

Highly Cited Articles. 29.
Articles from Scandinavian Journals.

Number 42

October 18, 1976

Here is a list of the fifty most cited articles from Scandinavian journals. The list presents a number of surprises. The first is the number of citations received by the articles. In most of our 'regional' lists of highly cited articles, the least cited on the list has rarely been cited more than 200 times. The last article on this list (number 50 by Kofoed-Johnsen and Ussing) received almost 300 citations.

As with our previous lists, only a few journals are involved--in this case only ten. The journals are listed in Figure 1. Two of them published two-thirds of the articles: *Acta Crystallographica* 21, and *Acta Physiologica Scandinavica* 12. Half of the journals are medical; the other half are about evenly divided between chemistry and physics.

Only twenty-three of the articles report work done in Scandinavia. The rest come from around the world, most of them (16) from the United States. In our previous studies of regional journals and their highly cited articles, there have always been a number from scientists outside the region, but not to this extent. The list confirms the international character of Scandinavian journals demonstrated in a previous journal citation analysis.¹

Exactly half the articles report medical

research, a higher proportion than usually found in lists of this type. Nineteen of the articles deal with physics, most of them from *Acta Crystallographica*.

The two oldest articles (numbers 22 and 47) were published in 1948. They describe methods for biochemical analysis that have been widely used or adapted for wide use. The two are Ouchterlony's "*In vitro* method for testing the toxin production capacity of diphtheria bacteria," and Blix's "Determination of hexoseamines according to Elson and Morgan." In all there are four articles from the 1940s, twenty from the 50s, twenty-five from the 60s and one from 1971. This last is a paper by Germain *et al.* (number 35) on "The application of phase relationships to complex structures. It is the third of a series ('3. The optimum use of phase relationships.')" The first two articles in the series weren't cited often enough in the period 1961-1975 to make this list of fifty articles. However, all the three parts have been cited a total of 732 times. The same situation probably holds for other articles on the list that are parts of series (numbers 10, 16, 27, and 45).

The articles are listed in Figure 2 in decreasing order of their total citations.

1. Garfield E. Journal Citation Studies. 28. Scandinavian journals. *Current Contents*® (CC®) No. 41, 11 October 1976, p. 5-11.

Figure 1. Sources of the most frequently cited articles published in Scandinavian journals. **A** = number of articles on the list in Figure 2. **B** = journal title (titles in parentheses are present titles whose counts have been combined with those for former titles in impact calculation, etc.). **C** = total citations in 1974. **D** = total citations of 1972 and 1973 articles in 1974. **E** = number of articles published by journal in 1972 and 1973. **F** = impact.

A	B	C	D	E	F
21	Acta Crystallographica	13111	2394	1759	1.361
12	Acta Physiol. Scand.	7922	919	417	2.204
4	Acta Chem. Scand.	8803	1192	1144	1.042
3	Acta Pathol. Microb. Scand.	991	468	578	0.809
3	Scand. J. Lab. Clin. Invest.	3699	644	336	1.917
2	Physiol. Plantarum	2617	479	308	1.555
2	Transplantation Rev.	1592	972	38	25.579
1	Acta Radiologica (Diagn. & Ther.)	1802	187	273	1.460
1	Arkiv Kemi (Chemica Scripta)	1498	210	137	1.533
1	Mat. Fys. Medd. KDVS	103	—	—	—

Figure 2. Highly cited articles from Scandinavian journals.

A = item number. **B** = times cited 1961-1975.

