felt they could save money by reducing the number of copies ordered, perhaps asking personnel to share copies rather than each having his own. By the end of 1971, circulation was about 1700. The cost of an individual subscription rose steadily because the major cost factor was staff salaries and not the number of copies printed. Clearly the time had come to look for a commercially available alternative.

EVALUATION OF CHEMICAL ABSTRACTS SECTION GROUPINGS

A major objective of the bulletin was timeliness. In the past *Chemical Abstracts* had been criticized severely for

being behind in its coverage of the literature. The bulletin prided itself on getting abstracts of most periodicals to readers within three to six weeks of their receipt by the Library. But by 1971, *Chemical Abstracts* had become current. Indeed we had the surprising and pleasant experience of reading abstracts in CA (particularly of articles in foreign journals) before the Library had received its own copies of the journals. Thus an obvious choice for evaluation was *Chemical Abstracts* Section Groupings. The price was right, as low as 35 dollars a year for a single Section Grouping for multiple subscriptions.

Chemical Abstracts Service was very cooperative. They were interested in our projected study and offered to furnish the copies of the Groupings needed. We planned to circulate to a sample of our readers both the CJB and the Section Groupings of their choice for an extended period of time. By comparing the two services, they could determine which one served their needs better. Our evaluation group consisted of 187 volunteers from three departments, more than 10% of our total readership. Group I consisted of 45 technical men and women from a staff department carrying out long-range research in chemistry, physics, and biology. The 110 participants in group II were from an industrial department with major interests in agricultural and industrial chemicals, and group III was a group of 32 scientists from an industrial department specializing in organic chemicals.

It might be of interest that routine circulation of an extensive list of journals was available to all these volunteers. However, most scientists appear to need convenient access to current information reported in the many journals they are unable to scan regularly.

The first step was for our volunteers to examine sample copies of the five Section Groupings to select the ones that covered their interests and to request either individual copies or circulation copies. Circulation lists would be held to four or five so that copies would circulate promptly. After summarizing the selections, we found that 141 copies of Section Groupings would be needed, distributed as follows:

Biochemistry	27
Organic Chemistry	41
Macromolecular	17
Applied Chemistry and Chemical Engineering	22
Physical and Analytical Chemistry	34

Although participants selected one to five groupings each, the average was a little less than two groupings per person. By using both individual and circulation copies, a total of 141 copies was sufficient to satisfy our needs, an average of 0.8 copy per person.

RESULTS OF STUDY

The tests began in January 1971 with 187 people receiving both Section Groupings and the CJB. The first questionnaire was sent out at the end of April. We asked the participants whether their research interests were covered by the groupings they received, which of the two services they preferred for timeliness, coverage, and format, how useful they considered the Keyword Index, which service they could use their available reading time on more effectively, and which service they preferred overall. About 90% of the questionnaires were filled out and returned.

Table III shows the results. Most of the participants felt that their interests were adequately covered by the groupings they received. A few exceptions were noted including such things as toxicity data, materials properties, and the spread of NMR data throughout the five groupings. Some of the results were somewhat surprising. We had always assumed that the bulletin was designed for maximum ease of

Table III. Questionnaires I and II

Are your principal interests covered by the Section Groupings you receive?

	Questionnaire I	Questionnaire II
Yes	155 (97%)	143 (95%)
No	5 (3%)	8 (5%)

Which service do you prefer for: (Questionnaire I only)

	Section Groupings	CJB
Format	92 (66%)	47 (34%)
Coverage	129 (88%)	17 (12%)
Timeliness	79 (67%)	39 (33%)

How useful is the Keyword Index?

	Questionnaire I	Questionnaire II
Very useful	34 (22%)	33 (22%)
Useful	88 (56%)	78 (53%)
Not useful	34 (22%)	37 (25%)

With which service can you use your reading time more effectively?

	Questionnaire I	Questionnaire II
Section Groupings	122 (75%)	122 (84%)
CJB	40 (25%)	24 (16%)

Which service do you prefer?

