

Current text	Proposed new text	Comments
<b>APPENDIX 13. ACTIVITIES OF THE CONGRESSES</b>	APPENDIX 13. ACTIVITIES OF THE CONGRESSES	
	<b>[THE SHORT VERSION]</b>	The Editorial Board proposes a much shortened version with the information only for the most recent congresses. If it is considered more desirable to keep the long version with the archival history of all other congresses, a proposed updated version is found at the end of this document
<p>The minutes of the meetings of the International Congress for Microbiology (and later, the International Congress of Bacteriology and Applied Microbiology) of the International Union of Microbiological Societies contain a detailed history of the evolution of this code of nomenclature. This appendix contains a summary of the activities of each congress and special meetings of the Judicial Commission. Following each summary is a bibliography of all references cited. Prior to the Sixth International Congress for Microbiology, the official record</p>	<p>The minutes of the meetings of the International Congress for Microbiology (and later, the International Congress of Bacteriology and Applied Microbiology) of the International Union of Microbiological Societies contain a detailed history of the evolution of this code of nomenclature. A summary of this historical material is presented in Appendix 13 of the 2008 Revision of the ICNP (Parker <i>et al.</i>, 2019). Minutes of the ICSP plenary meetings held since 2014 are published in IJSEM and summarized below.</p>	<p>Note that the 2014 Montreal minutes have not been formally published in IJSEM, although a summary has been added to the 2008 Revision of the ICNP</p>

<p>is contained here and in the first issue of the <i>International Bulletin on Bacterial Nomenclature and Taxonomy</i>. Conference proceedings have also been cited in retrospect, as they may contain more details on early unpublished work on the Code.</p>		
	<p>7<sup>th</sup> Congress of European Microbiologists Valencia, Spain, 2019</p>	
	<p>Meetings of the ICSP were held in July 2017 in conjunction with the 7<sup>th</sup> Congress of European Microbiologists.</p>	
	<p>Reports were received from the Officers of the ICSP and from the JC. A preprint version of the International Code of Nomenclature of Prokaryotes was noted to have been published online. A new publishing contract between the Microbiology Society and IUMS/ ICSP has been signed. Negotiations have been ongoing between the authors of the recent Code and Microbiology Society about the typesetting and the format in which the type-set version will be published in IJSEM.</p>	
	<p>A revision of the ICSP Statutes, proposed by the EB, was approved. The major changes are in Article 2a (Term of full members); Article 4 (Term of officers); Article 7 (Secretaries serving as ex officio voting members of the EB); Article 10 (Change of the JC quorum of votes for a favourable decision regarding an Opinion); and Article 13b (Clarification of the functions of the Editorial Board of the IJSEM regarding the Code).</p>	
	<p>Reports were received from <i>ad hoc</i> working groups on (1) the nomenclature of uncultured organisms; (2) improving the IJSEM; (3) the position of the ICSP on the Nagoya protocol; (4) education and outreach initiatives on systematics; (5) the organization and structure of the ICSP.</p>	

	Dijkshoorn L. International Committee on Systematics of Prokaryotes. Minutes of the meetings, 7, 8 and 9 July 2017, Valencia, Spain. <i>Int J Syst Evol Microbiol</i> 2018;68:2104–2110.	
	8 <sup>th</sup> Congress of European Microbiologists Glasgow, Scotland, UK, 2019	
	A mini-plenary open meeting of the ICSP was held on 11 July 2019 in conjunction with the 8 <sup>th</sup> Congress of European Microbiologists, in Glasgow, Scotland. The meeting was attended by 13 ICSP members or their alternates and four guests.	
	The revised version of the statutes of the ICSP, as detailed in Whitman <i>et al.</i> , <i>Int J Syst Evol Microbiol</i> 2019;69:584-593, were approved by electronic vote of the ICSP in June 2019 and so were noted to now be effective.	
	Reports were presented by the working groups on education and outreach and about the impact of the Nagoya protocol on the availability of type material. The status of the lists of <i>Candidatus</i> names, the preparation of which is in an advanced stage, was discussed.	
	Discussions were held about the proposal to allow gene sequences as type material. These discussions will be continued in future meetings of the ICSP.	
	Dijkshoorn L. Minutes of the International Committee on Systematics of Prokaryotes. Minutes of the miniplenary meeting 11 July 2019, Glasgow, Scotland. <i>Int J Syst Evol Microbiol</i> 2021;71:004706.	
	<b>IF LONG VERSION IS PREFERRED:</b>	
	The minutes of the meetings of the International Congress for Microbiology (and later, the International Congress of Bacteriology and Applied Microbiology) of the International Union of Microbiological Societies contain a detailed history of the evolution of this code of nomenclature. This appendix contains a summary of the activities of each congress and special meetings of the Judicial Commission. Following each	

	<p>summary is a bibliography of all references cited. Prior to the Sixth International Congress for Microbiology, the official record is contained here and in the first issue of the <i>International Bulletin on Bacterial Nomenclature and Taxonomy</i>. Conference proceedings have also been cited in retrospect, as they may contain more details on early unpublished work on the Code.</p>	
	<p style="text-align: center;">First International Congress for Microbiology Paris, France 1930</p> <p>The desire that special attention should be paid to the peculiar needs of bacteriology was voiced at the First International Congress of Microbiology convened in Paris in 1930 [1] by the International Society for Microbiology under the auspices of the Pasteur Institute. As the result of recommendations made by several of the delegates to the Congress, a Commission on Nomenclature and Taxonomy was constituted to prepare and report recommendations to the Plenary Session of the Congress.</p> <p>The members of this commission were E. Pribram, Chicago, U.S.A., <i>Chairman</i>; A. R. Prévot, Paris, France, <i>Secretary</i>; R. E. Buchanan, Ames, Iowa, U.S.A.; K. Kiskalt, Germany; J. C. G. Ledingham, London, England; Reiner Müller, Köln, Germany; R. St. John-Brooks, London, England; and I. Yamasaki, Fukuoka, Kyushu, Japan.</p> <p>Several resolutions prepared by the Commission were approved unanimously by the Plenary Session. These resolutions (in their English text) were as follows:</p> <p>(I) The founding of the International Society for Microbiology and the establishment of Congresses of Microbiology make possible for the first time adequate international cooperation relative to certain problems of microbial nomenclature. It is clearly recognized that the living forms with which the microbiologists concern themselves are in part plants, in part</p>	

animals, and in part primitive. It is further recognized that *insofar as they may be applicable and appropriate* the nomenclatural codes agreed upon by international Congresses of Botany and Zoology should be followed in the naming of microorganisms. Bearing in mind however the peculiarly independent course of development that Bacteriology has taken in the past fifty years and elaboration of special descriptive criteria which bacteriologists have of necessity developed, it is the opinion of the International Society for Microbiology that the bacteria constitute a group for which special arrangements are necessary. Therefore, the International Society for Microbiology has decided to consider the subject of Bacterial Nomenclature as part of its permanent programme.

(II) The International Society for Microbiology is of the opinion that the interests of bacterial nomenclature will best be served by placing the subject in the hands of a single International Committee, under the aegis of the International Society for Microbiology, adequately representative of all departments of Bacteriology, on which experts from all spheres of bacteriological research may work together. It is recognized that the subject of bacterial nomenclature is of so wide a nature that unless the personnel of an International Committee formed to deal with it is representative of all aspects of bacteriology, it is not likely to carry weight. Such a representative committee, to be called the Nomenclature Committee for the International Society for Microbiology, is hereby authorized and constituted.

(III) The Nomenclature Committee for the International Society for Microbiology shall be constituted as follows:

(a) Two permanent secretaries shall be elected: one primarily to represent medical and veterinary bacteriology, the other primarily to represent the other phases of bacteriology. The following individuals are hereby appointed secretaries.

(1) To represent primarily medical and veterinary bacteriology Dr. Ralph St. John-Brooks, Lister Institute, London, England.

(2) To represent primarily the other phases of bacteriology Dr. R. S. Breed, Geneva, New York, U.S.A. Should a secretaryship become vacant, the position may be filled *pro tempore* by choice of the Committee. A permanent secretary should be chosen by action of the next succeeding International Congress for Microbiology.

(b) The remaining members of the Committee shall be appointed by such National Committees of the International Society and by such of the various National Societies affiliated with the International Society as may desire representation thereon. Not more than three members may be thus chosen to represent a single nation. In addition, in order that the Committee shall be truly representative of all interests, the Committee is authorized to add such members as may be deemed desirable.

(IV) The duties of the Nomenclature Committee shall include the following:

(a) Through the secretaries the members of the Committee shall be circularized with reference to such problems of bacterial nomenclature as may arise, and shall endeavor to reach an agreement. No action relating to nomenclature shall be considered complete and operative until it has been considered by all members of the Committee, until adequate publicity has been given with respect to actions proposed, until approval has been given by a majority of two thirds of the members of the Committee, and until a report has been made to the next succeeding International Congress for Microbiology and opportunity thereby given for objection, modification or rejection by action of the Congress.

(b) The Committee shall consider, among others, problems such as criteria to be employed in classification, adoption of names for *species* and *genera conservanda*, type species (including their identification and preservation), the encouragement of monographing of special groups or genera of bacteria by those best qualified to do the work, the enlargement of the scope and usefulness of the various type culture collections by more adequate support, and the preparation and publication of such Committee and Subcommittee reports as may be advisable.

