

(with one exception) to cite the earlier Russian articles that we picked as starting points for the search, they were retrieved.

National boundaries have posed no obstacle in finding information. Although the search started with Soviet authors, articles from several countries have been retrieved. The "word problem" hasn't affected the citation search at all.³ Some of the articles don't contain the word "welding" or the word "explosive" in their titles, but they were retrieved, and because of the *SCI's* multidisciplinary coverage, we were able to find articles in several "unlikely" journals. Finally, if you were to retrace this search, you would note how often the *SCI* "corrects" typographical and other errors in the bibliographies of even the most careful-

ly edited journals. This valuable capability of the *SCI* as a tool for verification of bibliographical references has been noted in the literature. No other reference tool does the job as well.⁴

The kind of search described here doesn't involve a lot of time. *SCI* searches have been shown to retrieve most of the relevant material in a shorter time than other reference tools.⁵ Furthermore, selecting a few significant articles is simplified by citation networks which show the historical interrelationships and how an author's peers have used and evaluated his work.

The Moscow seminar was a resounding success. Should you and your colleagues be interested in arranging a lecture-seminar do not hesitate to contact us as indicated elsewhere in this issue.

1. Garfield, E. A.E. Cawkell, information detective, and ISI's man in the U.K. *Current Contents*[®] No. 40, October 6, 1971, p. 5-6.
2., *Permuterm Subject Index*, the primordial dictionary of science. *Current Contents* No. 22, June 3, 1969, p. 4.
3., How the *Science Citation Index* overcomes the linguistic and terminological barrier to precise information retrieval. *Current Contents* No. 6, February 10, 1971, p. 4-5.
4., Precise bibliographical verification with the *SCI*. *Current Contents* No. 37, September 2, 1970, p. 4-5.
5. Spencer, C.C. Subject searching with *SCI*, preparation of a drug bibliography using *CA, IM & SCI. 1961 and 1964. American Documentation* 18(2):87-96, 1967.

Figure 1. Bibliography on Explosive Welding.

- | | |
|---|---|
| <ol style="list-style-type: none"> 1. Allen, W.A. et al.
An effect produced by oblique impact of a cylinder on a thin target.
<i>J. Appl. Phys.</i> 25:675, 1954. 2. Abrahamson, G.R.
Permanent periodic surface deformations due to a traveling jet.
<i>J. Appl. Mech.</i> 28:519, 1961. 3. Sedykh, V.S. et al.
Explosive welding.
<i>Svarochnoe Proizvodstvo</i> 9:4, 1962 | <ol style="list-style-type: none"> 4. Cowan, G.R. et al.
Flow conditions in colliding plates; explosive bonding.
<i>J. Appl. Phys.</i> 34:928, 1963. 5. Klein, W.
Structural changes in explosive plating of steel with steel and non-ferrous metals.
<i>Techn. Mitt. Krupp Forschb.</i> 23:14, 1965. |
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6. Pocalyko, A.
Explosion-clad plate for corrosion service.
Mater. Protect. Perform. 4:10, 1965.
7. Rolsten, R.F.
Hypervelocity impact and spot welding.
AIAA Journal 3:1966, 1965.
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10. Bergmann, O.R.
Explosive bonding of metals; applications and mechanism.
Metal Eng. Q. 6(2):60, 1966.
11. Buck, G.C.
Metallurgical studies of explosive-welded joints.
Metall 20(1):9, 1966.
12. Murdie, D.C.
Examination of two explosively welded interfaces.
J. Inst. Metals 94(3):119, 1966.
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P. Roy. Soc. London A 296(N1445):123, 1967.
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Transition to turbulent flow in crystals.
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Combustion Explosion & Shock Waves 3:561, 1967.
16. Rolsten, R.F.
Effects of oblique shocks produced at metal interfaces by hypervelocity particle impact.
Welding J. 46(11):S517, 1967.
17. Wittman, R.H.
Explosive bonding process.
Battelle Techn. Rev. 16(7):17, 1967.
18. Amesz, J.
Explosive welding of fuel element.
Nucl. Eng. Design 8(3):337, 1968.
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Wave formation in explosive welding.
Philos. Mag. 17(N148):669, 1968.
20. Berdichevskii, G.I.
Research into zone of joint during explosion welding of metals.
Automatic Welding USSR 21:13, 1968.
21. Chadwick, M.D.
Explosive welding of tubes and tube-plates.
Brit. Weld. J. 15(10):480, 1968.
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Aircraft Eng. 40(12):11, 1968.
23. Crossland, B.
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24. Belisario, G.
Metallographic aspect and mechanical behavior of explosive welds between stainless steel couples and plain carbon steel ones.
Metallurg. Ital. 60(3):129, 1968.
25. Keller, K.
Investigations of explosive cladding. I. Measurement of velocity of collision region.
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26. Rolsten, R.F.
Ripple formation under conditions of shock loading.
CASI Trans. 1(1):9, 1968.
27. Trueb, L.F.
An electron microscope investigation of explosion-bonded metals.
Trans. Metallurg. Soc. AIME 242(6):1057, 1968.
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Resistance of explosion-bonded stainless steel clads to intergranular corrosion and stress corrosion cracking.
Corrosion 25(1):23, 1969.