A	B	Bibliographical Data
1.	1780	Cromer D T & Waber J T. Scattering factors computed from relativistic Dirac-Slater wave functions. <i>Acta Crystallogr.</i> 18:104-9, 1965. [Los Alamos Scientific Lab., Los Alamos, New Mexico]
2.	1493	Cromer D T. Anomalous dispersion corrections computed from self-consistent field relativistic Dirac-Slater wave functions. <i>Acta Crystallogr.</i> 18:17-23, 1965. [Los Alamos Scientific Lab., Los Alamos, New Mexico]
3.	1138	Seldinger S I. Catheter replacement of the needle in percutaneous arteriography: a new technique. <i>Acta Radiologica</i> 39:368-76, 1953. [Roentgen Diagnostic Dept., Karolinska Inst. Stockholm]
4.	1079	Hanson H P, Herman F, Lea J D & Skillman S. HFS atomic scattering factors. <i>Acta Crystallogr.</i> 17:1040-44, 1964. [Univ. of Texas, Austin]
5.	945	Karle J & Karle I L. The symbolic addition procedure for phase determination for centrosymmetric and noncentrosymmetric crystals. <i>Acta Crystallogr.</i> 21:849-59, 1966. [U.S. Naval Res. Lab., Wash. D.C.]
6.	891	Hamilton W C. Significance tests on the crystallographic R factor. <i>Acta Crystallogr.</i> 18:502-10, 1965. [Chem. Dept., Brookhaven Nat. Lab., Upton, N.Y.]
7.	872	Euler U S von & Lishajko F. Improved technique for the fluorimetric estimation of catecholamines. <i>Acta Physiol. Scand.</i> 51:348-56, 1961. [Physiol. Dept., Karolinska Inst., Stockholm]

8. 855 **Ussing H H & Zehrahn K.** Active transport of sodium as the source of electric current in the short-circuited isolated frog skin. *Acta Physiol. Scand.* 23:110-27, 1951. [*Lab. Zoophysiol., Univ. Copenhagen*]
9. 839 **Ouchterlony O.** Antigen-antibody reaction in gels. *Acta Pathol. Microb. Scand.* 26:507-15, 1949. [*State Bacteriol. Lab., Stockholm*]
10. 822 **Ouchterlony O.** Antigen-antibody reactions in gels. IV. Types of reactions in coordinated systems of diffusion. *Acta. Pathol. Microb. Scand.* 32:231-40, 1953. [*Serv. Chim. Microb., Inst. Pasteur, Paris; State Bacteriol. Lab., Stockholm*]
11. 812 **Murashige T & Skoog F.** A revised medium for rapid growth and bioassays with tobacco tissue cultures. *Physiol. Plantarum* 15:473-97, 1962. [*Dept. of Botany, Univ. Wisconsin, Madison*]
12. 779 **Bertler A, Carlsson A & Rosengren E.** A method for the fluorimetric determination of adrenaline and noradrenaline in tissues. *Acta Physiol. Scand.* 44:273-92, 58. [*Dept. Pharmacol., Univ. Lund, Sweden*]
13. 764 **Vesterberg O & Svensson H.** Isoelectric fractionation, analysis and characterization of ampholytes in natural pH gradients. IV. Further studies on the resolving power in connection with separation of myoglobins. *Acta Chem. Scand.* 20:820-34, 1966. [*Biochem. Dept. Nobel Medical Inst., Stockholm; Dept. Phys. Chem., Chalmers Inst. Technol., Goteborg, Sweden*]
14. 758 **Berghuis J, Bertha J J, Haanappel M & Potters M.** New calculations of atomic scattering factors. *Acta Crystallogr.* 8:478-83, 1955. [*Mathematical Centre, Amsterdam*]
15. 708 **Falck B.** Observations on the possibilities of the cellular localization of monoamines by fluorescence. *Acta Physiol. Scand.* 56:1-25, 1962. [*Dept. Histol., Univ. Lund; Dept. Pharmacol., Univ. Göteborg*]
16. 688 **Dahlstrom A & Fuxe K.** Evidence for the existence of monoamine-containing neurons in the central nervous system. 1. Demonstrations of monoamines in the cell bodies of brain stem neurons. *Acta Physiol. Scand. Supp.* 232 62:1-55, 1964. [*Dept. Histol., Karolinska Inst., Stockholm*]
17. 661 **Cromer D T & Mann J B.** X-ray scattering factors computed from numerical Hartree-Fock wave functions. *Acta Crystallogr. A* 24:321-24, 1968. [*Los Alamos Sci. Lab., Los Alamos, New Mexico*]
18. 619 **Shannon R D & Prewitt C T.** Effective ionic radii in oxides and fluorides. *Acta Crystallogr. B.* 25:925-46, 1969. [*Central Res. Dept. Exp. Station, E.I. Dupont de Nemours & Co., Wilmington, Del.*]
19. 616 **Blombäck B & Blombäck M.** Purification of human and bovine fibrinogen. *Arkiv Kemi* 10:415-43, 1956. [*Chem. Dept. II, Karolinska Inst., Stockholm*]
20. 525 **Nilsson S G.** Binding states of individual nucleons in strongly deformed nuclei. *Mat.-Fys. Medd.* 29:1-68, 1955. [*no address given*]
21. 506 **Carlsson A & Waldeck S.** A fluorimetric method for the determination of dopamine (3-hydroxytyramine). *Acta Physiol. Scand.* 44:293-98, 1958. [*Dept. Pharmacol., Univ. Lund, Sweden*]
22. 497 **Ouchterlony O.** *In vitro* method for testing the toxin-production capacity of diphtheria bacteria. *Acta Pathol. Microb. Scand.* 25:186-91, 1948. [*State Bacteriol. Lab., Stockholm*]