(V) Copies of these resolutions shall be submitted to the appropriate sections of the International Botanical Congress, Cambridge, 1930. It is the hope of the International Congress for Microbiology that the members of the International Botanical Congress who are interested in bacterial nomenclature will see the advisability of the special questions of nomenclature of bacteria being considered by a single international authority and that they will suggest names of members of the Botanical Congress willing to serve on the committee who, in their opinion, would add to its strength and authority.

(VI) In view of the adequate provision made for special regulations relating to the bacteria, and the feasibility of designating *genera conservanda* among the bacteria by international agreement, it is believed that the greatest stability will be conferred by the adoption of the publication of *Species Plantarum* by Linnaeus in 1753 as the point of departure for bacterial nomenclature. The adoption of this date is recommended. It is further suggested that no present action be taken with reference to a list of *genera conservanda* for the bacteria.

(VII) Among the most important agencies working toward satisfactory nomenclature and classification of bacteria are the several type culture collections. These constitute invaluable repositories and much of the future development of bacteriology will depend upon their adequate growth, support and utilization; in some cases, at least they should develop into research institutes of high grade. It is urged that the coordination and cooperation existing among these institutions be extended the better to serve the interests of bacteriology in its theoretical, medical and other economic aspects. It is further urged that all bacteriologists publishing descriptions of new species or important strains of bacteria deposit pure cultures of such with a culture collection that they may be made available to others interested. Particularly is it urged that the adequate financial support of these culture collections by official agencies, by educational and research institutions and by the research foundations constitutes an important and immediate need.

It will be noted that in the action of the Congress the development of an adequate Bacteriological Code was linked with the Botanical Code. The specific suggestion was made that members of the International Botanical Congress, 1930, be apprised of the resolutions passed by the First Microbiological Congress and that the Botanical Congress be asked to cooperate. This was done, and the two secretaries of the International Nomenclature Committee for Bacteriology (Dr. R. St. John-Brooks and Dr. R. S. Breed) were designated by the Botanical Congress as a special committee on the nomenclature of bacteria [2].

[1] Dujarric de la Rivière R. 1er Congrès international de microbiologie Paris, 1930, documents recueillis et publiés, Masson, Paris; 1931.

[2] Editorial Board. Forward. *Internatl. Bull. Bact. Nomenclature and Taxonomy*. 1:1–3. Ames, IA: Iowa State College Press; 1951.

Second International Congress for Microbiology  
London, England, United Kingdom 1936

The International Committee met during the sessions of the second International Congress for Microbiology in London in 1936 [1]. Proposals by R. E. Buchanan and H. J. Conn to conserve the generic name *Bacillus* Cohn 1872, to designate as the type species *Bacillus subtilis* Cohn 1872, and to fix the type or standard culture as the “Marburg strain” were approved by the Committee and by the Plenary Session of the Congress.

A further specific action of the Nomenclature Committee and of the London Congress had to do with the duplication of generic names in the *Protista*, the group ordinarily defined to include the protozoa, algae, fungi and bacteria. Inasmuch as bacteria are usually included among the plants, and subsequent plant homonyms are regarded as illegitimate, the principal interest is the suppression as illegitimate later homonyms in the protozoa and the

bacteria. Prof. F. Mesnil proposed and the Nomenclature Committee and the Congress agreed that generic homonyms are not permitted in the group *Protista*; further that it is advisable to avoid homonymy amongst *Protista* on the one hand, plants or animals (*Metazoa*) on the other.

The Committee and Congress also acted favorably on a proposal by Prof. R. S. Breed relative to non-capitalization of specific epithets in names of species of bacteria.

“Bacteriologists should accept Article 13 of the International Rules of Zoological Nomenclature, as follows: ‘While specific substantive names derived from names of persons may be written with a capital initial letter, all other specific names are to be written with a small initial letter.’”

At this 1936 (London) meeting of the International Committee it was agreed that, before the convening of the third International Congress of Microbiology to be held three years later in New York, a tentative Code of Bacteriological Nomenclature should be drafted and presented for the consideration of the Committee. To facilitate easy conference an American (Canadian and U.S.A.) Subcommittee was constituted to prepare such a tentative code. The members of this Subcommittee were R. E. Buchanan, Chairman; Robert S. Breed; J. Howard Brown; I. C. Hall; W. L. Holman; E. G. D. Murray; and Otto Rahn.

The chairman was asked to assemble material for consideration by the members. A mimeographed brochure of 119 pages was prepared under the title “Rules of Nomenclature, Annotated” [2]. It consisted of two parallel columns. In the first column the International Rules of Botanical Nomenclature, including *Principles, Rules, Recommendations, Notes, and Examples*, were printed. In the second column were listed suggestions for a code of Bacteriological Nomenclature formulated by making such minor modification of the Botanical Code as seemed desirable, as by dropping of inapplicable sections. In numerous footnotes were given the pertinent

sections of the International Rules of Zoological Nomenclature and the American Code of Entomological Nomenclature. This material was sent to all members of the Subcommittee and to a large number of other bacteriologists, including members of the International Committee insofar as they could be reached. Criticisms and suggestions were invited. More than 30 sets of comments and suggestions were received. These comments were broken up into sections corresponding to those of the suggested code, and the proposed code and comments again submitted to the members of the Subcommittee in the form of a mimeographed booklet under the title "Suggestions and Comments on 'Rules of Nomenclature, Annotated'." A new series of comments and suggestions was secured from the numerous collaborators, tabulated and submitted once more to the Subcommittee. A final revision was prepared to present to the International Committee at its New York meeting in 1939 [3]. The text of this tentative code differed from the basic Botanical Code principally in the following.

- (a) A reorganization of the text of the code under the following headings.  
(1) General Considerations; (2) General Principles; (3) Rules of Bacteriological Nomenclature with Recommendations; (4) Provisions for Interpretation and Modification of rules.
- (b) Elimination of items and sections of the Botanical Code that seemed inapplicable to bacteriology.
- (c) Simplification where possible through rephrasing.
- (d) Selection of examples where possible from bacteriology.

[1] St. John-Brooks R. *Second International Congress for Microbiology, London, 25 July–1 August, 1936. Report of Proceedings*. London: International Society for Microbiology; 1937.

[2] Buchanan RE. *Suggestions and Comments on 'Rules of Nomenclature, Annotated'*. 1939.

[3] Editorial Board. Forward. *Internatl Bull Bact Nomenclature and Taxonomy* 1951;1:1–3. Ames, IA: Iowa State College Press.

Third International Congress for Microbiology  
New York, New York, United States 1939

The proposed tentative code [1, 2] was considered at some length by the International Committee for Bacteriological Nomenclature at its New York meeting [3]; many suggestions developed. The report was also presented to one of the sections of the Congress, and about one hundred copies of the “Annotated” and “Tentative” codes distributed.

Upon recommendation of the International Committee on Bacteriological Nomenclature the Plenary Session of the Third International Congress for Microbiology on Sept. 9, 1939 approved the following resolution:

- (1) That a recognized Bacteriological Code be developed.
- (2) That publication of such a proposed Code when developed be authorized with the proviso that it shall be regarded as wholly tentative, but in the hope that it shall be widely tested so that it may be brought up for further consideration and final disposition at the next Microbiological Congress which should normally take place in 1942.
- (3) That the Nomenclature Committee, as at present constituted, shall continue to function under the auspices of the International Association of Microbiologists<sup>1</sup> as it did under the International Society for Microbiology.

<sup>1</sup>The new name approved for the international organization sponsoring microbiological congresses.

- (4) That the International Committee shall select from its membership a Judicial Commission consisting of twelve members, exclusive of members *ex officio*, and shall designate a Chairman from the membership of the Commission. The two Permanent Secretaries of the International

