



FIG. 1
Citation network for articles about "Perturbation of ion transport".

irrelevant articles during the search. In this search my role resembled that of a librarian—knowledgeable about the indexing system but not the subject. However, an inspection of the network reveals closely related articles. Thus, articles 13 and 7 are probably quite closely related since they both cite articles 1, 3, 4 and 5. If two articles had identical sets of references presumably they would be entirely about the same concepts (Cawkell, 1970) ("bibliographic coupling"). Evidently article number 1 has had a considerable impact (Garfield, 1970b).

The range of cited journals in this network is interesting. Several of them do not appear in either of McClelland's lists of Anaesthetic Journals. Obviously articles about ion transport through membranes, apparently of interest to anaesthetists, are likely to appear in medical, biochemical, and multi-disciplinary journals. The *SCI* covers the world's prime journals of science and technology, including those listed by McClelland.

Location of articles through references coupling mitigates the word difficulty. I have been musing about the degree of interest of articles 15 and 17. As a subject non-expert, I certainly would not associate these articles with the subject in question by reading their titles.

The bibliography is unlikely to be comprehensive. However, it represents a reasonable compromise between complete comprehensivity and searching effort. I assume that a perusal of the articles listed would provide a good overview of the subject. Any particular aspect may be pursued by using an article symbolizing that aspect as a new *Citation Index* entry point.

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BIBLIOGRAPHY

(identity of the numbers in fig. 1)

1. Mullins, L. J. (1954). Some physical mechanisms in narcosis. *Chem. Rev.*, **54**, 289.
2. Miller, S. L. (1961). Theory of gaseous anaesthetics. *Proc. Nat. Acad. Sci. (Wash.)*, **47**, 1515.
3. Latner, A. L. (1965). Possible biochemical mechanisms in anaesthesia. *Proc. roy. Soc. Med.*, **58**, 895.
4. McIlwain, H. (1962), in *Enzymes and Drug Action*, Ciba symp., 1962; Mongar and de Reuck, eds., p. 170.

5. Bangham, A. D., Standish, M. M., and Miller, N. (1965). Cation permeability of phospholipid model membranes—effect of narcotics. *Nature*, **208**, 1295.
6. Seeman, P. (1966). 1. Erythrocyte membrane stabilisation by tranquilisers and anti-histamines. *Bioch. Pharm.*, **15**, 1737.
— (1966). 2. Erythrocyte membrane stabilisation by local anaesthetics and tranquilisers. *Bioch. Pharm.*, **15**, 1753.
— (1966). 3. A method for distinguishing specific from non-specific hemolysins. *Bioch. Pharm.*, **15**, 1767.
7. Bennett, P. B., and Hayward, A. J. (1967). Erythrocyte unbalance as the mechanism for inert gas narcosis and anaesthesia. *Nature*, **213**, 938.
8. Miller, S. L., Eger, E. I., and Lundgren, C. (1969). Anaesthetic potency of CF4 and SF6 in dogs. *Nature*, **221**, 468.
9. Kwant, W. O., and Seeman, P. (1969). Displacement of membrane calcium by a local anaesthetic (chlorpromazine). *Bio. Bioph. Acta*, **193**, 338.
10. Johnson, J. M., and Bangham, A. D. (1969). Action of anaesthetics on phospholipid membranes. *Bio. Bioph. Acta*, **193**, 92.
11. Seeman, P. (1969). Temperature dependence of erythrocyte membrane expansion by alcohol anaesthetics; possible support for partition theory of anaesthesia. *Bio. Bioph. Acta*, **193**, 520.
12. Miller, S. L. (1968). Effects of anaesthetics on water structure. *Fed. Proc.*, **27**, 879.
13. Halsey, M. J., Smith, E. B., and Wood, T. E. (1970). Effects of general anaesthetics on Na⁺ transport in human red cells. *Nature*, **225**, 1151.
14. Deuticke, B. (1970). Anion permeability of red blood cell. *Naturwissenschaften*, **57**, 172.
15. Radomski, M. W., and Bennett, P. B. (1970). Metabolic changes in man during short exposure to high pressure. *Aerosp. Med.*, **41**, 309.
16. Sabelli, H. C., and Priest, W. C. (1970). Water structure in anaesthetic action—time-dependence D2O effects on nerve. *Arznei-Fors.*, **20**, 80.
17. Cherry, R. J., Dodd, G. H., and Chapman, D. (1970). Small molecule-lipid membrane interactions and puncturing theory of olfaction. *Bio. Biop. Acta*, **211**, 409.
18. Seeman, P., Shaafi, R. I., Galey, W. R., and Solomon, A. C. (1970). Effect of anaesthetics (chlorpromazine ethanol) on erythrocyte permeability.

(continued)

- bility to water. *Bioc. Biop. Acta*, 211, 365.
19. Doring, H. J., Olbrisch, R. R., Schrader, J., and Lang, H. (1970). Electrocorticogram steady potential of brain and high-energy phosphate content of cerebral cortex as influenced by overdoses of general anaesthetics, ischemia, or cyanide poisoning. *Pflug. Arch.*, 319, 12.

REFERENCES

- Cawkell, A. E. (1968). Search strategies using the Science Citation Index; in *Computer-based Information Retrieval Systems* (Clive Bingley, 1968; Bernard Houghton, ed.), p. 27.
- (1970). Science Citation Index. *Nature*, 228, 789.
- Garfield, E. (1964). Science Citation Index—a new dimension in indexing. *Science*, 144, 649.
- (1969). Search strategies using the Science

Citation Index. *Current Contents Life Sciences*, 12, 89.

- (1970a). Precise bibliographical verification with the Science Citation Index. *Current Contents Life Sciences*, 13, 5.
- (1970b). Citation indexing for studying science. *Nature*, 227, 669.
- Malin, M. V. (1968). The Science Citation Index—a new concept in indexing. *Library Trends*, 16, 374.
- Martyn, J. (1965). An examination of citation indexes. *Aslib. Proc.*, 17, 184.
- McClelland, R. M. A. (1970). Information retrieval. *Brit. J. Anaesth.*, 42, 744.
- Pings, W., and Williams, J. (1970). A study of the access to the scholarly record from health science core collection. Report No. 54, Wayne State University School of Medicine, Detroit.

Reprinted from *British Journal of Anaesthesia* 43(8):814, 1971.

-
1. Bradford, S.C. *Documentation*. (Washington, D.C., Public Affairs Press, 1950, 156 pp.)
 2. Garfield, E. Garfield's law and the mystery of the transposed journal lists; wherein Bradford's law of scattering is generalized according to Garfield's law of concentration. *Current Contents/Life Sciences* 14(31):5-6, Aug. 4, 1971.
 3. McClelland, R.M.A. Information retrieval. *British Journal of Anaesthesia* 42(9):744-756, 1970.
 4. Cawkell, A.E. *Science Citation Index*; effectiveness in locating articles in the anaesthetics field: "perturbation of ion transport". *British Journal of Anaesthesia* 43(8):814, 1971.
 5. Garfield, E. "Citation Indexing, historiobibliography, and the sociology of science." In *Proceedings of the Third International Congress of Medical Librarianship, Amsterdam, 5-9 May 1969*. Ed. by K.E. Davis and W.D. Sweeney (Amsterdam, Excerpta Medica, 1970), pp. 187-204.