Minutes

Gerry S. Saddler, *Executive
Secretary-Treasurer, ICSP*

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

Session 1

Minute 1. Call to order. Chairman E. Stackebrandt called the meeting to order at 15:00 on Sunday 28 July 2002 in le Palais des Congrès de Paris, Paris, France.

Minute 2. Record of attendance. Present were K. Bernard (Canada), H.-J. Busse (Austria), J. Chun (South Korea), P. De Vos (Belgium), R. Dunford (UK), J. P. Euzéby (France), G. M. Garrity (USA), M. Goodfellow (UK), P. A. D. Grimont (France), D. Hajsig (Croatia), S. L. Huang (Taiwan), F. Ibrahim (Indonesia), D. P. Labeda (USA), K. Lindström (Finland), A. Oren (Israel), A. C. Parte (UK), G. S. Saddler (UK), H. Sandoval (Mexico), E. Stackebrandt (Germany), J. T. Staley (USA), K. Suzuki (Japan), B. J. Tindall (Germany), M. Trujillo (UK), H. G. Trüper (Germany), A. Ventosa (Spain), N. Weiss (Germany) and S. S. Yang (Taiwan). Apologies for absence were received from L. Dicks (South Africa), P. L. Haghighi (Iran), G. P. Manfio (Brazil), V. T. Marteinson (Iceland), F. Priest (UK), M. J. Qureshi (Pakistan), Y. Ruifu (China), N. Uraih (Nigeria) and J. M. Young (New Zealand).

Minute 3. Agenda. The circulated agenda was adopted, although it was agreed to reschedule the Report from the Judicial Commission to the second session of this meeting.

Minute 4. Sydney meetings. The minutes of the meetings held in Sydney, Australia, were accepted with a minor modification [*Int J Syst Evol Microbiol* 50 (2000), 2245–2247]. Minute 20 should be corrected to read that the Judicial Commission recommended a change to the ‘Bacteriological Code’ that type strains should be deposited with two different culture collections and not to the ‘Guidelines for Authors to IJSB’ as originally recorded.

Minute 5. Matters arising. H. G. Trüper noted that time did not allow delegates to attend Committee meetings and the scientific sessions of the Congress. It was agreed to explore the possibility of holding Committee meetings prior to the start of future Congresses, possibly in a local academic institution, to avoid clashes. Funding for this arrangement could possibly be obtained from FEMS.

Minute 6. Report of the Chairman. Chairman

E. Stackebrandt reflected positively on the work of ICSP in the last 3 years. He highlighted the performance of ICSP’s journal, the *International Journal of Systematic and Evolutionary Microbiology* (IJSEM), since its publication was transferred to the Society for General Microbiology (SGM). He thanked A. C. Parte and R. Dunford for their work as Managing Editor and Deputy Managing Editor, respectively. He gave details of the ICSP web page (<http://www.the-icsp.org/>), listing contact details for the Executive Board of ICSP, members of Taxonomic Subcommittees and the taxa they cover. Hyperlinks allow users to view subcommittee minutes, details of forthcoming meetings and J. P. Euzéby’s *List of Bacterial Names with Standing in Nomenclature* (<http://www.bacterio.cict.fr/index.html>). The Chairman listed a number of meetings he had attended during the last 3 years, highlighting his participation at the IUMS Executive Board meeting, Cape Town, South Africa, 6–7 April 2001, at which he reported on the activities of ICSP. He also represented the committee at a number of additional meetings (ESA, OECD) and gave a brief description of two recent ad hoc meetings supported by ICSP, details of which are given in Minutes 11 and 12 of these minutes. The Chairman concluded by announcing his retirement as Chairman of ICSP and Editor of IJSEM at this Congress, thanking the committee for its support over the years.

Minute 7. Nominating Committee. The following individuals were appointed members of a nominating committee for the Executive Board, Editor of IJSEM and the Judicial Commission vacancies: D. P. Labeda, H. G. Trüper, E. Stackebrandt and G. M. Garrity.