	<p>Committee on Bacteriological Nomenclature shall be members ex officio of the Judicial Commission. The commissioners shall serve in three classes of four each for nine years, so that one class of four commissioners shall retire at every International Congress. In case of resignation or death of any commissioner, his place shall be filled for the unexpired term by the International Committee at its next meeting.</p> <p>The functions of the International Committee on Bacteriological Nomenclature were more accurately defined as follows:</p> <ul style="list-style-type: none"><li>(a) To consider and pass upon all recommendations relating to the formation or modification of Rules of Nomenclature. The Committee will recommend such action as may be appropriate to the next Plenary Session of an International Congress for Microbiology.</li><li>(b) To consider all Opinions rendered by the Judicial Commission. Such Opinions become final if not rejected at the meeting of the International Committee next following the date on which the Opinion was issued.</li><li>(c) To designate official Type Culture Collections.</li><li>(d) To receive and act upon all reports and recommendations received from the Judicial Commission or other committees relating to problems of nomenclature or taxonomy.</li><li>(e) To hold at least one meeting triennially in connection with the meeting of the International Congress for Microbiology.</li><li>(f) To report to the final Plenary Session of each Congress a record of its actions, and to recommend for approval such actions as require the approval of the Congress.</li><li>(g) To cooperate with other Committees, particularly those of the International Botanical and Zoological Congresses, to consider common problems of nomenclature.</li></ul> <p>The functions of the Judicial Commission of the International Committee on Bacteriological Nomenclature were also defined as follows:</p>	
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	<p>(a) To issue formal <i>Opinions</i> when asked to interpret rules of nomenclature in cases in which the application of a rule is doubtful.</p> <p>(b) To prepare formal <i>Opinions</i> relative to the status of names that have been proposed, placing such names when deemed necessary in special lists, such as lists of <i>Nomina Conservanda</i>, <i>Nomina Rejicienda</i>, etc.</p> <p>(c) To develop recommendations for emendations of the International Rules for Bacteriological Nomenclature for presentation to the International Committee.</p> <p>(d) To prepare formal <i>Opinions</i> relative to types, particularly types of species and genera, and to develop a list of bacterial genera which have been proposed with the type species of each.</p> <p>(e) To prepare and publish lists of names of genera which have been proposed for bacteria, for protozoa, or for other groups in which microbiologists are interested in order to assist authors of new names in avoiding illegitimate homonyms.</p> <p>(f) To develop a list of publications in microbiology whose names of organisms shall have no standing in bacteriology in determination of priority.</p> <p>(g) To edit and publish the International Rules of Bacteriological Nomenclature, Opinions, Lists of <i>Nomina Conservanda</i>, <i>Nomina Rejicienda</i>, Type Species, etc.</p> <p>(h) To report to the International Committee at its triennial meetings all Recommendations, Transactions, and Opinions.</p> <p>(i) To report to the International Committee at its triennial meetings the names of all Commissioners whose terms of service expire, likewise a list of all vacancies caused by resignation or death.</p> <p><i>Recommendation.</i> Whenever, in the opinion of any microbiologist an interpretation of any rule or recommendation is desirable because the correct application of such a rule or recommendation is doubtful, or the stability of nomenclature could be increased by the conservation or by the rejection of some name which is a source of confusion or error, it is</p>	
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	<p>recommended that he prepare a brief outlining the problem, citing pertinent references and indicating reasons for and against specific interpretations. This brief should be submitted to the Chairman of the Judicial Commission; if desired, through one of the Permanent Secretaries. An Opinion will be formulated, which may not be issued until it has been approved by at least eight members of the Commission.</p> <p>It was further voted:</p> <p>That the Proposed International Rules of Bacteriological Nomenclature, in so far as they have been developed by the American-Canadian Committee on Compilation of Proposals on Bacteriological Nomenclature for the International Committee and modified by action of that Committee, shall be referred for final emendation and publication to the Judicial Commission in accordance with Provision (c) above as recorded.</p> <p>The minutes of the International Committee contain the following statements relative to the Judicial Commission:</p> <p>With regard to the constitution of the Judicial Commission, members of the Commission present were requested to give its Secretaries lists of persons that they wished to nominate as members of the Judicial Commission, and the Secretaries were requested to transmit such nominations to the entire Committee for ballot, giving members the option of substituting other names if they so desired. It was agreed that after the final ballot the four persons receiving the greatest number of votes should be elected for the nine-year period and that the four persons receiving the smallest number of votes should be elected for the three-year period. The remaining four are to serve for a six-year period.</p> <p>Nominations to membership on the Judicial Commission were made by the membership of the International Committee in attendance at the New</p>	
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York meeting. The Permanent Secretaries then conducted a mail ballot resulting in the election of twelve members (Commissioners) and designation of R. E. Buchanan as Chairman. R. S. Breed and R. St. John-Brooks as Permanent Secretaries of the International Committee also became *ex officio* members and Permanent Secretaries of the Commission.

The records of the Congress showed a membership of 62 on the International Committee on Bacteriological Nomenclature as of August 1939. There were representatives of Microbiological Societies of 24 nations as follows: Argentina, Australia, Belgium, Brazil, Bulgaria, Canada, Denmark, Deutsches Reich, Eire, France, Great Britain, Holland, Hungary, Italy, Norway, Palestine, Poland, Roumania, Spain, Sweden, Switzerland, United States of America, Union of Soviet Socialist Republics, and Uruguay.

It was expected that the mandate of the Congress to the Judicial Commission to develop and publish a tentative proposal for a Code of Bacteriological Nomenclature would be followed promptly. The final determination of the constitution of the Judicial Commission itself was long delayed because of the outbreak of World War II while the New York Congress was in session. It soon proved impracticable to circulate copies of the nomenclature proposals and to secure comments from all members of the Commission [4].

Dr. Ralph St. John-Brooks of the Lister Institute, London, one of the Permanent Secretaries of the International Committee, in March 1942 spent some days with the Chairman of the Commission in conference and in editing the manuscript which had been reviewed by the Committee at the New York City meeting.

1. Buchanan RE (ed). *Rules of Nomenclature: Annotated; with Suggestions for Rules of Bacteriological Nomenclature. Prepared for the American-*

*Canadian Committee on Compilation of Proposals for Consideration by the Third International Congress for Microbiology*. Mimeographed. Ames, IA; 1939. p.118.

2. Buchanan RE. (ed). *Proposed International Rules of Bacteriological Nomenclature. Prepared for Consideration by The American- Canadian Committee on Compilation of Proposals on Bacteriological Nomenclature for the International Committee*. Mimeographed. Ames, IA; 1939. p. 63.

3. Dawson M. H. (ed). *Third International Congress for Microbiology. Report of Proceedings. New York, September 2–9, 1939*. New York: International Association of Microbiologists; 1940.

4. Editorial Board. Forward. *Internatl Bull Bact Nomenclature and Taxonomy* 1951;1:1–3. Ames, IA: Iowa State College Press.

Fourth International Congress for Microbiology  
Copenhagen, Denmark 1947

The Proposed Bacteriological Code of Nomenclature as authorized by the Third International Congress for Microbiology was printed in June 1947 [1] in a limited edition for distribution and for use by the Judicial Commission and the International Committee at the Fourth International Congress in September 1947.

At the Copenhagen Meeting [2] the proposed Code was considered, revised, and approved for publication by the Judicial Commission, the International Committee and the Plenary Session of the Congress. The English text was published in March 1948 in the *Journal of Bacteriology* [3], and reprinted in September 1949 in the *Journal of General Microbiology* [3]. A Spanish translation [4] was published in Argentina in the *Archivos de Farmacia y Bioquímica del Tucumán* and a German translation by [5] in the *Schweizerische Zeitschrift für allgemeine Pathologie und Bakteriologie*. A French translation by Dr. Prévot and a Japanese translation were also issued.

1. Buchanan RE, St. John-Brooks R (eds). *Proposed Bacteriological Code of Nomenclature. Developed from proposals approved by International Committee on Bacteriological Nomenclature at the Meeting of the Third International Congress for Microbiology*. Publication authorized in Plenary Session. Ames, IA: Iowa State College Press; 1947. p. 61.
2. Bjørneboe M (ed). *Fourth International Congress for Microbiology Report of Proceedings. Copenhagen, July 20–26, 1947*. Copenhagen: Rosenkilde and Bagger; 1949.
3. Buchanan RE, St. John-Brooks R, Breed RS (eds). International Bacteriological Code of Nomenclature. *Journ Bact* 1948;55:287–306. Also reprinted in September 1949 *Journ General Microbiology* 1949;3:444–462.
4. Verna LC (translator). Código Internacional de Nomenclatura Bacteriológica. *Archivos de Farmacia y Bioquímica del Tucumán* 1949;4:283–316. Tucumán, Argentina.
5. Bloch H (translator). Internationaler bakteriologischer Nomenklaturcodex. *Schweiz Zeitschr allgem Path u Bakteriologie* 1950;13:358–383. Basel, Schweiz.

Fifth International Congress for Microbiology  
Rio de Janeiro, Brazil 1950

Meetings of the Judicial Commission and of the International Committee were held at Rio de Janeiro and Petropolis (Brazil) in 1950 [1]. Among the important actions of these bodies, confirmed by the Plenary Session of the Congress, were the following:

- (1) An Editorial Board was established consisting of the Chairman of the Judicial Commission and the two Permanent Secretaries.
- (2) Publication of a quarterly “International Bulletin of Bacteriological Nomenclature and Taxonomy” was authorized; to be edited by the Editorial Board.

(3) Agreement was reached that some revision of the International Bacteriological Code of Nomenclature was desirable and the Judicial Commission instructed to incorporate certain amendments approved, and to prepare recommendations for the 1953 International Microbiological Congress to be held in Rome.

The actions taken by the Commission, the Committee and the Fifth Congress are reported in Volume One of "The International Bulletin of Bacteriological Nomenclature and Taxonomy" [2].

In preparation for the Rome Congress (September 1953), the provisional agenda for the meetings of the International Committee [3] and of the Judicial Commission [4] were prepared and published in the June (1953) issue of the International Bulletin.

1. Comissao Executiva do Congresso. 1950. Arquivos do V Congresso Internacional de Microbiologia, Rio de Janeiro, 17-24

Classification and nomenclature of viruses. First Report of the 1950.

2. Editorial Board. Forward. *Internatl Bull Bact Nomenclature and Taxonomy* 1951;1:1-3. Ames, IA: Iowa State College Press.

3. International Committee on Bacteriological Nomenclature. Meetings of September 7th and 11th, 1953 Agenda (Provisional). *Internatl Bull Bact Nomenclature and Taxonomy* 1953;3:26. Ames, IA: Iowa State College Press.

