



INTERNATIONAL UNION OF GEOLOGICAL SCIENCES
INTERNATIONAL COMMISSION ON STRATIGRAPHY

CHAIRMAN

Prof. Jürgen REMANE
Université de Neuchâtel
Institut de Géologie
11, rue Emile-Argand
CH-2007 Neuchâtel
SWITZERLAND
TEL +41-32-718 2678 off.
+41-32-841 1380 home
FAX +41-32-718 2601
E-mail: jurgen.remane@geol.unine.ch

1ST VICE-CHAIRMAN

Dr. H. Richard LANE
National Science Foundation
4201 Wilson Blvd.
Room 785
Arlington VA 22230
USA
TEL +1-703-306-1551 off.
FAX +1-703-306-0382 off
TEL +1-703-294-6631 home
E-mail: hlane@nsf.gov.

SECRETARY GENERAL

Prof. Olaf MICHELSEN
Aarhus University
Dept. of Earth Sciences
DK-8000 Århus
DENMARK
TEL +45-89-422 522
FAX +45-89-422-525
E-mail: geolom@aau.dk

REPORT
on the vote about the demand to lower the
Plio-Pleistocene Boundary (PPB)

1. Introduction

Since several years, a certain number of Quaternary stratigraphers demand to lower the PPB from 1.8 Ma (top Olduvai in terms of the Geomagnetic Polarity Time Scale) where it was formally defined by a GSSP at Vrica in 1984, to 2.5 Ma (Gauss/Matuyama boundary). On the other hand, many stratigraphers are in favor of maintaining the existing boundary and its GSSP. The problem could not be resolved, as long as the Subcommittee on Quaternary Stratigraphy (SQS) had not submitted a scientifically substantiated demand to the Bureau of ICS. Through the intervention of the IUGS EC, an Ad-hoc Committee was established in 1996, constituted of 3 members each of the SQS and the Subcommittee on Neogene Stratigraphy (SNS), chaired by A. R. Palmer. The Ad-hoc Committee met in Strasbourg, France, in March 1997, unfortunately without coming to a conclusion. The whole matter was referred back to ICS, which was invited to organize a joint vote of SQS and SNS.

After having set a deadline for the vote, a submission from SQS was finally received by the end of August 1998. As this would have been the first case where a GSSP was to be abolished, it seemed absolutely necessary to have a clear, point by point confrontation of the arguments in favor and against a change, i.e. in favor of maintaining an officially ratified GSSP. Therefore the document provided by SQS was transmitted to SNS in order to give those pleading for the stability of chronostratigraphic nomenclature the opportunity to discuss the different arguments.

Both documents were then distributed to all voting members of SQS and SNS by the Secretary General of ICS, according to the membership lists provided by the concerned Subcommissions. A delay of 60 days was given to fill in and return the ballots to the Secretary General of ICS. The vote was a nominal one.

2. Results of the vote

2.1. Results of received ballots

SNS

27 voting members belonging only to SNS (+4 with double SNS/SQS membership).
Total of SNS (without the 4 double members):

22 of 27 members (= 81.5 %) have voted:

4 yes	1 abst.	17 no
18.2%	4.5%	77.3%

SQS voting members (e-mail 10. 9. 1998 and fax 9.9.1998)
 16 voting members of SQS (+4 with double membership).

Partridge, T.C.			
Schlüchter, Ch.	X		
Husen, D. van	X		
AN Zhisheng			
Dodonov, A.E.			X
Dodson, J.	X		
Feibel, C.S.			
Kolfschoten, Th.van	X		
Kordos, L.	X		
Kumai, H.			
Lindsay, E.H.	X		
Pillans, B.	X		
Richmond, G.M.			
Rose, J.			
Tyráček, J.	X		
Wood, B.			

Total of SQS (-4 with double membership):

9 of 16 members have voted	8 yes	0 abst.	1 no
56.3% has voted	88.9%	0%	11.1%

Total of SQS including 4 with double membership:

12 of 20 members have voted	9 yes	0 abst.	3 no
60% has voted	75%	0%	25

Total of SQS including 4 half votes with double membership:

10.5 of 18 members have voted	8.5 yes	0 abst.	2 no
58.3% has voted	81.0%	0%	19.0%

Double Memberships

Meyer, K.J.			
Shackleton, N.J.			X
Suc, J.P.	X		
Vai, G. B.			X

4 voting members of SNS and SQS with double membership.

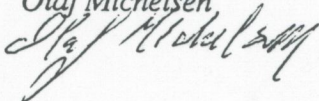
3 of 4 members have voted	1 yes	0 abst.	2 no
---------------------------	-------	---------	------

=====
Total (SNS + SQS)

34 of 47 members have voted	13	1	20
72.3% has voted	38.2%	2.9%	58.8%

Århus December 15th 1998

Olaf Michelsen



INTERNATIONAL COMMISSION ON STRATIGRAPHY (ICS)

**VOTE
ON REDEFINITION OF THE PLIOCENE-PLEISTOCENE BOUNDARY**

Deadline: 6th December, 1998 (counted 15th December 1998)

Yes Abstention No

SNS voting members (E-mail 31.8. 1998)

27 voting members of SNS (+4 with double membership).