	Questionnaire I	Questionnaire II
Section Groupings	132 (82%)	126 (86%)
CJB	29 (18%)	21 (14%)

reading, and yet 66% of our evaluators preferred the format of the groupings. For coverage there was no contest as far as actual numbers of journals covered was concerned. The bulletin abstracted 275, CA about 50 times as many. However, some of our readers commented that the wide coverage of CA was a drawback. They were overwhelmed by the large amount of material, had difficulty locating the specific material of interest, and gave up in disgust. Results on timeliness favored Section Groupings. The Keyword Index in the groupings appeared to be popular. More than 75% of our respondents rated it useful or very useful. The two most important questions drew fairly definite answers. Seventy-five percent used their reading time more effectively with Section Groupings, and 82% preferred the groupings as a current awareness service.

The second questionnaire was sent out after the participants had been receiving both services for seven months. Questionnaire return of 75% showed that we had lost some participants because of transfers, retirements, and resignations. The same questions were asked again except that timeliness, coverage, and format were omitted. Responses (Table III) paralleled the replies to the earlier questionnaire, but were even more strongly in favor of CA Section Groupings. The number of responders who felt they could use their time more effectively with CA had risen from 75 to 84%. The percentage preferring Section Groupings rose from 82 to 86%.

TRANSFER TO SECTION GROUPINGS

And so the decision was made based on these results. The Current Journal Bulletin would cease publication after 53 years to be replaced mainly by *Chemical Abstracts* Section Groupings. The groupings would be supplemented with services in other areas of science, such as *Physics Abstracts* and *Current Contents*.

We centralized subscriptions to Section Groupings to secure the lowest rates. Initially we ordered 765 copies. Lavoisier Library placed the subscriptions, checked in the cop-

Table IV. Questionnaire III

Rate Section Groupings for:

	Station	Off-Station	Total
<u>Timeliness</u>			
Good	225	130	355 (54%)
Satisfactory	155	138	293 (44%)
Unsatisfactory	8	6	14 (2%)

Format

Good	195	114	309 (47%)
Satisfactory	168	135	303 (46%)
Unsatisfactory	27	26	53 (7%)

Coverage

Good	259	142	401 (61%)
Satisfactory	117	114	231 (35%)
Unsatisfactory	6	17	23 (4%)

Keyword Index Use

Frequent	119	65	184 (28%)
Occasional	149	135	284 (42%)
Not at all	125	78	203 (30%)

Keyword Index Value

Very Useful	60	40	100 (22%)
Useful	178	142	320 (72%)
Not Useful	14	12	26 (6%)

Current Awareness Source

Chief Interests

Very good	183	89	272 (42%)
Satisfactory	174	156	330 (51%)
Unsatisfactory	21	26	47 (7%)

Peripheral Interests

Very good	106	53	159 (26%)
Satisfactory	210	171	381 (62%)
Unsatisfactory	46	29	75 (12%)

Preference

CA Section Groupings	272	159	431 (68%)
Current Journal Bulletin	99	106	207 (32%)

ies, and distributed them to local individuals and circulation groups via intracompany mail and to key information personnel at distant locations via U.S. mail. Circulation records were maintained by a computerized system and gummed address labels were printed by the computer. Accounting records charging the departments for the number of copies they received were also computerized. A service charge was added to the subscription price of each copy to cover the clerical work involved. The charge for distant locations serviced by U.S. mail was higher to cover postage costs.

This system has worked well over the last three years. We are currently subscribing to 899 copies of the five groupings and these are distributed to 864 individuals. More than 864 people receive the groupings as some of the 864 are information people at plant locations who further distribute the copies at their sites. We estimate that the total number of individuals receiving groupings is well over 1000.

COMPANY-WIDE EVALUATION

About six months after we stopped publishing the bulletin and started supplying CA Section Groupings instead, we asked all recipients of groupings via questionnaire to estimate their usefulness as a current awareness source. Over 700 questionnaires were returned; 400 of these were from scientists at the Experimental Station, the company's largest research center. The remainder were from off-station personnel located at sales-service laboratories, plants, and smaller research installations. Table IV gives the results for both station and off-station personnel.