Minute 8. Executive Secretary/Treasurer’s Report. G. S. Saddler listed a number of ‘nomenclatural’ changes that had occurred since the Sydney Congress to the Committee, the Code and the Journal, with the new names the ‘International Code of Nomenclature of Prokaryotes’, the ‘International Committee on Systematics of Prokaryotes’ and ‘*International Journal of Systematic and Evolutionary Microbiology*’, respectively.

He reported on the nomination process for The van Neil Prize. The committee’s nomination for this session was L. Wayne (USA) for his contribution to the biology of *Mycobacterium* and to bacterial systematics in general.

L. Wayne was duly awarded The van Neil Prize. The announcement was made during the IUMS Congress, and the Committee extended their congratulations to L. Wayne on this much-deserved award.

With regards to the secretarial work for the committee, 264 letters were sent out at the end of May 2001 to member societies seeking nominations for persons to serve on the ICSP. From this mailshot, only 38 responses were received, and three were sent back as 'addressee unknown'. Time did not allow a follow-up mailing. From the 38 respondents there have been eight subsequent apologies for absence at this meeting.

The current financial status of ICSP was also given.

Minute 9. Report of the Editor of the IJSEM.

E. Stackebrandt reported on the current status of IJSEM. He highlighted a slight drop in submissions to the journal in the preceding year but noted that the split of papers between bacteriology, mycology and protistology remained relatively constant at 94:3:3%. He welcomed the increasing use of Notes as opposed to full papers, highlighting the underlying requirement to accommodate more papers within the given page limit of the journal. He reported a slight decrease in the citation index from 3.503 for 1999 to 2.675 for 2000, noting that this may be due to the journal name change in 2000. The cited half-life has increased from 5.7 to 6.2 years.

The most active laboratories submitting manuscripts were located in Germany (53), USA (48), Japan (46), UK (27), France (25), Belgium (21), Republic of Korea (19) and People's Republic of China (18). The increased publication activity from East-Asian laboratories was particularly marked. On average, five authors appear on bacteriological papers, many of which have authorships that originate from three or four countries. As in previous years, the majority of manuscripts cover organisms of the phylum of Gram-positives and the class *Proteobacteria*. In both taxa, the submissions increased by about 10%, while the number of submissions for *Archaea* and other bacteria remained constant.

New combinations accounted for 74 submissions and six papers were received on the *Candidatus* status, about 90% of new genera and 80% of new species were published in IJSEM. An average publication time of 37 weeks after acceptance was reported. The ESPERE online submission system was noted as a success and currently around 64% of manuscripts were submitted in this way.

A brief discussion followed of the possibility of levying page charges on IJSEM at some future date; the consensus of the meeting was that charges should be resisted and strenuous efforts made to decrease the length of papers printed in the journal.

Minute 10. Report of the Secretary for Subcommittees.

M. Goodfellow reported that there are currently 24

subcommittees that show different levels of activity. Several are very well organized, meet regularly and clearly provide a valuable service to the microbiological community. Two new subcommittees have been set up since the Sydney Congress: *Micrococcineae* (Chairperson P. Schumann) and *Halomonadaceae* (Chairperson R. Vreeland), and a further subcommittee (methanogens; Chairperson E. Conway de Macario) has been reactivated. Subcommittees for *Enterobacteriaceae*, *Brucella*, *Neisseriaceae* and *Spirochaetales* remain to be activated. Since the Sydney Congress a total of 15 sets of Minutes from various subcommittees have been published, and a further five are in press. The Secretary singled out the paper by Vandamme & On [Int J Syst Evol Microbiol 51 (2001), 719–721] as an example of the type of publication that ICSP should encourage in future. A total of 16 subcommittees were scheduled to meet at the Paris Congress, though as noted in previous meetings of ICSP a number of subcommittees chose to meet instead at specialist conferences where generally a good turnout of interested parties was ensured.

