(11) "Index Guide"; Chemical Abstracts Service: Columbus, OH, 1977; Appendix IV, (a) paragraph 106, (b) 120, (c) 121, and (d) 198.
(12) There is a proposal in the literature [Ericson, L. G.; Cutten, D. R. "A Simple Nomenclature for Complex Organic Free Radicals". *Bull. Chem. Soc. Jpn.* **1967**, *40*, 2974-2975] to denote an unpaired electron (a free radical site) by the prefix "keno". Since there is a chemically substantive distinction between a free radical site and a free valence, we have denoted the latter by the improvised "free" rather than "keno".

ACS Committee on Nomenclature: Annual Report for 1983

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Nomenclature committees, both national and international, were very active in 1983, resulting in substantial progress in many different fields. A summary of the more important meetings and accomplishments follows.

The *ACS Committee on Nomenclature* held its annual meeting at CAS in November.† Progress of the work of the divisional committees and international commissions was reviewed. The committee recommended a format for the periodic table of the elements that will avoid the existing confusion in designation of the subgroups. The recommended format is the result of 3 years of study and solicited input, such as at the Symposium on the Periodic Table at the Seattle meeting cosponsored by the Committee. The format will be announced in the 1984 February issue of the *Journal of Chemical Education*. Long-range plans of the Committee were submitted and approved by the Long-Range Subcommittee of the Council Policy Committee. Regrettably, the official appointment in 1982 of all editors of ACS journals as ex officio members of the Committee was revoked in 1983, thus returning communications with the editors to a more informal basis. To establish closer contact with interested individual ACS members, the Committee held two successful open meetings in Seattle and Washington and plans to hold two more at the national meetings in 1984. As a result of the Committee's effort to involve more divisions in its work, the Divisions of Nuclear Chemistry and Technology and Chemical Information were represented at the annual meeting for the first time. Presentations stressing the importance of nomenclature and the role of divisional committees in it were given to the Executive Committees of the Divisions of Industrial and Engineering Chemistry and Environmental Chemistry. Closer liaison with nomenclature groups in disciplines related to chemistry continues to be pursued; for example, the Committee is now represented on the Nomenclature Committee of the Council of Biology Editors. Efforts to contact appropriate groups in physics, geology, and mass spectrometry are in progress. The promotion of and input into International Union of Pure and Applied Chemistry (IUPAC) recommendations is, as always, a primary objective of the Committee. As part of the Committee's efforts in the area of public relations, an international nomenclature symposium is being organized for the Honolulu meeting in 1984. The Subcommittee on Chemical Pronunciation continues to be active.

The *IUPAC Interdivisional Committee on Nomenclature and Symbols* (IDCNS) continued to function effectively this year. It held its annual meeting in Lyngby, Denmark, in August. In addition to the IUPAC publications listed in the appendix, specific documents in process and thus not yet recorded in this appendix deal with the following topics: flame emission and absorption spectroscopy, amino acids and peptides, in situ microanalysis, molecular luminescence spectroscopy, etc. A complete list of IUPAC-approved glossaries has been compiled. The key role of IDCNS in the revised IUPAC publication procedure has been codified.

The *IUPAC Inorganic Nomenclature Commission* met in August in Lyngby. Topics included neutral molecules and compounds, ions and radicals, rings and chains, polyhedral clusters, solid-state chemistry, isopoly- and heteropolyanions, oxo acids, inorganic polymers, and stereochemical nomenclature. These topics were discussed in the context of providing a revision of the 1970 edition of the *Red Book*.

The *IUPAC Organic Nomenclature Commission* met in August in Lyngby. The Commission continued its study of the reorganization and revision of the present rules according to a more logical arrangement (Section R) and of a more systematic long-range approach (Section G). In connection with Section G, several specific projects are under way: nodal nomenclature, radial nomenclature, "inorganic" ring nomenclature, nomenclature for delocalized ions and radicals, and nomenclature of oxo acids. The λ-convention published provisionally in January 1982 was approved as final recommendations, 1983. The fully approved revision of the Hantzsch–Widman system of nomenclature for heteromonocycles was published in February 1983. A document extending the generation of names for numerical prefixes beyond 200 was published as provisional rules in August 1983. Initial drafts of documents on a convention for describing rings and ring systems with cumulative double bonds and hydride names for nonmetal hydrides were reviewed. Documents on classical ions and radicals, cyclophanes, and nodal numbering are well advanced. Subjects under study related to the Section R effort include revision of the Section E rules (Stereochemistry), Section F (Natural Products), recommendations on indicated hydrogen, numbering priorities for unsaturation and hydro prefixes, documentation of principles of fusion nomenclature, and names for acid suffixes and parent compounds.

The *IUPAC Macromolecular Nomenclature Commission* also met in August in Lyngby. The commission completed its work on the nomenclature and symbolism of copolymers and on the classification and family names of polymers; these documents are expected to appear in print in 1984. The Commission is continuing its work on (a) subsidiary definitions of terms relating to polymers, (b) definitions for physical properties of polymers, (c) substitutive nomenclature for reacted polymers, and (d) interpenetrating polymer networks. The commission is planning to combine all its recommendations into book form.

