INTERNATIONAL SUBCOMMISSION ON JURASSIC STRATIGRAPHY

Newsletter No. 20

Lyons, February 1991

A SUBCOMMISSION OF THE INTERNATIONAL UNION OF GEOLOGICAL SCIENCES (IUGS)

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CONTENTS

1. INFORMATIONS

With n° 20 starts a serie of newsletters edited by the new editorial staff. Since October 1990 after the Geological Congress in Washington D.C., Dr. R. ENAY and Dr. Ch. MANGOLD replace Dr. A. ZEISS and Dr. O. MICHELSEN respectively as chairman and secretary of the I.S.J.S. We congratulate the previous crew on the whole work he has done during last years.

Since 1986 our major tasks are to propose appropriate boundary stratotype section for each stage of the Jurassic system, but also for the system itself and his three subsystems. The earlier stage working groups are now named stage boundary working groups with the same convenors (see Newsletter n° 19, p. 4). After the Bathonian, the Lower Callovian boundary has been studied in Swabia (see the report 1, 3.2.). His proposal will be submitted to the I.S.J.S. and I.C.S. Bajocian working group will held a Conference in Isle of Skye (April 13th-20th, 1991) organized by Dr. Nicol MORTON.

We ask other working groups to present new studies on this topic at the 4th International Symposium on Jurassic stratigraphy in Poitiers (September 22th-29th, 1991). You will find at the end of this Newsletter (enclosure 3) a copy of the first Circular with a provisional participation form.

Budget of the Subcommission for 1990 is very small : we have only received 500 $ from the I.U.G.S. ; therefore this modic sum covers with difficulties the administration fees of the Subcommission.

2. CHAIRMAN'S EDITORIAL

As the past chairman and secretary presented a retrospect on the activities of the International Subcommission on Jurassic Stratigraphy during the last ten years, so what prospect for the next years ?

The Subcommission is already well implicated in a long term program on the boundary stratotypes. It will be still a large part of our activities. In the Informations part of this Newsletter, the secretary remembers the changing of the name of the Working Groups as "Stage boundary working groups". So there is no longer doubt as to the prior task of the Subcommission.

I should like to ask convenors for concentrating their attempts towards this goal. I know the problems and difficulties are quite different

from one stage (and working group) to another. That is the reason why the state of progress is not the same. But, many are actually ready to present proposals for most of the Middle Jurassic stage boundaries at the 3rd Symposium on Jurassic Stratigraphy in Poitiers. Others are in progress and all the convenors are to be congratulated for their activities.

The convenors play a major part in the stage boundary working groups activities to promote field meetings and, also, to obtain positive progress towards a proposal. I insist here for the choices of the meeting places being made on the possibility to visit exposures suitable as appropriate boundary stratotypes and to discuss them as possible candidates for a formalized proposal. We are all and always happy to meet together in the field. But, it is necessary it would be on the major target of the Subcommission.

The goal of the stage boundary working groups is to find appropriate boundary stratotypes and to discuss the potential candidates. And the choice will meet again the same problems as already quoted by the past chairman :

- sections without break at the boundary and documented by a continuous succession of guide fossils in the beds below and above the boundary ;

- potential type areas without too provincial faunal development and, as far as possible, diversified faunal content with elements useful for large scale correlations ;

- in the same way, facilities of large scale correlations using non-ammonite fossils groups, especially microfossils (nannoplancton, palynomorph...) and other stratigraphic tools (geochemistry, paleomagnetism...).

This last point cannot be neglected or underestimated. First, that ammonites are the reference fossil group for Jurassic stages is unquestionnable ! In favour of them, argue a long and successful history ! But, that is not the reason to forget they are missing or, when present, exceptionnally collected, in many areas and series whose stratigraphy is built by different ways.

Secondly, as we are close to be able to present some stage boundaries proposals, it is of my duty to remind you the procedure to be followed : the results of the work of the stage boundary working groups have to be first endorsed by the Subcommission ; where upon, the proposals will be presented to the International Commission on Stratigraphy by the

Subcommission (on behalf of the corresponding stage boundary working group). Such proposals have to be formalized so as to give all the data useful for being appreciated and voting by the ICS members[1].