A request from the subcommittee on *Pseudomonas* had been received suggesting that it should be subdivided into three separate subcommittees [(i) *Pseudomonas*, *Xanthomonas* and related taxa, (ii) *Comamonadaceae* and related taxa and (iii) *Burkholderia*, *Ralstonia* and related taxa] and this was accepted. Other matters raised by subcommittees were the requirement to establish a three-letter code for all generic names [see Trüper & Imhoff, Int J Syst Bacteriol 49 (1999), 925–926], but this was judged to be impractical. The need to improve the criteria for delineation between the genera *Agrobacterium* and *Rhizobium* was also requested; whilst it was recognized that this may be achievable at the species-level, generic delineation was clearly not easily resolvable in this case. A request to recognize the original authors of *Candidatus* species in the event that cultivation of the described taxa was achieved and a full description produced was discussed. It was noted that priority of publication would not apply in such cases but that best practice/recognition of earlier work should be encouraged. A. C. Parte asked if it might be possible to produce subcommittee minutes solely in an electronic form in future. M. Goodfellow noted that the production and citation of minutes appearing in IJSEM was a fair reward and a reflection of the efforts put in to producing subcommittee minutes. It was agreed to continue with the current practice of producing subcommittee minutes for publication in IJSEM.

Minute 11. Report on Special Symposium.

G. S. Saddler reported on the symposium '*Genomics: Beyond the Sequence*' held jointly with the Systematics and Evolution Group of SGM at Heriot-Watt University, Edinburgh, Scotland, UK, 24–30 March 2001. Funding was provided by SGM and the US National Science Foundation. The symposia were chaired by E. Stackebrandt, M. Goodfellow, J. T. Staley and G. S.

Saddler and the invited presentations included estimating rates of recombination in bacterial pathogens and their impact on speciation; tracing genomic flux, the evolution of genotype and its impact on phenotype; evolution of microbial eukaryotes and the impact of lateral gene transfer: *Rickettsia*, *Bartonella* and the origin of mitochondria; prokaryotic expression monitoring by differential display and microarray; comparative genomic analysis of bacterial pathogens and the use of transcriptional profile signatures as tools for understanding host–pathogen interactions and evolution of virulence traits. The topicality of the meeting was reflected by the interest it generated; attendances were over 200 for both days of the 2-day symposium. A number of the speakers prepared written contributions for publication in IJSEM. Thanks were extended to J. T. Staley for coordinating the application to NSF for financial support and for concluding the proceedings and to T. M. Embley (UK) for informal advice in developing the programme.

Minute 12. Report on the ad hoc committee on species definition. This committee was established to re-evaluate the species definition in bacteriology and was lead by E. Stackebrandt. Discussions took place in Gent, Belgium in February 2002 and were primarily driven by the growing sense that DNA–DNA hybridization may not be the most effective form of species delineation within all prokaryotes as it suffers from a high error rate and the fact that results may be open to interpretation. It was noted that sequence-based methods such as multilocus sequence typing (MLST) and fingerprinting methods such as AFLP were becoming more widely used and their continued use should be encouraged. It was stressed that these methods should be seen as additive rather than replacing the existing methods. A complete report from the committee has been produced [Stackebrandt *et al.*, *Int J Syst Evol Microbiol* 52 (2002), 1043–1047].

Minute 13. Stability and harmonization of bionomenclature and the Bacteriological Code update. B. J. Tindall reported that he and P. H. A. Sneath had represented ICSP in a number of discussions, detailing a brief history of the meetings that had taken place with colleagues responsible for the Botanical and Zoological Codes. He noted that issues such as dealing with ‘inter-regnal’ homonyms required greater cooperation between codes but that full harmonization remained some way off.

Minute 14. Adjournment. The session was adjourned at 17:15 on 28 July 2002.