In *biochemical nomenclature* both JCBN and NC-IUB met jointly in Tegernsee in May. A major effort was directed toward preparation of a new larger edition of the IUB book

† Abbreviations used, not identified in the text, are ACS, American Chemical Society; CAS, Chemical Abstracts Service; JCBN, Joint Commission on Biochemical Nomenclature; and NC-IUB, Nomenclature Committee of International Union of Biochemistry.

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on enzyme nomenclature with publication expected in 1984 or 1985. Documents published in 1983 include the fourth supplement to *Enzyme Nomenclature (1978)*, enzyme kinetics, oligosaccharides, polynucleotide and polysaccharide conformations, vitamin D derivatives, tocopherols, and retinoids (see appendix). Updating of the 1966 recommendations for amino acids and peptides was completed, and the new recommendations are expected to be published in 1984. Work continues on preparation of a definitive version of tetrapyrrole nomenclature and on draft recommendations for the nomenclature of prostaglandins, carbohydrates, catecholamines, glycoproteins, multienzyme proteins, interferons, and other biochemical specialties. Revision of the lipid, steroid, and terpene rules is planned.

All *ACS Divisional nomenclature committees* were active in 1983 to varying degrees. These are the ones of the Division of Analytical Chemistry, Division of Carbohydrate Chemistry, Division of Fluorine Chemistry, Division of Inorganic Chemistry, Division of Nuclear Chemistry and Technology, Division of Organic Chemistry, Division of Physical Chemistry, and Division of Polymer Chemistry.

The *Office of Biochemical Nomenclature* continues to operate. Close liaison between it and the Nomenclature Division of CAS is being maintained.

The Chairman of the Committee is the CAS Director of Nomenclature and, through these combined offices, maintains close liaison between ACS nomenclature committees, CAS, and other organizations. During 1983, cooperation with outside organizations continued to be substantial. In the area of drug and pesticide names, considerable contributions were made to the USAN (U.S. Adopted Names) program of the American Medical Association and the INN (International Nonproprietary Names) program of the World Health Organization, the U.S. Pharmacopeia, the American National Standards Institute, and the International Standards Organization. We now cooperate or provide services in the nomenclature field to the following organizations.

American Chemical Society
American Institute of Nutrition
American Medical Association
American National Standards Institute
American Pharmaceutical Association
American Society of Hospital Pharmacists
British Crop Protection Council
British Pharmacopoeia
British Veterinary Codex Committee
Canada Department of Agriculture
Canadian Standards Association
Drug Enforcement Association
Food and Agricultural Organization
Food and Drug Administration
International Agency for Research on Cancer
International Standards Organization
International Union of Biochemistry
International Union of Crystallography
International Union of Nutritional Sciences
International Union of Pure and Applied Chemistry
National Cancer Institute
National Institutes of Health
National Library of Medicine
National Research Council
U.S. Department of Agriculture
U.S. Department of the Army
U.S. Fish and Wildlife Service
U.S. Pharmacopeia
World Health Organization

In addition, correspondence with individual authors and editors was processed regularly. CAS continues to be the headquarters for the distribution of nomenclature pamphlets and other nomenclature information.

APPENDIX: OFFICIAL NOMENCLATURE PUBLICATIONS, 1983

IUPAC

Analytical Chemistry Division: Commission on Analytical Reactions and Reagents. "Recommendations for the Usage of Selective, Selectivity, and Related Terms in Analytical Chemistry". *Pure Appl. Chem.* **1983**, *55* (3), 553–556.

Analytical Chemistry Division: Commission on Analytical Reactions and Reagents. "Recommendations on Use of the Term Amplification Reactions". *Pure Appl. Chem.* **1982**, *54* (12), 2553–2556.

Analytical Chemistry Division: Commission on Electroanalytical Chemistry. Physical Chemistry Division: Commission on Electrochemistry. "Definition of pH Scales, Standard Reference Values, Measurement of pH and Related Terminology", Provisional. *Pure Appl. Chem.* **1983**, *55* (9), 1467–1476.

Applied Chemistry Division: Commission on Water Quality, and the International Association on Water Pollution Research and Control. "Recommended Notation for Use in the Description of Biological Wastewater Treatment Processes", Provisional. *Pure Appl. Chem.* **1983**, *55* (6), 1035–1040.

Clinical Chemistry Division: Commission on Automation and Clinical Chemical Techniques. "Characteristics and Attributes of Instruments Intended for Automated Analysis in Clinical Chemistry". *Pure Appl. Chem.* **1983**, *55* (6), 1041–1048.

Inorganic Chemistry Division: Commission on Atomic Weights and Isotopic Abundances. "Atomic Weights of the Elements, 1981". *Pure Appl. Chem.* **1983**, *55* (7), 1101–1118.

Inorganic Chemistry Division: Commission on Atomic Weights and Isotopic Abundances. "Isotopic Compositions of the Elements, 1981". *Pure Appl. Chem.* **1983**, *55* (7), 1119–1136.