Consequently, it is to be feared that boundary stratotypes proposals with definition and correlation by means of ammonites only would be rejected by the ICS and sent back for complement.

It would be best the complementary data to be obtained before we present the proposal : either samples or supply of the matrix would be offered for students (e.g. Callovian basal boundary stratotype by J. Callomon) or the appropriate studies would be achieved within enlarged working groups. In both situations, the convenors are concerned to promote all the suitable collaborations, in connection with the convenors of other appropriate working groups.

The 3rd International Symposium on Jurassic Stratigraphy in Poitiers, September 1991, will give opportunity for the convenors to report on the working group activities.

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[1] See "Episodes, vol. 10, n° 2, June 1987, p. 97-101" : Decision on the Boundary stratotype for the Middle-Upper Devonian Series Boundary, with comments by the chairman of the ISC, J.W. Cowie, under consideration of the criteria used in selection of a Global Stratotype Section and Point (GSSP).

3. ACTIVITIES OF THE SUBCOMMISSION

We draw convenor's attention to recommandations made by the I.C.I.S. on choice criterion of boundary sections adequate for manifold stratigraphic investigations : macro and microbiostratigraphies, magnetostratigraphy, geochronometry, geochemical datas and correlation table.

All the working groups are invited to prepare for the next three years their topics and the programm of activities :

- titre of research topic ;
- participants ;
- timing with starting and final points ;
- date of meetings...

Please send to the Subcommission programms, proposals, brief reports on each meeting and all informations.

3.1. Basal Boundary stratotype of the Bathonian stage

In Lisboa, at the 2nd International Symposium on Jurassic Sratigraphy (1987), INNOCENTI M., MANGOLD Ch., PAVIA G. & TORRENS H.S. have proposed the ravin du Bès section near Bas Auran, five km West of Barrême (05 - SE France) as Lower Bathonian boundary stratotype. This paper issued 1989 in the Symposium vol. 1 (1988) (ROCHA R.B. & SOARES A.F. eds) : p. 333-346.

The base of the Bathonian stage, therefore of the Zigzag Zone and the Convergens Subzone is stabilized at the bottom of bed 23 (golden spike).

If a majority of members of the Bathonian working group and also other interested people agree with this proposal, it will be submitted by the Subcommission to the International Commission on Stratigraphy (I.C.S.).

Enclosure n° 1 you will find a voting and proposal form, please send your opinion as soon as possible to Ch. MANGOLD, convenor of the working group.

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3.2. Callovian Boundary Working-Group

Proposals for the designation of a Basal Boundary Stratotype (GSSP) and the definition of the Stage.

Field Symposium held in Stuttgart and Albstadt-Ebingen, southern Germany, September 1990

Advances in the last ten years in our understanding of the biostratigraphy, principally of the ammonites, around the Bathonian-Callovian boundary in many parts of the world have encouraged the view that the time has come to attempt a formal definition of the Callovian Stage in terms of its lower boundary by means of a Basal Boundary Stratotype ("Global Stratotype Section and Point" - GSSP - of the International Commission on Stratigraphy, 1986). To this end, a meeting of the Callovian Working-Group was held in southern Germany from 16-21 September 1990, based on two venues : the "Museum am Löwentor", Stuttgart (Staatliches Museum für Naturkunde Stuttgart, SMNS) ; and the "Landessportschule" at Albstadt-Tailfingen, in the central Swabian Alb. The time in Stuttgart was devoted to presentations, discussions and study of collections, the most important of which are kept there. Albstadt was the base for field excursions to inspect the proposed stratotype section at nerby Pfeffingen and others in the region, going as far south as the classical area of the Wutach at Blumberg, near the Swiss border of Canton Schaffhausen. The members of the Working-Group present included G. DIETL, E. MÖNNIG, H.-J. NIEDERHÖFER, A ZEISS (Germany) ; E. CARIOU, C. MANGOLD Secretary of the ISJS, D. MARCHAND, J. THIERRY (France) ; R. GYGI (Switzerland) ; G. PAVIA (Italy) ; G. MELENDEZ (Spain) ; R. TARKOWSKI (Poland) ; A. GALACZ, B. GECZY, A. VÖRÖS (HUNGARY) ; E. PROSOROVSKAYA (U.R.S.S.) ; Jai KRISHNA (India) ; and the Convenor, J.H. CALLOMON (Great Britain).