4. Judicial Commission of the International Committee on Bacteriological Nomenclature. Judicial Commission. Agenda (Provisional). *Internatl Bull Bact Nomenclature and Taxonomy* 1953;3:27. Ames, IA: Iowa State College Press.

Sixth International Congress for Microbiology  
Rome, Italy 1953

	<p>The Editorial Board prepared a series of “Proposals Relative to Emendation and Publication” of a revised International Bacteriological Code of Nomenclature [1] which recommended publication of the revised Code, suggested that the Rules and Recommendations be adequately annotated, and that there be noted significant resemblances to the Botanical and Zoological Codes of Nomenclature and likewise important differences between them. The hope was expressed that texts in other languages could be published simultaneously with the English text. In all, sixty draft proposals for amendment, deletions and modifications of the Code were submitted and acted upon.</p> <p>The Judicial Commission, through the Editorial Board, was directed to edit, annotate, and publish the Code as finally approved by the International Committee and the Plenary Session.</p> <p>The name of the Code was fixed as The International Code of Nomenclature of Bacteria and Viruses.</p> <p>The manuscript for the Code in original draft form, including Annotations and Appendices, was submitted for editorial suggestions to all members of the Judicial Commission and to about twenty-five bacteriologists experienced in nomenclature and taxonomy. Unfortunately, the preparation of the text and annotations has been so time-consuming that it has not been possible to include texts of the Code in the several important languages of science. It is to be hoped that this may be done in future printings [2,3].</p> <p>1. Editorial Board. The International Bacteriological Code of Nomenclature: Proposals relative to emendation and publication. <i>Internatl Bull Bact Nomenclature and Taxonomy</i> 1953;3:31–62. Ames, IA: Iowa State College Press.</p>	
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2. Cowan ST, Wikèn T (secretaries). Minutes of the Judicial Commission Meetings held in Rome in Connection with the VI International Congress for Microbiology. September, 1953. *Internatl Bull Bact Nomenclature and Taxonomy* 1953;3:141–154. Ames, IA: Iowa State College Press.
3. Cowan ST, Wikèn T (secretaries). Minutes of Meetings of the International Committee on Bacteriological Nomenclature held at Rome in Connection with the VI International Congress for Microbiology September, 1953. *Internatl Bull Bact Nomenclature and Taxonomy* 1953;3:155–161. Ames, IA: Iowa State College Press.

Seventh International Congress for Microbiology  
Stockholm, Sweden 1958

No changes to the Code were made at the Congress in Stockholm, and it was decided that matters pending should be presented to the Congress of 1962 [1, 2].

1. Cowan ST, Clark WA. Minutes of the Meetings of the International Committee on Bacteriological Nomenclature held at Stockholm in Connection with the VII International Congress for Microbiology, July–August, 1958. *Int Bull Bacteriol Nomen Taxon* 1958;8:145–149.
2. *International Code of Nomenclature of Bacteria and Viruses*. Ames, Iowa: Iowa State College Press; 1958.

Eighth International Congress for Microbiology  
Montreal, Quebec, Canada 1962

A large number of changes were made to the Code, mostly amplification to cover problems that were arising in bacteriological nomenclature [1, 2]. They concerned in particular the nomenclature of categories between genus and subgenus (Section, Subsection, Series, Subseries), recommendations on infrasubspecific names, generic descriptions, and

citation and orthography. Many were taken with some modification from the Botanical Code. The amendments were published [1] but a complete amended version of the Code was not published. Many of these changes were clearly necessary, but their insertion into the existing Code made it difficult to maintain a clear and logical order to the various rules.

1. Clark WA, Seeliger HPR. Detailed minutes concerning actions taken on the emendation of the International Code of Nomenclature of Bacteria and Viruses during the meetings of the Judicial Commission of the International Committee on Bacteriological Nomenclature at the VIII International Microbiological Congress in Montreal. August, 1962. *Int Bull Bacteriol Nomen Taxon* 1963;13:1–22.
2. Clark WA, Seeliger HPR. Minutes of the first meeting of the International Committee on Bacteriological Nomenclature, Pathology Building, McGill University, Montreal, August 18, 1962. *Int Bull Bacteriol Nomen Taxon* 1963;13:39–46.

Ninth International Congress for Microbiology  
Moscow, Union of Soviet Socialist Republics 1966

The Moscow Congress marked a change of direction in the philosophy of bacterial nomenclature. Change was in the air, and this is illustrated by the decision of the virologists (represented by the Subcommittee on Viruses of the International Committee on Nomenclature of Bacteria) to prepare their own rules of nomenclature. This led to the establishment at the Moscow Congress of a separate International Committee on Nomenclature of Viruses. This move was largely due to the feeling that viruses were of such a special nature that a new and different system of nomenclature should be introduced, and partly because Linnaean binary names were considered to be inappropriate [1–3]. The first report of the Virus Committee was published in 1971 [4].

At the same time the Executive Board of the International Association of Microbiological Societies requested all subordinate bodies to prepare and submit Statutes. In the first edition, the statements covering the structure and functions of the International Committee on Nomenclature of Bacteria (ICNB) were contained in Provisions 4 and 5 of the Code. The Judicial Commission authorized the removal of these Provisions and the Executive Board of the ICNB proceeded with the formulation of Statutes.

At the Moscow Congress, the Judicial Commission was presented with a considerable list of proposed changes to the Bacteriological Code [2, 3, 5], of which the most lengthy were proposals to regulate the nomenclature of infrasubspecific forms, forms that had previously been subject only to recommendations on good practice. These proposals had, at Montreal, been deferred for further study, and it now became evident that they posed many difficulties that could not be avoided without consultation with epidemiologists, geneticists, biochemists, and others. These proposals were again referred back for further study.

The Commission discussed again the need for the regulation of names of sections, subsections, series and subseries. It became clear that these categories were used almost only within one genus, *Streptomyces*, whose taxonomy and nomenclature were increasingly at odds with modern practice in the rest of bacteriology. A feeling grew that it was a retrograde step to recognize complex rules for such categories if their need was diminishing, as awareness grew that many forms recognized as separate species of *Streptomyces* were more likely to be infrasubspecific variants. At its next meeting, the Commission agreed to remove from the Code the provisions that controlled the names of these categories, and this has been done in the present Code.

The revisions made at Moscow made it necessary to publish a new edition of the Code [6].

1. Cowan ST. Request of the Virus Subcommittee. *Int Bull Bacteriol Nomen Taxon* 1963;13:171–173.
2. Clark WA, Seeliger HPR. Minutes of the Judicial Commission of the International Committee on the Nomenclature of Bacteria. *Int J Syst Bacteriol* 1967a;17:59–72.
3. Clark WA, Seeliger HPR. Minutes of the International Committee on Nomenclature of Bacteria Meetings at the IX International Congress on Microbiology, Moscow, 1966. *Int J Syst Bacteriol* 1967b;17:73–78.
4. Wildy P. Classification and nomenclature of viruses. First Report of the International Committee on Nomenclature of Viruses. In: *Monographs in Virology*, vol. 5. Basel: S. Karger; 1971.
5. Editorial Board. Proposed emendation of the International Code of Nomenclature of Bacteria and Viruses—with comments. *Int J Syst Bacteriol* 1966;16:341–369.
6. International Code of Nomenclature of Bacteria. *Int J Syst Bacteriol* 1966;16:459–490.

Special Meeting of the Judicial Commission  
Leicester, England, United Kingdom 1968

It was decided to hold a special meeting of the Judicial Commission to consider a complete revision of the Code and some way of eliminating the thousands of forgotten and useless names. This meeting was held in Leicester in 1968 [1], and the Judicial Commission quickly agreed that the Code needed a complete new version. Dr. S. P. Lapage offered to undertake a complete revision, and a Drafting Committee was set up consisting of W. A. Clark, S. P. Lapage (Chairman), E. F. Lessel, H. P. R. Seeliger, and P. H. A. Sneath to prepare a Revised Code, to embody the following: publication of names in a limited range of publications; obligate designation of types; methods on designation and the preservation of type strains; minimal descriptions of taxa; and alteration to the provisions for

	<p>amending the Code in view of impending changes in the organization of the International Committee on Nomenclature of Bacteria.</p> <p>The question of old and useless names was considered at length. The device used by the Zoological Code—whereby names disused for 50 years could be considered to be forgotten names (<i>nomina oblita</i>) and thereafter ignored—was not thought useful. There was the risk of discovering later that such a name had been used in this period, thus necessitating reinstatement. Another suggestion was that there should be block conservation of well-established names in certain publications of international repute. This had the disadvantage that much detailed taxonomic work would be required before such names could be conserved, and that there would be numerous appeals where the publications were perpetuating obvious errors.</p> <p>The idea of a new starting date was then discussed. Similar suggestions had been raised in the past, but the important innovation was the proposal that an Approved List be prepared containing all names of taxa with current usage, and that at some given date in the future all other names should lose their standing in nomenclature. The Approved List would then be the basis for the nomenclature of the future. It was realized that the object of the change would be defeated if the old names were not available for re-use, because search of literature would still have to be made to avoid earlier homonyms, but on closer examination it was felt that the re-use of old names should not lead to major confusion. In the event, this radical proposal was accepted and is thought to be workable [2].</p> <p>1. Lessel EF. Judicial Commission of the International Committee on Nomenclature of Bacteria. Minutes of Meeting. September 1968, Leicester, England. <i>Int J Syst Bacteriol</i> 1970;20:1–8.</p>	
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2. Clark WA, Seeliger HPR. International Committee on Nomenclature of Bacteria, Tenth International Congress for Microbiology. Minutes of the Meetings 8 and 13 August 1970, Hotel Maria Isabel, Mexico City, Mexico. *Int J Syst Bacteriol* 1971;21:111–118.