Session 2

Minute 15. Call to order. The meeting was called to order by E. Stackebrandt at 09:00 on 30 July 2002.

Minute 16. Record of attendance. Present were V. Bondarenko (Russia), H.-J. Busse (Austria), J. Chun (South Korea), P. De Vos (Belgium), J. P. Euzéby

(France), G. M. Garrity (USA), E. Gavrish (Russia), M. Goodfellow (UK), F. Ibrahim (Indonesia), D. P. Labeda (USA), K. Lindström (Finland), A. Oren (Israel), A. C. Parte (UK), G. S. Saddler (UK), E. Stackebrandt (Germany), K. Suzuki (Japan), B. J. Tindall (Germany), A. Tripathi (India), H. G. Trüper (Germany), A. Ventosa (Spain), N. Weiss (Germany) and S. S. Yang (Taiwan).

Minute 17. Report of the Judicial Commission. H. G. Trüper presented the Judicial Commission report.

(i) **Retiring Commissioners.** The work of the retiring 19th Class of Commissioners, R. R. Colwell, M. Goodfellow, H. Prauser and J. T. Staley, was acknowledged.

(ii) **Opinions published.** During this 3-year term, the Commission decided that the date of valid publication of the genus name *Thermodesulfobacterium* and of the species names *Thermodesulfobacterium commune* and *Thermodesulfobacterium thermophilum* is 1995. *Thermodesulfobacterium mobile* Rozanova and Pivovarovova 1988 is an illegitimate, later synonym of *Thermodesulfobacterium thermophilum* [Opinion 71, *Int J Syst Evol Microbiol* 53 (2003), 927]. Strain DSM 6035 is the type strain of *Lactobacillus panis* with the consequence that the name *Lactobacillus panis* has been validly published [Opinion 72, *Int J Syst Evol Microbiol* 53 (2003), 929]. *Paenibacillus durus* Collins *et al.* 1994 (formerly *Clostridium durum* Smith and Cato 1974) has priority over *Paenibacillus azotofixans* Seldin *et al.* 1984 [Opinion 73, *Int J Syst Evol Microbiol* 53 (2003), 931]. Strain NCIMB 13488 may serve as the type strain of *Halorubrum trapanicum* [Opinion 74, *Int J Syst Evol Microbiol* 53 (2003), 931].

(iii) **Opinions awarded.** The Commission chairman then went onto list a further six requests that had recently been voted on by the Commission. These include: that the name of the genus *Methanothrix* and the name of the species *Methanothrix soehngenii* be considered as *nomina confusa* and be placed on the list of *nomina rejicienda*, and, as the logical consequence, the species *Methanothrix thermophila* be transferred to the genus *Methanosaeta* as *Methanosaeta thermophila* comb. nov. However, this vote failed to take into consideration that the wording of Rule 31a of the Code had been changed in such a way that this rule no longer makes references to mixed cultures. In light of these facts, further consideration is required by the Judicial Commission before an Opinion can be issued (Opinion 75); that the current type strain of *Streptomyces rameus* ATCC 21273 be replaced by strain IFO 3782 (Opinion 76); that *Paenibacillus polymyxa* be the type species of *Paenibacillus* (Opinion 77); that the name *Pelczaria aurantia* and the genus name *Pelczaria* be placed on the list of *nomina rejicienda* (Opinion 78); and that the corrected nomenclatural types of the orders *Acholeplasmatales*, *Haloanaerobiales*, *Halobacteriales*, *Methanobacteriales*, *Methanococcales*, *Methanomicrobiales*, *Planctomycetales*, *Prochlorales*, *Sulfolobales*, *Thermococcales*,

Thermoproteales and *Verrocomicrobiales* be accepted (Opinion 79). A request to conserve the names *Streptococcus sanguis*, *Streptococcus rattus*, *Streptococcus cricetus*, *Erwinia ananas*, *Eubacterium tarantellus*, *Lactobacillus sake*, *Nitrosococcus oceanus*, *Pseudomonas betle*, *Rickettsia canada* and *Streptomyces rangoon* was denied and therefore no Opinion will be issued.

