of statistical methods to the analysis of test results in the genus *Bacillus*.

Minute 14.4. D. Claus described a study of the citrate utilization test which had shown that the test as described in the Subcommittee's methods was very unreliable. The problem was overcome by addition of magnesium and potassium ions, suggesting that a better medium than S-C 18.1 should be developed.

Minute 14.5. A. A. Yousten described a study he had been carrying out with *B. sphaericus*, arising from its interest as a mosquito pathogen. DNA homology studies showed that at least five DNA subgroups exist.

Minute 15. Current membership. Current membership of the Subcommittee is as follows: D. Claus

(Chairman), Göttingen, F.R.G.; J. R. Norris (Secretary), Bristol, U.K.; E. Afrikanian, Abovian City, Armenian S.S.R.; K. Aizawa, Fukuoka, Japan; H. de Barjac, Paris, France; R. C. W. Berkeley, Bristol, U.K.; G. J. Bonde, Aarhus, Denmark; I. Epstein, Jerusalem, Israel; M. Goodfellow, Newcastle upon Tyne, U.K.; R. E. Gordon, Piscataway, N.J., U.S.A.; W. G. Murrell, North Ryde, N.S.W.; J. Wolf, Leeds, U.K.; F. E. Young, Rochester, N.Y., U.S.A.

Minute 16. Adjournment. After discussion of the contributions, the meeting was adjourned at 1650.

D. CLAUS, *Chairman*

International Committee on Systematic Bacteriology Subcommittee on the Taxonomy of *Bifidobacterium*

Minutes of the Meeting, 2 September 1978

Munich, F.R.G.

Minute 1. Call to order. The third closed meeting of the subcommittee was convened at 1500.

Minute 2. Record of attendance. Members present at the meeting were: O. Kandler (Chairman), G. Reuter (Secretary), K. W. Knox, T. Mitsuoka, M. Rogosa, V. Scardovi, M. E. Sharpe, and A. G. Stouthamer. The following were present as observers from the *Lactobacillus* Subcommittee: Hemme (representing G. Mocquot), London, and P. H. A. Sneath. Gherna, Lauer, and Sgorbati were present as invited guests.

Minute 3. Agenda. The proposed agenda of the meeting was accepted.

Minute 4. Minutes of the previous meeting. The minutes of the second meeting of the Subcommittee at the Frij University of Amsterdam were accepted.

Minute 5. Changes in membership. M. Rogosa announced that Prof. Dr. Kitahara had passed away and expressed the general appreciation of the subcommittee members with regard to his contributions. His proposal to send a letter of condolence to Dr. Kitahara's family was unanimously accepted.

Minute 6. List of approved names. The draft of the list of approved names, which had been circulated among the members before the meeting, was discussed and the following agreements were reached:

Minute 6.1. The proposed type strain of *Bifidobacterium bifidum*, "Ti," is maintained in the collection of the Pasteur Institute at Lille. Since some members who received the strain from H. Beerens during recent years had difficulties in growing the organism, Beerens and Mitsuoka, who may still have a living subculture, were asked to send the strain to Scardovi and Kandler

once more. If the strain still shows the characteristics of *B. bifidum*, it will be conclusively included as the type strain in the approved list. It will also be mailed to the American Type Culture Collection. If the reinvestigation is not successful, strain E 319 f, isolated by Reuter and investigated extensively by Scardovi and by Kandler and Lauer, will be listed as the type strain.

Minute 6.2. The type strain of *B. asteroides* has not been unequivocally designated. Although strain C51 is usually referred to as the type strain, strain C3, also isolated by Scardovi in his original study, fits the description of the species much better, as shown by the results of Lauer and Kandler (manuscript in preparation) circulated among the members of the Subcommittee. It was agreed to include C3 (ATCC 25909 = DSM 20431) as the type strain in the approved list.

Minute 6.3. The strains of *B. infantis*, *B. suis*, and *B. longum* are identical with respect to their murein type and the electrophoretic mobility of their lactic dehydrogenase and transaldolase. They also exhibit a high degree of deoxyribonucleic acid/deoxyribonucleic acid homology. They are therefore considered to belong to a single species, although they may be distinguished on the subspecies level on the grounds of differences in regard to sugar fermentation and growth requirements. However, a thorough publication demonstrating the necessary phenotypical criteria must be awaited in order to justify such a differentiation. Since *B. longum* has page priority, the names *B. infantis* and *B. suis* must be omitted from the list of approved names at this time.