Tenth International Congress for Microbiology  
Mexico City, Mexico 1970

Only minor emendations [1, 2], mostly of an editorial nature, were made at Mexico to the Code that was currently in force (the Code as approved at Moscow). The International Committee also approved the Statutes and changed its name to the International Committee on Systematic Bacteriology.

The first drafts of the Revised Code were prepared by the Drafting Committee between 1968 and 1970, when two separate drafts were sent to the Judicial Commission, the second of which was discussed by the Judicial Commission at the tenth Congress. The draft was favorably received, so a **resume** of the main changes that were proposed was presented to the International Committee on Nomenclature of Bacteria [2]. The International Committee approved the main outline of the proposed Revised Code and later received copies of the fourth draft for comment. These comments were incorporated, and the fifth draft was published for comment in time for the next Congress at Jerusalem in 1973 [3].

1. *Lesell EF*. Minutes of the Judicial Commission of the International Committee on Nomenclature of Bacteria. *Int J Syst Bacteriol* 1971;21:100–103.

2. Clark WA, Seeliger HPR. International Committee on Nomenclature of Bacteria, Tenth International Congress for Microbiology. Minutes of the

Meetings 8 and 13 August 1970, Hotel Maria Isabel, Mexico City, Mexico. *Int J Syst Bacteriol* 1971;21:111–118.

3. Lapage SP, Clark WA, Lessel EF, Seeliger HPR, Sneath PHA. Proposed revision of the International Code of Nomenclature of Bacteria. *Int J Syst Bacteriol* 1973;23:83–108.

First International Congress of Bacteriology<sup>2</sup>  
Jerusalem, Israel 1973

<sup>2</sup>After the Tenth International Congress for Microbiology, the congress was divided into three sections: Bacteriology, Virology and Mycology. The Bacteriology Section was later referred to as the International Congress of Bacteriology and Applied Microbiology (BAM).

The Revised Code as proposed [1] was approved by the Judicial Commission of the International Committee on Systematic Bacteriology and the Plenary Session of the First International Congress of Bacteriology, with minor amendments mostly editorial in nature [2, 3], and its publication was authorized in book form in the present volume.

1. Lapage SP, Clark WA, Lessel EF, Seeliger HPR, Sneath PHA. Proposed revision of the International Code of Nomenclature of Bacteria. *Int J Syst Bacteriol* 1973;23:83–108.

2. Lessel EF. Judicial Commission of the International Committee on Systematic Bacteriology. Minutes of the Meeting. 29 August 1973, Jerusalem, Israel. *Int J Syst Bacteriol* 1974;24:379–380.

3. Clark WA, Schubert RHW. International Committee on Systematic Bacteriology. 1st International Congress for Bacteriology. Minutes of the Meetings, 2 and 6 September 1973. Binyanei Ha'ooma, Jerusalem, Israel. *Int J Syst Bacteriol* 1974;24:375–379.

First Intersectional Congress of the International Association of  
Microbiological Societies<sup>3</sup>  
Tokyo, Japan, 1974

<sup>3</sup>In retrospect, this is considered to be the Second International Congress of Bacteriology and Applied Microbiology.

The Judicial Commission did not meet during this congress and no changes to the Code were made. The Executive Board approved restating Article 11b of the Statutes of ICSB to conform to the procedure adopted following the Jerusalem Meeting in September 1973 [1,2].

1. Executive Board of the International Committee on Systematic Bacteriology. 1st Intersectional Congress of the International Association of Microbiological Societies: Minutes of the Meeting, 3 September 1974 Imperial Hotel, Tokyo, Japan. *Int J Syst Bacteriol* 1975;25:95.
2. Hasegawa T (ed). Proceedings of the First Intersectional Congress of the International Association of Microbiological Societies, 1–7 September 1974, Tokyo, Japan. (vol. 6). Tokyo: Science Council of Japan; 1975.

Twelfth International Congress for Microbiology<sup>4</sup>  
Munich, Federal Republic of Germany, 1978

<sup>4</sup>In retrospect, the Third International Congress of Bacteriology and Applied Microbiology.

Only a few changes were made to the Code, mostly of an editorial nature [1–3]. The application of Rules 16 and 27, dealing with validation of names effectively published outside the IJSB, was clarified.

A proposal was published that the Cyanobacteria (Blue-Green Algae) should come under the provisions of the Bacteriological Code [4]. This was discussed at length by the Judicial Commission and the ICSB. There are difficulties in reconciling the application of the Bacteriological and Botanical Codes to these organisms, the great majority of which have been studied and named according to botanical precedent. Few of them are yet in culture, and the Botanical Code has not permitted living types (i.e., type cultures). It was therefore decided to refer the matter to the officers of the Botanical Code, with whom discussion continues, and it is hoped that a satisfactory conclusion may be reached in due course. Meanwhile it was noted [2] that workers who consider cyanobacteria to be bacteria may name them in accordance with the Bacteriological Code. As none were to be included in the Approved Lists of Bacterial Names, their nomenclature under the Bacteriological Code would start from names validly published in the IJSB after 1979 under Rules 27 and 28.

A draft of the Approved Lists had been published in the IJSB in 1976 [5], which initiated widespread consultations in the community and resulted in the 1980 Approved Lists.

1. Drafting Committee, Judicial Commission. Proposals to Emend the International Code of Nomenclature of Bacteria. *Int J Syst Bacteriol* 1978;28:337.
2. Holt JG. International Committee on Systematic Bacteriology, Judicial Commission, Minutes of the Meeting, 3 September 1978, Munich, West Germany. *Int J Syst Bacteriol* 1979;29:267–269.
3. Hill LR. International Committee on Systematic Bacteriology, XII International Congress for Microbiology, Minutes of the Meetings, 5 and 7 September 1978. *Int J Syst Bacteriol* 1979;29:168–169.
4. Stanier RY, Sistrom WR, Hansen TA, Whitton BA, Castenholz RW et al. Proposal to Place the Nomenclature of the Cyanobacteria (Blue-Green

Algae) Under the Rules of the International Code of Nomenclature of Bacteria. *Int J Syst Bacteriol* 1978;28:335–336.  
5. Ad Hoc Committee of the Judicial Commission of the ICSB. First Draft Approved Lists of Bacterial Names. *Int J Syst Bacteriol* 1976;26:563–599.

Thirteenth International Congress for Microbiology<sup>5</sup>  
Boston, Massachusetts, United States 1982

<sup>5</sup>In retrospect, the Fourth International Congress of Bacteriology and Applied Microbiology.

The Approved Lists of Bacterial Names had been published on 1 January 1980, so there had been two years of experience of the new system of nomenclature. This seemed to be working well, so a number of changes were made to the code to consolidate the system [1–3]. Provisional Rules A1, A2, B1, B2, and B3 were converted to addenda to Rules 33 and 34. Provisions for reviving names in a new combination were clarified (Rule 33d), and the provisions of Rule 18 on monotypes and lectotypes were removed as unnecessary. Minor clarifications of Rules 13 and 28 were made. There were also minor amendments to the ICSB Statutes [2] now that the IAMS had become the IUMS.

Plant-pathogenic bacteria present particular problems about which there had been much informal discussion since 1978. A large number of nomenspecies of these bacteria are now widely regarded as host-adapted pathogenic varieties (pathovars) of relatively few bacterial species. Consequently the Approved Lists did not list most of these nomenspecies, which thus lost standing in nomenclature. There was therefore concern that such species epithets might be revived for quite different bacteria and lead to much confusion in an area of great economic importance. The International Society of Plant Pathologists published a checklist of the earlier nomenspecies and pathovars [4] and advised that such names

should be revived only for the original bacteria. Sound recommendations were also given on the circumstances in which such revival would be justified. It was also noted that names that did cause confusion could be placed on the list of rejected names by the Judicial Commission, but clearly the smooth operation of the provisions for revived names requires the cooperation of bacteriologists in observing recommendations such as those made by the plant pathologists.

1. Rules Revision Committee, Judicial Commission, International Committee on Systematic Bacteriology. Proposals to Emend the International Code of Nomenclature of Bacteria. *Int J Syst Bacteriol* 1982;32:142–143.
2. Hill LR. International Committee on Systematic Bacteriology, XIII International Congress of Microbiology, Minutes of the Meetings, 7 and 13 August 1982. *Int J Syst Bacteriol* 1983;33:435–437.
3. Editorial Secretary. Judicial Commission of the International Committee on Systematic Bacteriology, Minutes of the Meeting, 6 August 1982, Boston, Massachusetts. *Int J Syst Bacteriol* 1986;36:577–578.
4. Dye DW, Bradbury JF, Goto M, Hayward AC, Lelliott RA et al. Standards for naming pathovars of phytopathogenic bacteria and a list of pathovar names and pathotype strains. *Rev Plant Pathol* 1980;59:153–168.