The proposals fall into three parts : principles ; biostratigraphy ; and designation of type-section. They were presented orally by the Convenor of the Working-Group, J.H. CALLOMON, in an introductory exposition in Stuttgart and in a manuscript review by CALLOMON and DIETL distributed to participants. Further copies are available on request. The review and proposals will be published more widely at the

forthcoming 3rd International Symposium to be held in Poitiers in September 1991.

Principles. There was remarkable agreement on the principles to be followed in defining the Callovian Stage. They were essentially those expounded at the 1st Symposium in Erlangen in 1984 (CALLOMON 1985). Definitions are to be hierarchical. The Callovian Stage is one of the eleven Standard Stages that are serial subdivisions of the Jurassic System. The Callovian Stage is itwelf subdivided into Standard (chrono-) Zones, based on the biostratigraphy of the best available guide-fossils, the ammonites. Zones may be further subdivided into Standard Subzones, currently the members of the hierarchy of lowest rank. Subzones may be yet further subdivisible locally, in that it may be possible to recognize within them distinguishable faunal horizons. Such horizons need not fulfill the requirements of standard chronostratigraphy, of contiguity. They have the status of informal biostratigraphic units but may have value for time-correlation even if only locally. Definitions then proceed down the hierarchy. The lower boundary of the Callovian Stage is that of its lowest Standard Zone. The boundary of the lowest Zone is that of its lowest Subzone. And the most suitable level at which to draw the base of the basal Subzone is at a widely recognizable faunal horizon.

Bio- and chronostratigraphy. New sections in Germany and England have led to a major revision of the ammonite biostratigraphy and hence of the north-west European Subboreal Lower Callovian chronostratigraphy based upon it (CALLOMON, DIETL & PAGE, 1989 ; PAGE, 1989 ; CALLOMON, DIETL & NIEDERHÖFER, 1989). Large new collections have been made bed by bed. The type horizons of some classical species have been identified for the first time, and both the stratigraphical classification and zonal nomenclature of the Lower Callovian have been modified. The lowest standard Zone of the Callovian is now the Herveyi Zone, index *Macrocephalites herveyi* (J. SOWERBY, 1818), *nomen novum pro* Macrocephalus Zone *olim*, renamed because the type horizon of *Macrocephalites macrocephalus* (SCHLOTHEIM, 1813) has been found to lie higher. This is an example of a nomenclatural problem that can arise when the index-species of a standard Zone is subsequently found not to occur in its nominal Zone. The Herveyi Zone is subdivided into three Subzones, the lowest of which is the Keppleri Subzone, index *Kepplerites*

keppleri (OPPEL, 1862). The best-known faunal development of the Keppleri Subzone lies in the "Macrocephalen-Oolith" of the central Swabian Alb. Three faunally distinct horizons can there be clearly recognized : (c) *Cadoceras svevicum* ; (b) *Cadoceras quenstedti* ; and (a) *Kepplerites keppleri* at the base.

The *keppleri* horizon, or horizons of very closely similar ages, can be recognized over very large distances : from the Caucasus to southern Germany and the Swiss Jura, via northern Germany to southern England and thence to East Greenland ; in southern Alaska and British Columbia ; and thence possibly even in Japan. Such correlation-potential, at the level of something like half a Subzone, is almost unparalleled anywhere in the Jurassic, and makes the choice of the *keppleri* horizon as basal faunal horizon of the Keppleri Subzone, and hence of the Callovian Stage, almost automatic.