Alekseev, M.N.		X
Antunes, M.T.		
Aubry, M.P.		X
Alvinerie, J.P.		
Backman, J.		X
Benson, R.H.	X	
Berggren, W.A.		X
Bernor, R.		
Beu, A.G.	X	
Civis, M.		
Gladenkov, Y.B.		X
Hinsch, W.	X	
Iaccarino, S.M.		X
Ingle, J.C. Jr.		X
Kennett, J.P.		
Kent, D.V.		X
Martinell, J.	X	
Martinotti, Guido M.		X
Meulenkamp, J.E.		X
Montanari, A.		X
Rio, D.		X
Rögl, F.		X
Semenenko, V.N.		X
Tsuchi, R.		X
Van Couvering, J.		X
Wang, Pinxian	X	
Zachariasse, W.J.		X

Total of SNS (-4 with double membership):

22 of 27 members have voted	4 yes	1 abst.	17 no
81.5 % has voted	18.2%	4.5%	77.3

Total of SNS including 4 with double membership:

25 of 31 members have voted	5 yes	1 abst.	19 no
80.6 % has voted	20%	4%	76

Total of SNS including 4 half votes with double membership:

23.5 of 29 members have voted	4.5	1	18
81.0 % has voted	19.1%	4.3%	76.6

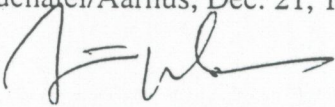
3. Concluding remarks

Despite the clear result of the vote, its acceptance by Quaternary stratigraphers remains uncertain. The fact that there is a formal boundary definition ratified by IUGS and INQUA was not always made sufficiently clear in recent publications. In some cases, the existing boundary was simply ignored and the base of the Quaternary placed at 2.5 Ma. This has emotionalized the discussion and led to polemic remarks in the SNS document which are indeed regrettable. But as the relevant arguments were nevertheless presented in a clear and objective manner, the ICS Bureau did not follow the demand of the Chairman of SQS to stop and run the vote again from the beginning with new documents.

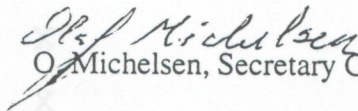
This demand is probably the reason for the relatively low participation of SQS in the vote. A simple calculation will, however, show that this has not influenced the outcome of the vote. Splitting the votes of the double members as above, but adding the 7 non-voters of SQS to the YES-votes would lead to a normalized result of 53.9% YES, 2.2% abstention and 44% NO, still clearly missing the score of 60% necessary for the acceptance of the change.

We therefore formally ask IUGS to use all its authority to ascertain that formally agreed boundary definitions be respected by the scientific community.

Neuchâtel/Aarhus, Dec. 21, 1998



J. Remane, Chairman of ICS



O. Michelsen, Secretary General of ICS

Member	Yes	No	Abst.
Alexeev, M.N.			
Antanas, M.T.			
Aubry, M.P.			
Avianche, J.P.			
Backman, J.			
Benson, R.H.			
Bergsten, W.A.			
Bertor, R.			
Ben, A.G.			
Civis, M.			
Gladkov, Y.B.			
Hirsch, W.			
Iaccarino, S.M.			
Ingle, J.C. Jr.			
Kennet, J.P.			
Kent, D.V.			
Marinelli, J.			
Marinotti, Guido M.			
Meulenkamp, J.E.			
Moutan, A.			
Rio, D.			
Rögl, F.			
Semenko, V.N.			
Tschir, R.			
Van Couvening, J.			
Wang, Pinxian			
Zacharias, W.J.			

Total of SNS (-4 with double membership):
 22 of 27 members have voted
 18.2% has voted
 4 yes 1 abst.
 17 no 7.3

Total of SNS including 4 with double membership:
 25 of 31 members have voted
 5 yes 1 abst.
 19 no

SQS

16 voting members belonging only to SQS (+4 with double membership).

Total of SQS (without the double members):

9 of 16 (= 56.3%) have voted

8 yes	0 abst.	1 no
88.9%	0	11.1%

Stratigraphers which are members of both Subcommissions

4 voting members of SNS and SQS with double membership.

3 of 4 members have voted:

1 yes	0 abst.	2 no
--------------	----------------	-------------

2.2. Overall result of the vote

Participation: 34 of 47 (72.3%) voting members have cast a vote

Out of these 13 (38.2%) have voted YES (= in favor of lowering the boundary)

20 (58.8%) have voted NO

and 1 abstention (2.9%) was registered.

The general tendency with SQS in favor of a change and SNS against is quite clear. But there are yes and no votes in both Subcommissions, and this speaks in favor of a vote based on objective criteria.

2.3. Normalized result of the vote

The above-mentioned values, interesting as they are, should, however, not be taken at face value. SNS has more members than SQS and both Subcommissions were to be given the same weight. The calculation of the normalized result was, however complicated by the 4 double memberships. In order to arrive at an equitable evaluation, the votes of the double members were split, attributing half a vote of each of them to each of the two Subcommissions.

This has led to the following results:

SNS: 22 votes from members belonging only to SNS, +3 half votes from double members (below)

	YES	abstain	NO	4
	1	17		
	0.5	-	1	
TOTAL	4.5 = 19.1%	1 = 4.3%	18 = 76.6%	

SQS: 9 votes from members belonging only to SQS, +3 half votes from double members (below)

	8	-	1
	0.5	-	1
TOTAL	8.5 = 81%		2 = 19%

Normalized mean

YES	abstain	NO
50.1%	2.2%	47.8%

According to the statutes and guidelines of ICS a majority of 60% of the delivered votes is required for the acceptance of a submission.

The demand to lower the Plio-Pleistocene boundary, abolishing its formal definition through the Vrica GSSP, is thus rejected.