Fourteenth International Congress for Microbiology<sup>6</sup>  
Manchester, England, United Kingdom 1986

<sup>6</sup>In retrospect, the Fifth International Congress of Bacteriology and Applied Microbiology.

Several changes were made to the Code [1–6]. General Consideration 6 was emended to make clear that Opinions of the Judicial Commission do not require approval of the ICSB although the ICSB can rescind them. Citation of subgenera was clarified

(Rule 10c). Rule 12a was emended so that it was not necessary for species epithets to refer to a single concept. Rule 24b contains new provisions on priority of names published in the IJSB and its Validation Lists. A new provision was added to Rule 56 which permits the rejection of a name whose application is likely to lead to dangers to health or serious economic consequences (*a perilous name*). Opinion 58 of the Judicial Commission (see Appendix 5) confirmed that the nomenclatural types in the Approved Lists are to be accepted unless changed by the Commission. A list of all names validly published between 1 January 1980 and 1 January 1985 had been published in the IJSB [7].

1. Rules Revision Committee, Judicial Commission, International Committee on Systematic Bacteriology. Proposal to Emend the International Code of Nomenclature of Bacteria. *Int J Syst Bacteriol* 1985;35:123.
2. Rules Revision Committee, Judicial Commission, International Committee on Systematic Bacteriology. Proposals to Emend the International Code of Nomenclature of Bacteria. *Int J Syst Bacteriol* 1986;36:359.
3. Farmer JJ, III. Proposed Rewording of Rule 10c of the Bacteriological Code. *Int J Syst Bacteriol* 1985;35:222.
4. Lessel EF. Proposed modification of the International Code of Nomenclature of Bacteria as **it pertains to specific epithets**. *Int J Syst Bacteriol* 1986;36:490.
5. Jones D. Judicial Commission of the International Committee on Systematic Bacteriology, Minutes of the Meeting, 5 September 1986, Manchester, United Kingdom. *Int J Syst Bacteriol* 1987;37:85–87.
6. Hill LR. International Committee on Systematic Bacteriology, XIV International Congress of Microbiology, Minutes of the Meetings, 5, 6 and 9 September 1986, Manchester, United Kingdom. *Int J Syst Bacteriol* 1987;37:88–90.

7. Moore WEC, Cato EP, Moore LVH (eds). Index of the Bacterial and Yeast Nomenclatural Changes Published in the International Journal of Systematic Bacteria since the 1980 Approved Lists of Bacterial Names (1 January 1980 to 1 January 1985).  
*Int J Syst Bacteriol* 1985;35:382–407.

Fifteenth International Congress for Microbiology<sup>7</sup>  
Osaka, Japan 1990

<sup>7</sup>In retrospect, the Sixth International Congress of Bacteriology and Applied Microbiology.

Only one minor change was made to the Rules (Rule 33b), but a revision of Appendix 9 on Orthography was undertaken [1–4]. Grateful thanks are due to Professor T. O. MacAdoo for his expert advice on the new Appendix 9; a few changes were made in his draft where conventions of latinization and taxonomic precedent are not wholly concordant.

The Approved Lists were reprinted in 1989 [5], together with a list of names validly published in the IJSB (including names effectively published outside the IJSB but validated in the IJSB Validation Lists) between 1 January 1980 and 1 January 1989 [6]. For the first time all valid bacterial names (except the most recent) are available in two slim volumes (see Appendix 3). The list of names published after 1 January 1980 was compiled by Professors W. E. C. Moore and L. V. H. Moore, to whom grateful thanks are due.

A new edition of the Code was authorized at the Osaka Congress. It is appropriate to record the contribution of the late Dr. S. P. Lapage, who died in 1990 and to whom the revised Code is a fitting memorial. Thanks

are particularly due to Dr. L. G. Wayne and Professor W. E. C. Moore for their assistance in preparing the present volume.

1. Moore WEC. Proposal for **modification** of Rule 33b. *Int J Syst Bacteriol* 1990;40:216.
2. MacAdoo TO. Proposed **revision** of Appendix 9, Orthography, of the International Code of Nomenclature of Bacteria. *Int. J. Syst. Bacteriol.* 1990;40:103–104.
3. Wayne LG. Judicial Commission of the International Committee on Systematic Bacteriology, Minutes of the Meeting, 14 September 1990, Osaka, Japan. *Int J Syst Bacteriol* 1991;41:185–187.
4. Goodfellow M. International Committee on Systematic Bacteriology, XV International Congress of Microbiology, Minutes of the Meetings, 14, 15, and 18 September 1990, Osaka, Japan. *Int J Syst Bacteriol* 1991;41:188–189.
5. Skerman VBD, McGowan V, Sneath PHA (eds). *Approved Lists of Bacterial Names (Amended Edition)*. Washington, DC: American Society for Microbiology; 1989.
6. Moore WEC, Moore LVH (eds). *Index of the Bacterial and Yeast Nomenclatural Changes Published in the International Journal of Systematic Bacteriology since the 1980 Approved Lists of Bacterial Names (1 January 1980 to 1 January 1989)*. Washington, DC: American Society for Microbiology; 1989.

Seventh International Congress of Bacteriology and Applied Microbiology  
Prague, Czech Republic 1994

Few changes were made to the Code at the meeting in Prague [1, 2]. It was generally accepted that the Code should apply to all prokaryotes (i.e. members of the Bacteria and Archaea) [3, 4]. The issue of putative taxa (Candidatus) was also raised [5]. Work on examining the possibility of harmonizing the existing Codes of Nomenclature had also been initiated.

The topic was also raised concerning the recommendation that type strains be deposited in culture collections to the status of a Rule. Concern was expressed regarding strains that were involved in patent applications and were not readily available. The editorial secretary had also submitted a proposal to consider principles for the description of new taxa, with a view to assisting the subcommittees in drawing up minimal standards. The Judicial Commission noted that notification lists of names validated by original publication in the *International Journal of Systematic Bacteriology* had been established [6]. The Index of the Bacterial and Yeast Nomenclatural Changes published in the IJSB had been updated to cover the period 1980–1992 [7], but the future of this initiative was uncertain. Other topics discussed included the restructuring of the subcommittees and the establishment of reference service laboratories with excellence in particular methods.

1. Frederiksen W. Judicial Commission of the International Committee on Systematic Bacteriology, Minutes of the Meetings, 2 and 6 July 1994, Prague, Czech Republic. *Int J Syst Bacteriol* 1995;45:195–196.
2. Goodfellow M. International Committee on Systematic Bacteriology XVIth International Congress of Microbiology: Minutes of the Meetings, 2, 3, and 5 July 1994, Prague, Czech Republic. *Int J Syst Bacteriol* 1995;45:613–615.
3. Trüper HG. Names for higher taxa and their impact on the Code of Nomenclature of Bacteria. *Int J Syst Bacteriol* 1994;44:368–369.
4. Woese CR, Kandler O, Wheelis ML. Towards a natural system of organisms: proposal for the domains Archaea, Bacteria, and Eucarya. *Proc Natl Acad Sci USA* 1990;87:4578–4579.
5. Murray RGE, Schleifer KH. Taxonomic Notes: A proposal for recording the properties of putative taxa of procaryotes. *Int J Syst Bacteriol* 1994;44:174–176.

6. Wayne LG. Actions of the Judicial Commission of the International Committee on Systematic Bacteriology on Requests for Opinions published between January 1985 and July 1993. *Int J Syst Bacteriol* 1994;44:177–178.
7. Moore WEC, Moore LVH. *Index of the Bacterial and Yeast Nomenclatural Changes Published in the International Journal of Systematic Bacteriology Since the 1980 Approved Lists of Bacterial Names (1 January 1980 to 1 January 1992)*. Washington, DC: American Society for Microbiology; 1992.

Eighth International Congress of Bacteriology and Applied Microbiology  
Jerusalem, Israel 1996

Given the relatively short period of time between the present and previous congress few additional issues had been raised [1, 2, 3, 4 and 5]. The compulsory deposition of type strains was introduced into the wording of the Code [6, 7]. Further progress had been made on the wording of a BioCode, for which a first draft had become available [8]. In addition the fact that the American Society for Microbiology indicated that it may not be able to maintain publication of the *International Journal of Systematic Bacteriology* was discussed at length, with alternative publishers being considered.

1. Labeda DP. Judicial Commission of the International Committee on Systematic Bacteriology VIIIth International Congress of Microbiology and Applied Bacteriology: Minutes of the Meetings, 17 and 22 August 1996, Jerusalem, Israel. *Int J Syst Bacteriol* 1997a;47:240.
2. Labeda DP. International Committee on Systematic Bacteriology VIIth International Congress of Microbiology and Applied Bacteriology: Minutes of the Meetings, 17, 18, and 22 August 1996, Jerusalem, Israel. *Int J Syst Bacteriol* 1997b;47:597–600.
3. Judicial Commission. Opinion 68: Designation of strain B213c (=DSM 20284) in place of strain NCDO 1859 as the type strain of *Pediococcus acidilactici* Lindner 1887. *Int J Syst Bacteriol* 1996;46:835.