The next higher horizon, that of *Cadoceras quenstedti*, correlates closely with faunal horizons characterized by *Cadoceras elatmae* in the Volga Basin, the basis there for the Elatmae Zone, and hence gives correlative access to the vast area of the Russian Platform, from the Caucasus to arctic Siberia.

Boundary stratotype. The type series of OPPEL's *Amm. kepppleri* came from localities between Balingen and Eningen, near Reutlingen, 40 km to the NE. There is no natural exposure of the Macrocephalen-Oolith in this region that would be suitable as a permanently accessible stratotype. Even if there were, it would not last long at the hands of the numerous private fossil-collectors in search of specimens for their collections from a formation famous for the richness of its ammonites. The Macrocephalen-Oolith was therefore uncovered in a small excavation dug especially for the Symposium, in an area designated as a Nature Reserve in which geological collection is generally not permitted. It is proposed to put this section forward as the formal stratotype of the *keppleri* horizon of the Herveyi Zone, and hence as the basal boundary stratotype of the Callovian Stage. To protect it, the excavation will be filled in again. If can, however, be reopened with little effort at any time, if needed.

The information that can be obtained from such a small exposure is very limited - a limitation that probably applies to most formal boundary stratotypes, especially if their function is largely monumental. The choice of a stratotype is usually based on the accumulated evidence obtained in

the surrounding area. This is the case here. The deciding factor was a superb temporary exposure in trenches for deep drainage opened in 1986 in the centre of Albstadt-Pfeffingen, only 1 km east of the formal stratotype section. The succession is essentially identical with that at the stratotype, and during the lengthy period of the trench-excavation several thousand ammonites could be collected *in situ* from the Herveyi Zone by the personnel of the SMNS. This material is now in Stuttgart and available for study, together with the associated fauna. There is also a plentiful supply of the matrix for students of micropalaeontology, lithology and geochemistry. A palaeomagnetic survey is planned before the stratotype is again covered. Finally, a vertical section through the stratotype was removed and carefully reconstructed in the geological section of the local museum of natural history, the "Museum im Kraüterkasten" in Albstadt-Ebingen, jointly under the care of the communal authorities of Albstadt and of the SMNS in Stuttgart, of which it is provincial branch. The reconstructed section incorporates a Golden Spike, inserted at a suitable closing ceremony by the Oberürgermeister of Albstadt-Ebingen.

The ammonite fauna of the *keppleri* horizon of Pfeffingen was exhibited in Stuttgart as part of a demonstration of the faunal succession of the Swabian Callovian as a whole. The richness, quantity, state of preservation and beauty of preparation of the collections by the preparatory staff of the SMNS made an impression that was quite overwhelming. There can have been few demonstrations like it, ever, anywhere. The ammonite biostratigraphy of the early Callovian in Swabia is now without doubt the best-known in the world and unlikely to be surpassed.

Conclusions. After considering the arguments, studying the collections and inspecting the proposed stratotype section, the members of the Callovian Working-Group were invited to express their opinions. They voted to support the proposals that had been put forward, *nem. contra*. It was recommended that the proposals put forward be conveyed for ratification to the Subcommission on Jurassic Stratigraphy, and hence to the International Commission on Stratigraphy of the I.U.G.S.

Acknowledgments. The progress described in this review owes much to the efforts over the years by the staff of SMNS, notably Martin KAPITZKE, Hans-Jörg NIEDERHÖFER and Markus RIETER, under the guidance of

Gerd DIETL and with the assistance of Rolf HUGGER (Albstadt-Onstmettingen). Thanks are due to them, and to Gerd DIETL in particular, for all the work that went into marking the Symposium such an enjoyable and productive event. It is also a pleasure to acknowledge the financial and other material support given to the Symposium by the authorities of SMNS (B. ZIEGLER) and the town of Albstadt (Oberbürgermeister Hans PFARR).