(iv) **Opinions pending.** The Commission chairman outlined a number of related Requests for Opinions concerning the type species of the genus *Salmonella* and the nomenclatural standing of some species names within the genus. Discussions are minuted in the Judicial Commission Minutes [Minutes 14 and 18, Judicial Commission, *Int J Syst Evol Microbiol* **55** (2005), 525–532] and will form the basis of Opinion 80. In addition, Requests for Opinions have been received on the nomenclature of the subgenera *Moraxella* and *Branhamella* and the status of the species *Lactobacillus casei* and *Lactobacillus paracasei*; these will be considered in due course.

(v) **Proposals to amend the International Code of Nomenclature of Prokaryotes (ICNP).** A number of changes to the Code were also discussed. Proposals were received from J. P. Euzéby to amend Principle 6, Recommendation 6, Rules 27(2), 37a (1) and 65 and Appendix 9, and that a new Rule covering the use of Notification Lists in IJSEM be included in the Code, perhaps into Rule 27. J. P. Euzéby highlighted the need to write an Appendix to the Code to cover the *Candidatus* category that was adopted during 1996 meetings of the Judicial Commission. He also made recommendations for a number of ongoing problems, namely, the need for the Judicial Commission to decide on a number cases, namely (i) *Aeromonas punctata*, *Aeromonas punctata* subsp. *caviae* and *Aeromonas caviae*, (ii) *Thermus thermophilus* (ex Oshima and Imahori 1974) Williams *et al.* 1995 versus *Thermus thermophilus* (ex Oshima and Imahori 1974) Manaia *et al.* 1995, (iii) *Staphylococcus cohnii* subsp. *urealyticus*, (iv) *Micromonas*, (v) *Geodermatophilaceae* and (vi) *Edwardsiella anguillimortifera*/*Edwardsiella tarda*. J. P. Euzéby referred the Judicial Commission to a number of generic names that could potentially be viewed as *nomina perplexa* [see Rule 56a (4)] and suggested that the future edition of Code should appear on the Internet. The Judicial Commission also received a number of requests from B. J. Tindall relating to the use of patent strains as type strains, 'inter-regnal' homonyms, the need to publicize the use of the Code amongst the community of microbiologists, progress on the latest version of the Code and the suggestion to allow a 5-year period for the correction of typographic or orthographic errors, after which times names could not be changed. H. G. Trüper proposed a retroactive change to Rule 52 (2) to allow epithets formed from ordinal numbers. A request was also received from H.-J. Busse on the status of the genus *Kitasatospora* and a request for input from H. G. Trüper on the rewording of Appendix 9 of the Code was discussed, specifically on the use of

words derived from terms used in chemistry or physics. In all cases, requests were fully discussed and for many a period for further reflection was agreed upon prior to a formal decision being taken. Discussions are minuted in the Judicial Commission Minutes [Minutes 9, 13, 19 and 23, Judicial Commission, *Int J Syst Evol Microbiol* **55** (2005), 525–532].

Substantively, the ICSP fully endorsed the Judicial Commission proposals, recognizing the need to change Rule 27(2) and 52 (2) and Appendix 9 of the Code, the need to make more prominent the regulations governing the category *Candidatus*, that subcultures of type strains should be deposited in at least two different internationally recognized service culture collections and in two different countries (with only rare exceptions allowed), and that the use of strains solely deposited for patent purposes or a safe deposit should not serve as type strains.

Minute 18. Delineation of higher taxa – update.

Discussions are still ongoing on this topic and as yet no decision has been made on the delineation of higher taxa, which is still generally considered to be highly subjective in many cases. It was noted that sequence data from gyrase genes in particular when complementing the large dataset from 16S rRNA genes were being used to construct robust taxonomies, but that no minimal standards could be agreed upon at this time.