4. Murray RGE, Stackebrandt E. Taxonomic Note: Implementation of the provisional status Candidatus for **incompletely described procaryotes**. *Int J Syst Bacteriol* 1995;45:186–187.
5. Olsen I, Johnson JL, Moore LVH, Moore WEC. Rejection of *Clostridium putrificum* and **conservation** of *Clostridium botulinum* and *Clostridium sporogenes*: Request for an Opinion. *Int J Syst Bacteriol* 1995;45:414.
6. Labeda DP, Kurtzman CP, Swezey JL. Taxonomic Note: use of patent strains as type strains in valid description of new microbial taxa. *Int J Syst Bacteriol* 1995;45:868–869.
7. Murray RGE. Taxonomic Note: a Rule about **the deposition of type strains**. *Int J Syst Bacteriol* 1995;46:831.
8. Greuter W, Hawksworth DL, McNeill J, Mayo MA, Minelli A et al. 1996. Draft BioCode: the prospective international rules for the scientific names of organisms. Available online at: [www.bgbm.org/iapt/biocode/](http://www.bgbm.org/iapt/biocode/)

Ninth International Congress of Bacteriology and Applied Microbiology  
Sydney, Australia 1999

The meeting in Sydney [1, 2] saw a significant re-wording of the Code, largely based on the results of the participation discussions on the BioCode [3] Some of the issues raised had been the result of the need to clarify the workings of the present Bacteriological Code to colleagues representing the botanical, zoological, cultivated plant and virological Code, demonstrating a useful synergy. It was also noted that some changes made to the Bacteriological Code at the previous congress were retroactive and had undesirable effects on the standing of a number of names. Changes were also introduced to limit the possibility of correcting names as laid down in Rule 61. A consequence of this action was that more rigor would be needed when new names were submitted for valid publication. The most significant changes were fourfold. The *International Journal of Systematic Bacteriology* was now published by the Society for General Microbiology, Reading, UK, with there

being a smooth transition from the previous publisher, the ASM. It was also decided that the journal should change its name to the *International Journal of Systematic and Evolutionary Microbiology* (IJSEM) (which was formally notified, Stackebrandt and Tindall, 1999), which would also affect the wording of the Code. In addition, a proposal to change the name of the Code to the International Code of Nomenclature of Prokaryotes was accepted (*Editorial Note*: While not clear from the wording of the minutes the name of the Code can only change with the publication of a new edition). A consequence of this was that the ICSB was renamed to the International Committee on Systematics of Prokaryotes (ICSP).

1. Labeda DP. International Committee on Systematic Bacteriology; IXth International (IUMS) Congress of Bacteriology and Applied Microbiology; Minutes of the Meetings, 14 and 17 August 1999, Sydney, Australia. *Int J Syst Evol Microbiol* 2000;50:2245–2247.

2. De Vos P, Trüper HG. Judicial Commission of the International Committee on Systematic Bacteriology; IXth International (IUMS) Congress of Bacteriology and Applied Microbiology; Minutes of the Meetings, 14 and 17 August 1999, Sydney, Australia. *Int J Syst Evol Microbiol* 2000;50:2239–2244.

3. Stackebrandt E, Tindall BJ. International Journal of Systematic Bacteriology will become International Journal of Systematic and Evolutionary Microbiology from January 2000. *Int J Syst Evol Microbiol* 1999;49:1323.

Tenth International Congress of Bacteriology and Applied Microbiology  
Paris, France 2002

A number of refinements were made to the Code [1, 2]. These included ensuring that the new version of Rule 27 was not retroactive. Despite the importance of the Notification Lists, reference to them had not been made in the Code, which was corrected. A further consequence of changes made

at the last congress regulating the deposit of type strains in two different collections in two different countries it was felt that there was a need for the Editorial Board to be supplied with a “confirmation of deposit” confirming the availability of (type) strains from the culture collections. Corrections were also made with respect to the formation of names based on the names of certain inorganic ions. A key issue that had accompanied the Judicial Commission for many years was the problem of the nomenclature members of the genus *Salmonella*. The original Request for an Opinion could not be dealt with on the formal grounds that it asked the Commission to deal with a matter of taxonomic interpretation, not an issue solely relating to nomenclature. New Requests for Opinions had been received and allowed the Commission to re-evaluate this issue. After long deliberations, a solution was found, dealing with the nomenclature of members of this genus. However, although the Commission could formally rule on the nomenclature of members of this genus it was felt that readers not familiar with the consequences of these actions would need help interpreting the taxonomic consequences. It was decided that a separate publication should deal with this issue, which has appeared subsequently [3]. Minimal descriptive standards have been published for the family *Flavobacteriaceae* and genus *Helicobacter* [4, 5].

1. De Vos P, Trüper HG, Tindall BJ. Judicial Commission of the International Committee on Systematics of Prokaryotes; Xth International (IUMS) Congress of Bacteriology and Applied Microbiology; Minutes of the meetings, 28, 29 and 31 July and 1 August 2002, Paris, France. *Int J Syst Evol Microbiol* 2005;55:525–532.
2. Saddler GS. International Committee on Systematics of Prokaryotes; Xth International (IUMS) Congress of Bacteriology and Applied Microbiology; Minutes of the meetings, 28 and 30 July 2002, Paris, France. *Int J Syst Evol Microbiol* 2005;55: 533–537.

3. Tindall BJ, Grimont PAD, Garrity GM, Euzéby JP. Nomenclature and taxonomy of the genus *Salmonella*. *Int J Syst Evol Microbiol* 2005;55:521–524.
4. Bernardet J-F, Nakagawa Y, Holmes B. Subcommittee on the taxonomy of *Flavobacterium* and *Cytophaga*-like bacteria of the International Committee on Systematics of Prokaryotes. Proposed minimal standards for describing new taxa of the family *Flavobacteriaceae* and emended description of the family. *Int J Syst Evol Microbiol* 2002;52:1049–1070.
5. Dewhirst FE, Fox JG, On SL. Recommended minimal standards for describing new species of the genus *Helicobacter*. *Int J Syst Evol Microbiol* 2000;50:2231–2237.

Eleventh International Congress of Bacteriology and Applied Microbiology  
San Francisco, California, United States 2005

Further additions were needed to the Code [1, 2], including clarification that publication of a particular name in no way endorsed any opinions/claims made outside of taxonomy. Apart from a number of changes to the wording in the Code a key addition was made to Rule 30 3b) that required that “evidence must be presented that the cultures (of type strains) are present, viable and available at the time of publication,” further strengthening the basis for the issuing of a confirmation of deposit. Furthermore the issue of strains deposited under collection numbers solely for patent purposes was brought to a conclusion, with different national/international regulations being identified as part of the problem. It was decided that strains deposited in a fashion that restricts access (for patent purposes, safe deposits, etc.) may not serve as type strains. This action is also retroactive.

Problems were also perceived in the difficulty in always fulfilling the requirement to deposit type strains in two different collections in two different countries, especially where special facilities were required by the collections. As a consequence, allowances will be permitted for a limited

	<p>number of cases, but this will be dealt with by a small committee that may grant exceptions.</p> <p>Discussions on the issue of the fate of Requests for an Opinion indicated that there was a need to clarify the way the publications of Opinions were handled. It was generally agreed that the Judicial Commission should publish the results of their deliberations as an Opinion, irrespective of whether or not they were in agreement with the content of the Request. Copyright of the Code was transferred from IUMS to the ICSP.</p> <p>1. Tindall BJ, De Vos P, Trüper HG. Judicial Commission of the International Committee on Systematics of Prokaryotes; XIth International (IUMS) Congress of Bacteriology and Applied Microbiology: Minutes of the meetings, 23, 24 and 27 July 2005, San Francisco, CA, USA. <i>Int J Syst Evol Microbiol</i> 2008;58:1737–1745.</p> <p>2. Labeda DP, Oren A. International Committee on Systematics of Prokaryotes; XIth International (IUMS) Congress of Bacteriology and Applied Microbiology: Minutes of the meetings, 23, 24, 26 and 28 July 2005, San Francisco, CA, USA. <i>Int J Syst Evol Microbiol</i> 2008;58:1746–1752.</p> <p>Twelfth International Congress of Bacteriology and Applied Microbiology Istanbul, Turkey 2008</p> <p>A revision of Appendix 9 and inclusion of the <i>Candidatus</i> concept as a new appendix were reaffirmed but not yet available. An additional General Consideration was added to the Code. Cross-references have been added to General Considerations, Principles, Rules, and Appendices where possible. New examples from nomenclature have been introduced to replace many theoretical examples or those based on names that have been validly published.</p>	
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Rules 8 and 15 were modified. The Judicial Commission recommended deletion of Note 1 of Rule 24b with a modification of the wording of Rule 24b (yet to be drafted and approved). Modifications to Rules 24a and 37a were proposed but the wording is yet to be decided upon. The status of names validly published in IJSB between 1 January 1978 and 1 January 1980 were discussed in light of possible changes to Rule 24a. Citations of authors via Rule 40d were clarified.

Opinions 81-87 published since the previous meeting. Opinions 88-96 have been awarded but not yet published. Opinions 75, 79, and 83 were revisited.