Inorganic Chemistry Division: Commission on Nomenclature of Inorganic Chemistry. "Nomenclature of Inorganic Chemistry. II.1. Isotopically Modified Compounds". *Kem. Kozl.* **1981**, *55*, 453–473 (Hungarian).

Inorganic Chemistry Division: Commission on Nomenclature of Inorganic Chemistry. "Nomenclature of Inorganic Chemistry. II.2. The Nomenclature of Hydrides of Nitrogen and Derived Cations, Anions, and Ligands", Recommendations 1981. *Pure Appl. Chem.* **1982**, *54* (12), 2545–2552.

Organic Chemistry Division: Commission on Nomenclature of Organic Chemistry. "Extension of Rules A-1.1 and A-2.5 Concerning Numerical Terms Used in Organic Chemical Nomenclature", Provisional. *Pure Appl. Chem.* **1983**, *55* (9), 1463–1466.

Organic Chemistry Division: Commission on Nomenclature of Organic Chemistry. "Nomenclature of Organic Compounds. Section H. Isotopically Modified Compounds", Translated by K. Blaha and V. Dedek. *Chem. Listy* **1983**, *77* (1), 74–94 (Czech).

Organic Chemistry Division: Commission on Nomenclature of Organic Chemistry. "Revision of the Extended Hantzsch-Widman System of Nomenclature for Heteromonocycles", Recommendations 1982. *Pure Appl. Chem.* **1983**, *55* (2), 409–416.

Organic Chemistry Division: Commission on Physical Organic Chemistry. "Glossary of Terms Used in Physical Organic Chemistry", Recommendations 1982. *Pure Appl. Chem.*

1983, *55* (8), 1281–1371; Provisional. *Zh. Org. Khim.* **1983**, *19*, 1562–1592, 1787–1812, 1988–2013 (Russian).

Physical Chemistry Division: Commission on Colloid and Surface Chemistry Including Catalysis. "Manual of Symbols and Terminology for Physicochemical Quantities and Units. Appendix II. Definitions, Terminology and Symbols in Colloid and Surface Chemistry. Part 1.14. Light Scattering", Provisional. *Pure Appl. Chem.* **1983**, *55* (6), 931–941.

Physical Chemistry Division: Commission on Colloid and Surface Chemistry Including Catalysis. "Reporting Experimental Pressure-Area Data with Film Balances", Provisional. *Pure Appl. Chem.* **1982**, *54* (11), 2189–2200.

Physical Chemistry Division: Commission on Colloid and Surface Chemistry Including Catalysis, Subcommittee on Reporting Gas Adsorption Data. "Reporting Physisorption Data for Gas/Solid Systems with Special Reference to the Determination of Surface Area and Porosity", Provisional. *Pure Appl. Chem.* **1982**, *54* (11), 2201–2218.

Physical Chemistry Division: Commission on Electrochemistry. "Interphases in Systems of Conducting Phases", Provisional. *Pure Appl. Chem.* **1983**, *55* (8), 1251–1268.

Physical Chemistry Division: Commission on Thermodynamics, Subcommittee on Assignment and Presentation of Uncertainties of Thermodynamic Data. "Assignment and Presentation of Uncertainties of the Numerical Results of Thermodynamic Measurements", Provisional. *J. Chem. Eng. Data* **1982**, *27* (3), 221–230.

IUPAC–IUB

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Joint Commission on Biochemical Nomenclature (JCBN). "Nomenclature of Tocopherols and Related Compounds", Recommendations 1981. *Mol. Cell. Biochem.* **1982**, *49* (3), 183–205.

Joint Commission on Biochemical Nomenclature (JCBN). "Nomenclature of Vitamin D", Recommendations 1981. *Endokrinol. Inf.* **1982**, *No. 2*, 53–62; Recommendations 1981. *Mol. Cell. Biochem.* **1982**, *49* (3), 177–181.

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Joint Commission on Biochemical Nomenclature (JCBN). "Symbols for Specifying the Conformation of Polysaccharide Chains", Recommendations 1981. *Eur. J. Biochem.* **1983**, *131* (1), 5–7; Provisional. *Pure Appl. Chem.* **1983**, *55* (8), 1269–1272.

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Nomenclature Committee of the International Union of Biochemistry (NC-IUB). "Enzyme nomenclature", Recommendations 1978. Supplement 4. Corrections and Additions. *Eur. J. Biochem.* **1983**, *131*, 461–472.

Nomenclature Committee of the International Union of Biochemistry (NC-IUB). "Symbolism and Terminology in Enzyme Kinetics", Recommendations 1981. *Arch. Biochem. Biophys.* **1983**, *224* (2), 732–740; Recommendations 1981. *Biochem. J.* **1983**, *213* (3), 561–571; Recommendations 1981. *Eur. J. Biochem.* **1982**, *128* (1), 281–291.

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Loening, Kurt L.; Merritt, Joy E. "Some Aids for Naming Polycyclic Aromatic Hydrocarbons and Their Heterocyclic Analogs". In "Polynuclear Aromatic Hydrocarbons"; Cooke, Marcus, Dennis, Anthony, J., Eds.; Battelle Press, Columbus, OH, 1983; pp 818–843.