G. M. Garrity gave a brief description of the taxonomic outline of the prokaryotes based on the 16S rRNA gene tree, which would be used in the second edition of *Bergey's Manual of Systematic Bacteriology* (<http://www.cme.msu.edu/bergeys/april2001-genus.pdf>). He invited comment from members of the committee and from the Taxonomic Subcommittees.

Minute 19. Proposition by Christensen and colleagues.

E. Stackebrandt summarized the salient points of the paper [Christensen *et al.*, *Int J Syst Evol Microbiol* **51** (2001), 2221–2225], highlighting that around 40 % of genera and species were represented by single strains and that the authors proposed amending Recommendation 30b of the Code so that descriptions should in future be based on as many strains as possible (minimum five). ICSP recognized that, in many cases, such a move would equate with 'best practice', but stopped short of promoting this recommendation, as the consequence of doing so would greatly alter our current view of prokaryotic diversity. It was concluded that this paper should serve to remind systematists of best practice but that there should be no hindrance to the description of single-strain taxa in IJSEM.

Minute 20. Status of minimal descriptive standards.

M. Goodfellow gave details of the current status. Two sets of minimal standards have been published, for *Helicobacter* [Dewhirst *et al.*, *Int J Syst Evol Microbiol* **50** (2000), 2231–2237] and *Flavobacteriaceae* [Bernardet *et al.*, *Int*

J Syst Evol Microbiol **52** (2002), 1049–1070], since the Sydney Congress, and five are in preparation (*Bifidobacterium*, *Bacillus*, cyanobacteria, anoxygenic phototrophic bacteria and *Vibrionaceae*).

Minute 21. Future workshop. A number of possible future symposium topics were discussed and these include: bioinformatics and their impact on systematics, a workshop on higher taxa in prokaryotes and one on the harmonization of the codes of nomenclature. The committee would progress these ideas during the next 3 years.

Minute 22. ICSP statutes. It was noted that statutes would need to be changed to recognize the name change of the committee from ICSB to ICSP, and that the rules on Taxonomic Subcommittees needed updating.

Minute 23. Elections. E. Stackebrandt, for the nominating committee, presented a full slate of candidates for election as follows: for Chairman (E. Stackebrandt, retiring and not eligible for re-election), A. Oren (elected unanimously), for Vice-Chairman (D. P. Labeda, retiring), G. S. Saddler (elected unanimously), for Executive-Secretary-Treasurer (G. S. Saddler, retiring), D. P. Labeda (elected unanimously), for Secretary for Subcommittees (M. Goodfellow, retiring), J. Chun (elected unanimously).

Elections were held for the 22nd Class to replace the retiring 19th Class. The four Commissioners elected unopposed to the 22nd class were P. Kämpfer (Germany), N. A. Logan (UK), F. A. Rainey (USA) and R. Rosselló-Mora (Spain). H. G. Trüper was confirmed as the new Editor of the IJSEM (note: in the interim period since this meeting, H. G. Trüper has been succeeded as Editor of the IJSEM by P. Kämpfer).

Minute 24. ICSP Membership next triennial. The full Executive Board of ICSP for the next 3 years comprises A. Oren (Chairman), G. S. Saddler (Vice-Chairman), D. P. Labeda (Executive Secretary-Treasurer), J. Chun (Secretary for Subcommittees), P. De Vos (Editorial Secretary), K. Suzuki and A. Ventosa (Members-at-Large), H. G. Trüper (Chairman of the Judicial Commission) and B. J. Tindall (Vice-Chairman of the Judicial Commission).

Minute 25. Co-opted members. H.-J. Busse (Austria) was co-opted as a member of the ICSP for the next 3 years.

Minute 26. Any new business. None was noted.

Minute 27. Final Adjournment. The Chairman adjourned the meeting at 11:00 on 30 July 2002.