Since the previous meeting, minimal descriptive standards have been published for the *Pasteurellaceae* [1] and *Halomonadaceae* [2], and an update of the minimal standards for the class *Mollicutes* (*Tenericutes*) has been published [3–6].

1. Christensen H, Kuhnert P, Busse H-J, Frederiksen WC, Bisgaard M. Proposed minimal standards for the description of genera, species and subspecies of the *Pasteurellaceae*. *Int J Syst Evol Microbiol* 2007;57:166–178.
2. Arahal DR, Vreeland RH, Litchfield CD, Mormile MR, Tindall BJ et al. Recommended minimal standards for describing new taxa of the family *Halomonadaceae*. *Int J Syst Evol Microbiol* 2007;57:2436–2446.
3. Brown DR, Whitcomb RF, Bradbury JM. Revised minimal standards for description of new species of the class *Mollicutes* (division *Tenericutes*). *Int J Syst Evol Microbiol* 2007;57:2703–2719.
4. Whitcomb RF. Evolution and devolution of minimal standards for descriptions of species of the class *Mollicutes*: analysis of two *Spiroplasma* descriptions. *Int J Syst Evol Microbiol* 2007;57:201–206.
5. Garrity GM, Labeda DP, Oren A. Judicial Commission of the International Committee on Systematics of Prokaryotes; XIIth International (IUMS)

Congress of Bacteriology and Applied Microbiology. Minutes of the meetings, 3, 4 and 6 August 2008, Istanbul, Turkey. *Int J Syst Evol Microbiol* 2011;61:2775–2780.

6. Labeda DP, Oren A. International Committee on Systematics of Prokaryotes, XIIth International (IUMS) Congress of Microbiology and Applied Bacteriology: Minutes of the meetings, 3, 4, 5 and 7 August 2008, Istanbul, Turkey. *Int J Syst Evol Microbiol* 2011;61:2781–2789.

Thirteenth International Congress of Bacteriology and Applied  
Microbiology  
Sapporo, Japan 2011

The Judicial Commission was inquorate and thus the scheduled meetings of the Executive Board and Judicial Commission of the International Committee on Systematics of Prokaryotes (ICSP) to be held in association with the Congress of the International Union of Microbiological Societies in Sapporo, Japan, in September 2011, did not take place. Nevertheless, the ICSP Executive Board did meet online during the last triennium to plan for the Fourteenth International Congress of Microbiology in Montreal. Revisions of the ICSP statutes were undertaken as a necessary step before revisions to the Prokaryotic Code could be undertaken.

No new Opinions were awarded and no new emendations were made to the Code. However, a draft of the new Appendix 11 had been circulated and is provisionally included with this revision of the Code (Tindall, unpublished). Additionally, therevised Appendix 9 has published [1].

Since the 2008 meeting, updated minimal descriptive standards have been published for *Halomonadaceae* [2], *Micrococccineae* [3], and for aerobic, endospore-forming bacteria [4].

1. Trüper HG, Euzéby JP. International Code of Nomenclature of Prokaryotes. Appendix 9: Orthography. *Int J Syst Evol Microbiol* 2009;59:2107–2113.
2. Arahall DR, Vreeland RH, Litchfield CD, Mormile MR, Tindall BJ *et al.* Recommended minimal standards for describing new taxa of the family Halomonadaceae. *Int J Syst Evol Microbiol* 2008;58:2673.
3. Schumann P, Kämpfer P, Busse H-J, Evtushenko LI, for the Subcommittee on the Taxonomy of the Suborder *Micrococccineae* of the International Committee on Systematics of Prokaryotes. Proposed minimal standards for describing new genera and species of the suborder *Micrococccineae*. *Int J Syst Evol Microbiol* 2009;59:1823–1849.
4. Logan NA, Berge O, Bishop AH, Busse H-J, De Vos P *et al.* Proposed minimal standards for describing new taxa of aerobic, endospore-forming bacteria. *Int J Syst Evol Microbiol* 2009;59:2114–2121.

Fourteenth International Congress of Bacteriology and Applied  
Microbiology  
Montréal, Québec, Canada 2014

A new edition of the Code has been completed and is planned to be published in electronic format. Updated Chapters 1-4 will be published in the *International Journal of Systematic and Evolutionary Microbiology*.

Since the 2011 Congress, updated minimal descriptive standards have been published for *Bifidobacterium*, *Lactobacillus* and related genera [1].

The last published Statutes of the International Committee on Systematic Bacteriology (ICSB), now the International Committee on Systematics of Prokaryotes (ICSP), were included in the 1990 Revision of the Code, and have remained largely unmodified since then. Many changes have occurred in microbiology and related fields in the intervening time and modifications of the Statutes are necessary. Some of these changes arise

from decisions made by the ICSB/ICSP at its periodic meetings that have coincided with the Congresses of the International Union of Microbiological Societies (IUMS). Other changes are prompted by changes in the manner in which the ICSP and its committees and subcommittees currently operate that were not foreseen when the Statutes were drafted and approved. The Publications Committee presented a new draft version of the Statutes [2]. Major changes in the proposed new version of the Statutes included:

- (1) Change of the name International Committee on Systematic Bacteriology to International Committee on Systematics of Prokaryotes and of *International Journal of Systematic Bacteriology* to *International Journal of Systematic and Evolutionary Microbiology* (IJSEM);
- (2) The option of electronic publication of the Statutes and electronic ballots, as approved by the ICSP at its meeting in Istanbul in 2008;
- (3) Abolishment of the function of Editorial Secretary largely due to changes in the way the editorial process is now conducted;
- (4) Changes in the description and operation of Subcommittees on Taxonomy, also based on current practice, including a means of automatically disbanding such subcommittees when their intended purpose may no longer be relevant;
- (5) Changes in the ways the Editor and Associate Editors of IJSEM are appointed to coincide with modern publishing practices.

During the Plenary Session, the draft statutes were again revised and subsequently published [3].

1. Mattarelli P, Holzapfel W, Franz CMAP, Endo A, Felis GE *et al.* Recommended minimal standards for description of new taxa of the genera *Bifidobacterium*, *Lactobacillus* and related genera. *Int J Syst Evol Microbiol* 2014;64: 1434-1451.

	<p>2. The Publications Committee of the ICSP. Statutes of the International Committee on Systematics of Prokaryotes. <i>Int J Syst Evol Microbiol</i> 2013;63:4361-4369.</p> <p>3. Labeda D, Whitman WB. Statutes of the International Committee on Systematics of Prokaryotes. <i>Int J Syst Evol Microbiol</i> 2015;65:1093–1100.</p>	
	<p>7<sup>th</sup> Congress of European Microbiologists Valencia, Spain, 2019</p>	
	<p>Meetings of the ICSP were held in July 2017 in conjunction with the 7<sup>th</sup> Congress of European Microbiologists.</p>	
	<p>Reports were received from the Officers of the ICSP and from the JC. A preprint version of the International Code of Nomenclature of Prokaryotes was noted to have been published online. A new publishing contract between the Microbiology Society and IUMS/ ICSP has been signed. Negotiations have been ongoing between the authors of the recent Code and Microbiology Society about the typesetting and the format in which the type-set version will be published in IJSEM.</p>	
	<p>A revision of the ICSP Statutes, proposed by the EB, was approved. The major changes are in Article 2a (Term of full members); Article 4 (Term of officers); Article 7 (Secretaries serving as ex officio voting members of the EB); Article 10 (Change of the JC quorum of votes for a favourable decision regarding an Opinion); and Article 13b (Clarification of the functions of the Editorial Board of the IJSEM regarding the Code).</p>	
	<p>Reports were received from <i>ad hoc</i> working groups on (1) the nomenclature of uncultured organisms; (2) improving the IJSEM; (3) the position of the ICSP on the Nagoya protocol; (4) education and outreach initiatives on systematics; (5) the organization and structure of the ICSP.</p>	
	<p>Dijkshoorn L. International Committee on Systematics of Prokaryotes. Minutes of the meetings, 7, 8 and 9 July 2017, Valencia, Spain. <i>Int J Syst Evol Microbiol</i> 2018;68:2104–2110.</p>	

	8 <sup>th</sup> Congress of European Microbiologists Glasgow, Scotland, UK, 2019	
	A mini-plenary open meeting of the ICSP was held on 11 July 2019 in conjunction with the 8 <sup>th</sup> Congress of European Microbiologists, in Glasgow, Scotland. The meeting was attended by 13 ICSP members or their alternates and four guests.	
	The revised version of the statutes of the ICSP, as detailed in Whitman <i>et al.</i> , <i>Int J Syst Evol Microbiol</i> 2019;69:584-593, were approved by electronic vote of the ICSP in June 2019 and so were noted to now be effective.	
	Reports were presented by the working groups on education and outreach and about the impact of the Nagoya protocol on the availability of type material. The status of the lists of <i>Candidatus</i> names, the preparation of which is in an advanced stage, was discussed.	
	Discussions were held about the proposal to allow gene sequences as type material. These discussions will be continued in future meetings of the ICSP.	
	Dijkshoorn L. Minutes of the International Committee on Systematics of Prokaryotes. Minutes of the miniplenary meeting 11 July 2019, Glasgow, Scotland. <i>Int J Syst Evol Microbiol</i> 2021;71:004706.	