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steel.
Materials Protect. 8(10):11, 1969.
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Wave formation between impacting
liquids in explosive welding and
erosion.
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Mechanism of bond zone wave
formation in explosion-clad metals.
Metallurg. Trans. 2(11):3145, 1971.
36. Dudin, A.A.
Tube welding with a pulsed magnetic
field.
Welding Production 18(2):24, 1971.
37. Kowalick, J.R.
Mechanism of explosive bonding.
Metallurg. Trans. 2(7):1953, 1971.
38. Trueb, L.F.
Microstructural effects of heat
treatment on bond interface of
explosively welded metals.
Metallurg. Trans. 2(1):145, 1971.
39. Weiss, B.Z.
Effect of jetting collision on
structural changes at interface of a
titanium-steel system.
Zschr. Metallk. 62(2):159, 1971.

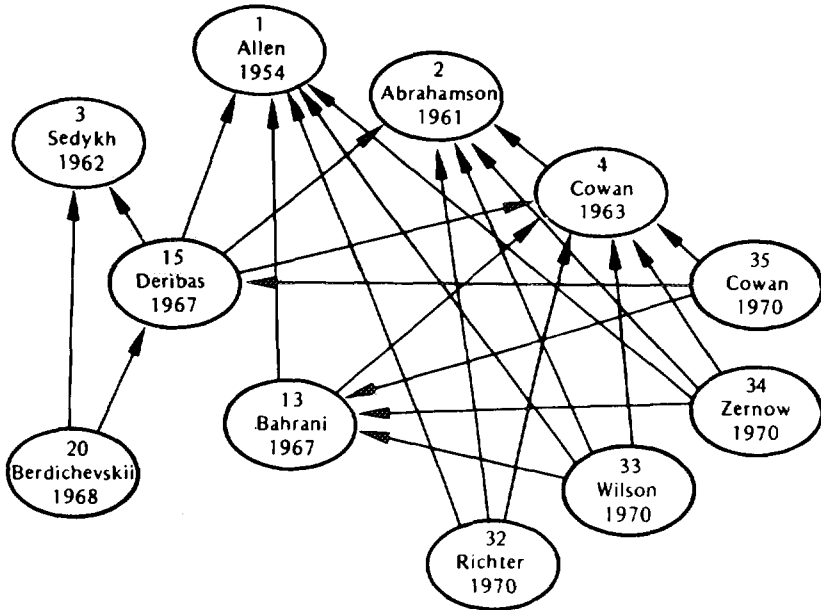


Figure 2. Citation Network showing starting points of the search (20, 15), some major nodes in the citation network (1-4, 13), and the citation provenance of some recent papers (32-35).

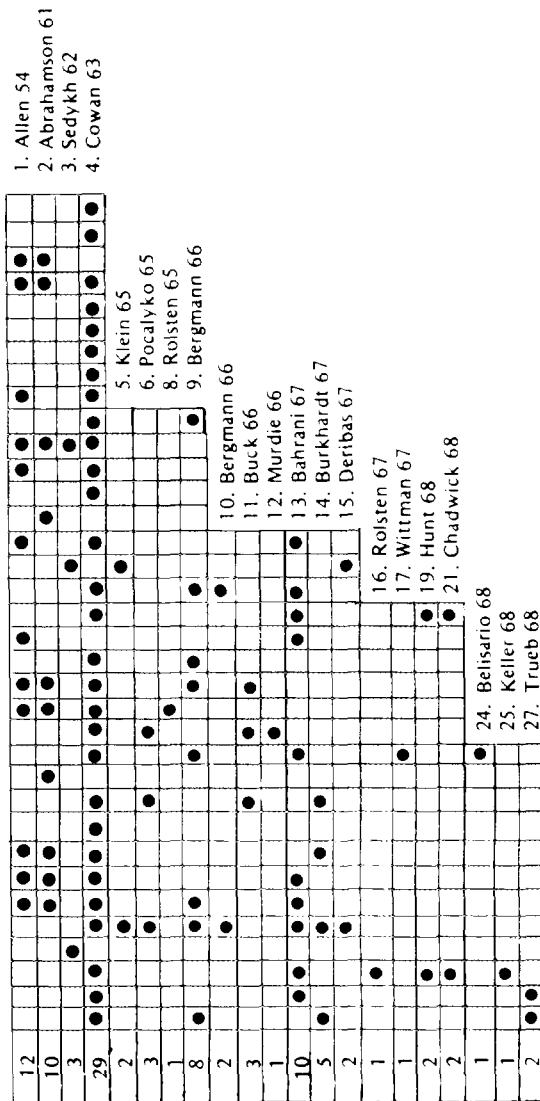
THESE PAPERS

CITED THOSE →

CITED PAPERS

CITING PAPERS

1. Allen 54
2. Abrahamson 61
3. Sedykh 62
4. Cowan 63
5. Klein 65
6. Pocalyko 65
7. Rolsten 65
8. Rolsten 65
9. Bergmann 66
10. Bergmann 66
11. Buck 66
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19. Hunt 68
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21. Chadwick 68
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26. Rolsten 68
27. Trueb 68
28. Beghi 69
29. Dassu 69
30. Hill 69
31. Sticha 69
32. Richter 70
33. Wilson 70
34. Zernow 70
35. Cowan 71
36. Dudin 71
37. Kowalick 71
38. Trueb 71
39. Weiss 71



TOTAL TIMES CITED

Figure 3. Citation Matrix showing linkage of 39 papers listed in bibliography on explosive welding.