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3.3. 2nd Oxfordian Boundary Working Group meeting
(Basel, September 10-15 1990)

INTRODUCTION (The general Problems)

Since its constitution in 1983 the work of the Oxfordian Working Group has been intense, mainly focusing on the questions of biostratigraphic correlation ; biostratigraphic scales and the proposition of a chronostratigraphic standard zonal scheme. Main results have been mostly achieved, up to the present, on the questions related to biostratigraphic scales and correlation. In that sense, the several working sessions of the group that have been held in all these years (Erlangen 1984, Lisbon 1987, Zaragoza 1988, Basel 1990) have led to a big progress on what concerns biostratigraphic correlation and knowledge of the detailed Oxfordian ammonite successions in different parts of the world.

A good agreement has also been reached on what concerns the possible subdivision of the Oxfordian Stage into substages. The resolution of the Jurassic Symposium of Luxembourg, 1962, is assumed (i.e. no specifical substages considered, but simply a practical subdivision into Lower Middle and Upper Oxfordian, their boundaries being placed, respectively, at the base of Mariae Zone, Scarburgense Subzone ; at the base of Plicatilis Zone, Vertebrate (or Tenuicostatum) Subzone, and at the base of Bimammatum Zone, Hypselum Subzone (see Enay & Meléndez, 1985). The Oxfordian-Kimmeridgian boundary would lay at the base of Platynota Zone, Orthosphinctes Subzone (cf. Atrops, 1982).

A much more controversial, and less worked out matter is that of the proposition of a standard chronostratigraphic scale and the definition of the basal boundary stratotype of the Oxfordian. And in that sense, we ought to admit that some other working groups, such as the Callovian Group, have reached much further. In fact, there is not a formally defined standard chronostratigraphic scale for the Oxfordian, although three separate reference zonal schemes are currently used by the most of the authors in the different biogeographic provinces : The classical scheme of Arkell (1956), based on Cardioceratids and Perisphinctids, for the NW Europe, Subboreal Province ; the also classical zonation scheme of the French Group (Cariou et al. 1971), based also on Cardioceratids and Perisphinctaceans, for the Submediterranean Province, and the more recently proposed zonal scheme by Sykes & Callomon (1979), based entirely on Cardioceratids ("The *Amoeboceras* zonation", for the Boreal Province).

Even more difficult is the question of the definition of the basal boundary stratotype. Here, the problems of correlation (derived from the strong provincialism) have made it difficult to take a decision on the more adequate region or section (on gap at the Callovian-Oxfordian boundary has made it almost impossible to think of a good continuous succession throughout the boundary. Furthermore the definition of the base of the lowermost unit of the basal zone has been the subject of controversies in these recent years (see Callomon 1990 for a summary). A personal proposal has been recently presented by Callomon (loc. cit.) at the 1st Oxfordian Meeting, in Zaragoza 1988. This proposal recovers the principles and definition published in the Proceedings of the first Jurassic Symposium at Luxembourg, 1962 (Callomon 1964). It considers the base of the Oxfordian to lie at the base of the Scarburgense Subzone and the proposed stratotype for the subzone to be in a section in Yorkshire at the locality of Osgodby Nab, near Scarborough Castle, Cayton Bay (see Callomon 1990 for details) recently described by J.K. Wright (1968, 1983). Discussions now are centered on the adequacy of this choice and on the real possibilities for correlation with other successions in the Submediterranean and Tethyan Provinces.

THE SECOND OXFORDIAN MEETING, BASEL

After the celebration of the first Oxfordian Meeting at Zaragoza, 1988, R. Gygi offered the possibility to organize the second meeting of the group at Basel and to prepare a three days field trip by the Upper Jurassic of the Swiss Jura. The meeting took place from September 10th to 15th and was superbly organized by R. Gygi, with an extremely detailed (and exact on time !) and interesting programme. Some 21 participants took part in the meeting from as many different countries as France (3), Switzerland (1), Germany (1), Spain (5), Portugal (1), Great Britain (1), Poland (8), Soviet Union (1), India (1), and Canada (1). A whole of thirteen papers were presented, most of them on ammonite successions, Biostratigraphy and correlations. Here, new sections and biostratigraphic results were described, from Tiaret, Algery (Atrops, Benest, Benosman) ; Iberian Spain and southern France (Atrops, Cariou, Fontana & Meléndez) ; northern Switzerland (Atrops & Gygi) ; India (Krishna) ; southern Poland (Malecki & Tarkowski) ; Majorca, E. Spain (Marquès & Olóriz), and Cuba (Myczynski & Wierzbowski). Specially interesting were some papers on the biostratigraphic value and possibilities for correlation of some particular groups of ammonites, such as Lower Oxfordian Perisphinctinae (Malecki & Tarkowski) ; Lower Oxfordian Peltoceratids