The overwhelming majority of users rated the Section Groupings as good or satisfactory for timeliness, format, and coverage. More than two-thirds of them used the Keyword Index frequently or occasionally, and most of these

rated the Index as very useful or useful. A large majority found the groupings to be very good or satisfactory as a current awareness source for both chief and peripheral interests. Overall they preferred the Section Groupings to the CJB 2:1. We did note a difference in the latter preference between station personnel and off-station personnel. Station personnel preferred Section Groupings 3:1 while off-station personnel preferred them 1.5:1. This indicates, I believe, that plant people have less reading time available. The much smaller CJB could be scanned more quickly than the Section Groupings, and people with limited reading time missed the bulletin the most. Of course, they get much more material in CA, but some of our users do not care to get everything. They are satisfied with just a selection of material.

Frequent comments on these returned questionnaires were:

"CA takes too long to read."

"The mass of abstracts is overwhelming."

"I like the complete coverage of CA."

"I like the Keyword Index."

"CA is best for my chief interests and CJB was best for peripheral interests."

"I like the patent coverage in CA but wish it were better."

CONCLUSION

A not unexpected result of our switch in current awareness services has been greatly increased interlibrary loan traffic in Lavoisier Library. The CJB covered only journals received by the Library; CA covers many journals difficult to obtain. Our scientists now request many more copies of articles from journals we do not subscribe to. Our interlibrary loan staff has been doubled, we have joined the Center for Research Libraries, and we experience much frustration trying to get copies of articles that seem to be unobtainable. One Russian article abstracted in CA was not available even at the Lenin Library in Moscow. We hope CA will give some thought to making articles of this type available in the future.

As for costs, we are saving more than \$150,000 a year (in 1972 dollars) by using CA Section Groupings for current awareness rather than a bulletin prepared in-house. This figure represents our net savings after deducting the increased costs of interlibrary loans and photocopy services. Now that our users have become accustomed to using CA Section Groupings we think the majority feel that, even without money considerations, it was a wise move. When you add major cost savings to the picture, the decision was inevitable.

Searching *CA Condensates* On-Line vs. the CA Keyword Indexes[†]

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A study was conducted to compare the comprehensiveness of searches performed using Systems Development Corporation's (SDC) Chemcon data base and keyword indexes of *Chemical Abstracts*. It was concluded that, in most cases, a computer search yielded at least as many relevant references as did a manual search. However, in the case of very general search questions, results from manual searches were much more satisfactory.

This study was initiated to compare the results of searches performed on the Chemcon data-base available from Systems Development Corporation with those utilizing the weekly keyword indexes of *Chemical Abstracts*. These indexes must be searched during the period prior to the publication of the volume indexes. All comparisons were performed using Volumes 80 and 81 of *Chemical Abstracts*. At the time this study was underway, Orbit II was in operation. Orbit III has since come on-line.

Since the computer-readable data-base (Chemcon) includes the keyword index entries, it was our intention to use the same keywords for both modes of searching. However, additional qualifiers had to be added in some of the computer searches because of the machine's inability to recognize the context of keywords.

RESULTS

The possibility of four different results was recognized.

1. References located in both modes would be identical.
2. Machine and manual searches would yield supplementary results.
3. References located by computer searching would contain all those located manually and more.
4. Manual searching would yield all references located by the computer and more.

Although all four possibilities occurred during the study, only the third and fourth situation involved significant differences. An example of each of these two search results follows.

Example 1. Possibility No. 3. Computer searching yielded all articles retrieved manually and more.

A search for references to the pyrolysis of polyvinyl chloride is a case where a computer search is more successful. The manual search required eight keywords and the same terms were used for the computer search. The number of relevant references found in each case are shown in Figure 1.

Example 2. Possibility No. 4. Manual searching yielded all those articles located by computer and more.

A search for references to a particular aspect of the

[†] Presented before the Division of Chemical Literature, 169th National Meeting of the American Chemical Society, Philadelphia, Pa., April 7, 1975.