23. 489 Gardell S. Separation on Dowex 50 ion exchange resin of glucosamine and galactosamine and their quantitative determination. *Acta Chem. Scand.* 7:207-15, 1953. [Chem. Dept. II, Karolinska Inst., Stockholm]
24. 472 Carlsson A & Lindquist M. In-vivo decarboxylation of alpha-methyl DOPA and alpha-methyl metatyrosine. *Acta. Physiol. Scand.* 54:87-94, 1962. [Dept. Pharmacol., Univ. Göteborg, Sweden]
25. 462 Miller J F A & Mitchell G F. Thymus and antigen-reaction cells. *Transplant. Rev.* 1:3-42, 1969. [Exp. Pathol. Unit. Walter & Eliza Hall Inst. Med. Res., Melbourne]
26. 444 Busing W R & Levy H A. The effect of thermal motion on the estimation of bond lengths from diffraction measurements. *Acta Crystallogr.* 17:142-46, 1964. [Chem. Div., Oak Ridge Nat. Lab.]
27. 429 Howells E R, Phillips D C & Rogers D. The probability distribution of x-ray intensities. II. Experimental investigation of the x-ray detection of centres of symmetry. *Acta Crystallogr.* 3:210-14, 1950. [Virginia Jones Lab., Univ. College, Cardiff, Wales]
28. 420 Dauben C H & Templeton D H. A table of dispersion corrections for x-ray scattering of atoms. *Acta Crystallogr.* 8:841-42, 1955. [Dept. Chem. Radiation Lab., Univ. of California, Berkeley]
29. 419 Zachariassen W H. The secondary extinction correction. *Acta Crystallogr.* 16:1139-44, 1963. [Dept. Physics, Univ. Chicago]
30. 416 Haggendal J. An improved method for fluorimetric determination of small amounts of adrenaline and noradrenaline in plasma and tissues. *Acta Physiol. Scand.* 59:242-54, 1963. [Dept. Pharmacol., Univ. Göteborg, Sweden]
31. 416 Schomaker V & Trueblood K N. On the rigid-body motion of molecules in crystals. *Acta Crystallogr. B.* 24:63-76, 1968. [Dept. Chem., Univ. Washington, Seattle]
32. 411 Siggaard-Andersen O, Engel K, Jorgensen K & Astrup P. A micro-method for determination of pH, carbon dioxide tension, base excess and standard bicarbonate in capillary blood. *Scand. J. Clin. Lab. Invest.* 12:172-76, 1960. [Dept. Univ. Chem., Rigshospitalet Copenhagen]
33. 409 Anden N E, Dahlstrom A, Fuxe K, Larsson K, Olson L & Ungerstedt U. Ascending monoamine neurons to the telencephalon and diencephalon. *Acta Physiol. Scand.* 67:313-26, 1966. [Depts. Pharmacol. & Psychol., Univ. Göteborg; Dept. of Histol., Karolinska Inst., Stockholm]
34. 403 Owren P A & Aas K. The control of dicumarol therapy and the quantitative determination of prothrombin and proconvertin. *Scand. J. Clin. Lab. Invest.* 3:201-08, 1951. [Dept. Internal Med., Univ. Oslo]
35. 390 Germain G, Main P & Woolfson M M. The application of phase relationships to complex structures. 3. The optimum use of phase relationships. *Acta Crystallogr. A* 27:368-71, 1971. [Lab. Chimie-Physique, Univ. Louvain]
36. 371 Schomaker V, Waser J, Marsh R E & Bergman G. To fit a plane or a line to a set of points by least squares. *Acta Crystallogr.* 12:600-4, 1959. [Gates & Crellin Labs. Chem., Cal. Inst. Tech., Pasadena; Dept. Chem., Rice Inst., Houston]