(Matyja), and Upper Oxfordian Subboreal *Ringsteadia* and other boreal groups from Central Poland (Wierzbowski).

Besides ammonite successions some other relevant problems were also exposed, concerning sedimentological studies, most of all within the frame of the Sequence Stratigraphy : Eustatic control on late Oxfordian to Kimmeridgian sedimentary cycles from Poland (Gutowski) ; Carbon and Oxygen Isotope curves (Hoffman et al.), and the Paleogeography of northeastern Iberian Platform (E. Spain) at the Callovian-Oxfordian boundary (Meléndez, Aurell & Fontana). These papers raised up a twofold question which was the matter of discussion during the field trip (and which continued still on and on during the subsequent Callovian Meeting !) : The paleogeography of the platform at the turn of the Callovian-Oxfordian boundary and nature and origin of the gaps (emersion or drowning by submersion ? subaerial denudation or submarine stratigraphic condensation ?), and the origin and sedimentary environment of iron oolites (marine-continental ; intertidal ? deep-water ? According to the authors (Meléndez et al. 1990), taphonomic analysis can supply good evidence to help us find a sound interpretation.

The field trip was introduced by R. Gygi at the Basel Museum ("The Oxfordian of Northern Switzerland") and during three days, from September 12th to 14th. We had an excellent view of the Upper Jurassic of the Swiss Jura, between Basel and Zurich, from Laufen to Liesberg (clay pits), the coral limestones and the lime works at the quarries of St. Ursanne, the biohermes and the limestone formations of the Gorges du Pichoux ; the Upper Callovian to Oxfordian successions at Péry, near La Reuchenette ; the quarries of Jacobsberg and Unterreg near Auerstein, with the Callovian-Oxfordian transition levels under oolitic facies and the Middle Oxfordian under the typical Birmensdorf-Effingen facies. The classical section of Holderbank, with an excellent succession at the Birmensdorf and Effingen Schichten and the remarkable ammonite succession from ? Lower Transversarium (or rather Middle Transversarium, Luciaeformis Subzone), up to Schilli Subzone within the Birmensdorf beds, which makes it very similar to what I am accustomed in the Iberian Chain. Middle and Upper Oxfordian successions were visited at Mellikon quarry ; at the Siblingen excavation and at the small excavation of Summerhalde in Schaffhausen, where we had the chance to touch the outcrop wherefrom the rich Uppermost Oxfordian to Lower Kimmeridgian collection studied by Atrops & Gygi for this meeting came.

Even more difficult is the question of the definition of the basal boundary stratotype. Here, the problems of correlation (derived from the strong provincialism) have made it difficult to take a decision on the more adequate region or section (on gap at the Callovian-Oxfordian boundary has made it almost impossible to think of a good continuous succession throughout the boundary. Furthermore the definition of the base of the lowermost unit of the basal zone has been the subject of controversies in these recent years (see Callomon 1990 for a summary). A personal proposal has been recently presented by Callomon (loc. cit.) at the 1st Oxfordian Meeting, in Zaragoza 1988. This proposal recovers the principles and definition published in the Proceedings of the first Jurassic Symposium at Luxembourg, 1962 (Callomon 1964). It considers the base of the Oxfordian to lie at the base of the Scarburgense Subzone and the proposed stratotype for the subzone to be in a section in Yorkshire at the locality of Osgodby Nab, near Scarborough Castle, Cayton Bay (see Callomon 1990 for details) recently described by J.K. Wright (1968, 1983). Discussions now are centered on the adequacy of this choice and on the real possibilities for correlation with other successions in the Submediterranean and Tethyan Provinces.