Minute 6.4. *B. dentium* is identical with *B. eriksonii* with respect to phenotypic (Mitsuoka et al., 1974) as

well as genetic (Lauer and Kandler, in preparation) characteristics. Since the epithet *eriksonii* has priority, the name *B. dentium* must be replaced by *B. eriksonii* in the list of approved names. The type strain is ATCC 15423 = DSM 20084.

Minute 6.5. The names *B. coryneforme*, *B. globosum*, *B. cornutum*, *B. appendicitis*, and *B. parabifidum*, which had not been included in the approved list according to the minutes of the Amsterdam meeting, were again discussed. It was generally agreed either that they are synonyms or that the respective species have not been unequivocally defined. They should therefore definitely not be included in the list of approved names.

Minute 7. Minimum standards. The circulated draft was accepted subsequent to minor additions. It should be supplemented by a description of the methods for determining the electrophoretic mobility of transaldolase. Scardovi was asked to send the proper references and necessary additional descriptions to the secretary.

Minute 8. Open meeting. It was agreed to hold an open meeting on 5 September at 1430 prior to the meeting of the *Lactobacillus* Subcommittee. The following contributions were scheduled:

H. Beerens, C. Romond, and C. Neut: "Interet de la recherche de l'exigence des facteurs bifidus dans la taxonomie des espèces appartenant au genre *Bifidobacterium*"

K. W. Knox: "6-Deoxy-talose in the cell walls of bifidobacteria"

E. Sharpe: "Screening tests for differentiation of bifidobacteria from anaerobic lactobacilli"

Minute 9. Current membership. Current membership of the Subcommittee is as follows: O. Kandler (Chairman), Munich, F.R.G.; G. Reuter (Secretary), West Berlin, F.R.G.; H. Beerens, Lille, France; K. W. Knox, Sydney, Australia; T. Mitsuoka, Saitama, Japan; M. Rogosa, Bethesda, Md., U.S.A.; V. Scardovi, Bologna, Italy; M. E. Sharpe, Reading, U.K.; A. G. Stouthamer, Amsterdam, The Netherlands.

Minute 10. Next meeting. An invitation from Scardovi to hold the next meeting in 1980 in Bologna, Italy, was accepted.

Minute 11. Adjournment. The meeting was adjourned at 1830.

G. REUTER, *Secretary*

International Committee on Systematic Bacteriology Subcommittee on *Corynebacterium* and Coryneform Bacteria

Minutes of the Meeting, 3 and 4 September 1978

Munich, F.R.G.

Minute 1. Call to order. The meetings were called to order by the Secretary, R. M. Keddie, on 3 September at 900 and on 4 September at 1400.

Minute 2. Record of attendance. Members present at both meetings were: B. L. Beaman, R. M. Keddie, K. Komagata, and K. H. Schleifer.

Minute 3. Changes in membership. The Secretary reported that two new members, B. L. Beaman and R. Yanagawa, had been elected during the previous year.

Minute 4. Approved Lists of Bacterial Names. It was decided that time did not permit useful discussion of the large number of species within the Subcommittee's area. The Secretary therefore asked members to send him comments on the published *Lists* as soon as possible after the meetings.

Minute 5. Subcommittee activities. Since it was previously decided which genera should be the concern of this Subcommittee, one of the main objectives has been to prepare revised descriptions of these genera: *Corynebacterium*, *Arthrobacter*, *Cellulomonas*, *Microbacterium*, *Brevibacterium*, *Curtobac-*

terium, and *Kurthia*. Although the last-named genus does not have a coryneform morphology, it was thought most appropriate that it should be considered by this Subcommittee. Certain members prepared revised descriptions of the genera listed, and these were circulated prior to the present meetings and formed a basis for discussion at these meetings. Much of the time at both meetings was spent in discussing and revising these proposed generic descriptions. As a result, a large measure of agreement was reached on revised descriptions of the genera listed. These will now be considered by all the members of the Subcommittee, and it was suggested by Beaman that they should be published when final versions have been agreed. The other members present supported this suggestion. Schleifer pointed out that the genus *Brochothrix* (proposed by Sneath and Jones [Int. J. Syst. Bacteriol. 26:102-104, 1976] to accommodate the species *Microbacterium thermosphactum*) did not fall within the sphere of interest of this Subcommittee and that it might be more appropriate for it to be consid-