37. 355 Busing W R & Levy H A. High speed computation of the absorption correction for single crystal diffraction measurements. *Acta Crystallogr.* 10:180-92, 1957. [Chem. Div., Oak Ridge Nat. Lab., Oak Ridge]
38. 351 Doyle P A & Turner P S. Relativistic Hartree-Fock x-ray and electron scattering factors. *Acta Crystallogr. A* 24:390-97, 1968. [Sch. Physics, Univ. Melbourne]
39. 350 Cruickshank D W J. The accuracy of electron-density maps in x-ray analysis with special reference to dibenzyl. *Acta Crystallogr.* 2:65-82, 1949. [Chem. Dept., Leeds Univ.]
40. 343 Boyum A. Isolation of mononuclear cells and granulocytes from human blood; isolation of mononuclear cells by one centrifugation, and of granulocytes by combining centrifugation and sedimentation. *Scand. J. Clin. Lab. Invest. Supp.* 97 21:77-89, 1968.
41. 337 Linsmaier E M & Skoog F. Organic growth factor requirements of tobacco tissue cultures. *Physiol. Plantarum* 18:100-27, 1965. [Dept. Botany, Univ. Wisconsin, Madison]
42. 325 Borgstrom B. Investigation on lipid separation methods; separation of phospholipids from neutral fat and fatty acids. *Acta Physiol. Scand.* 25:101-10, 1952. [Dept. Physiol. Chem., Univ. Lund, Sweden]
43. 323 Cruickshank D W J. The analysis of the anisotropic thermal motion of molecules in crystals. *Acta Crystallogr.* 9:754-56, 1956. [Sch. Chem., Leeds Univ.]
44. 323 Edman P. Method for the determination of the amino acid sequence in peptides. *Acta Chem. Scand.* 4:283-93, 1950. [Dept. Physiol. Chem., Univ. Lund, Sweden]
45. 323 McWeeny R. X-ray scattering by aggregates of bonded atoms. I. Analytical approximations in single-atom scattering. *Acta Crystallogr.* 4: 513-19, 1951. [Lab. Phys. Chem. & Coke Res., King's Coll., Univ. Durham, Newcastle]
46. 321 Claman H N. Immunologic complementation between thymus and marrow bones; a model for the two-cell theory of immunocompetence. *Transplant. Rev.* 1:92-113, 1969. [Div. Clin. Immunol., Univ. Colorado Med. Ctr., Denver; Dept. Microbiol., Creighton Univ. Sch. Med., Omaha]
47. 300 Blix G. The determination of hexosamines according to Elson and Morgan. *Acta Chem. Scand.* 2:467-73, 1948. [Inst. Med. Chem., Univ. Upsalo, Sweden]
48. 295 Malmfors T. Studies on adrenergic nerves; the use of rat and mouse iris for direct observations on their physiology and pharmacology at cellular and subcellular levels. *Acta Physiol. Scand. Supp.* 248 64: 1-93, 1965. [no address given]
49. 293 Karle J & Hauptman H. A theory of phase determination for the four types of non-centrosymmetric space groups 1P222, 2P22, 3P12, 3P22. *Acta Crystallogr.* 9:635-51, 1956. [US Naval Res. Lab., Washington D.C.]
50. 290 Koefoed-Johnsen V & Ussing H H. The nature of the frog skin potential. *Acta Physiol. Scand.* 42:298-308, 1958. [Zoophysiol. Lab., Dept. Biological Isotope Res., Univ. Copenhagen]