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THE OXFORDIAN GROUP WORKING SESSION

The working session of the group took place the last day in the afternoon and in the evening. It counted with the presence of the current chairman of the Jurassic Subcommission (Prof. R. Enay) and one of the members of the International Commission on Stratigraphy, Prof. J. Remane. Discussions were mainly concerned with the following items :

1. The position of the Oxfordian Stage lower boundary : At the base of the Scarburgense Subzone, Mariae Zone, according to the proposal made by Callomon (see above).

2. The definition of a basal boundary stratotype : Opinions at this point were divided between subboreal Britain and some other part of Europe, in southern France, South Germany ; Switzerland, or Poland. Most areas in southern Europe appear extremely inadequate for this purpose due to the juge, extended stratigraphic gap at the Callovian-Oxfordian boundary. The problem was postposed to the 3rd Oxfordian Meeting (Warsaw 1992) or else to the 4th Meeting, to be held in SE France (Castellane, 1994).

3. Standard chronostratigraphic scale : As already remarked (see the Introduction), a standard zone scheme for the Oxfordian Stage is still to be formally defined. Further progress on that point will largelly depend on the results achieved in biostratigraphic correlation and on the proposal of adequate sections for stratotypes of every formally defined stratigraphic unit. Work on that matter is well advanced in SE France, Iberian Chain (E. Spain) and Polish Jura, and it will be the main item for discussion at the next Working Group Meeting, at Warsaw.

4. Biostratigraphic Scales : Work and progress in refining biostratigraphic zonal schemes and correlation between different areas and/or provinces has been remarkable during the last years. A request was made, however, by the coordinator of the group not to multiply the number of biozonal schemes with new ones created in base of every group of ammonites (or other invertebrate group). It should be more advisable to show the short stratigraphic range of successive species of any group by making reference to the already existing and more widely used biozonal schemes.

5. Next meetings : The third meeting of the Oxfordian Working Group will be held in Warsaw, Poland, in September 1992, and it will be organized by A. Matyja and A. Wierzbowski ; **Dept. of Geology, University of Warsaw, Al. Zwirki i Wigury 93 : 02-089 Warszawa, Poland.** It will be a

sharing meeting of the Oxfordian and Kimmeridgian Working Groups (Anyone who wishes information on the Kimmeridgian Meeting can contact F. Atrops in Lyon). It will be mostly devoted to Biostratigraphy, correlation, and standard zonal schemes. The fourth meeting of the group, also together with the Kimmeridgian Group, will take place in SE France, Castelllane, en 1994, organized by F. Atrops and G. Meléndez. The main problem will be the definition of a basal boundary stratotype for the Oxfordian.

The next working session of the group will take place at Poitiers, during the III Jurassic Symposium, in September 1991.

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MELENDEZ, G., AURELL, M., FONTANA, B., LARDIES, M.D. (1990). "El tránsito Dogger-Malm en el sector nororiental de la Cordillera Ibérica : Análisis tafonómico y reconstrucción paleogeográfica". *Com. Reunión de Tafonomía y Fosilización*, pp. 221-229, Madrid, 1990.

SYKES, R.M., CALLOMON, J.H. (1979). "The *amoeboceras* zonation of the Boreal Upper Oxfordian". *Palaeontology*, 22, 4, pp. 839-903, pl. 112-121.

WRIGHT, J.K. (1968). "The stratigraphy of the Callovian rocks between Newtondale and the Scarborough Coast, Yorkshire". *Proceedings of the Geologises Association*, vol. 79, part 3, pp. 363-399, pl. 10-11.

WRIGHT, J.K. (1983). "The lower Oxfordian (Upper Jurassic) of North Yorkshire". *Proc. of the Yorkshire Geological Society*, vol. 44, part 3, n° 19, pp. 249-281, pls 18-22.

Guillermo Meléndez
Oxfordian Group, Coordinator

3.4. Report on the Voting about the future usage of the Kimmeridgian and Tithonian stage names (A. ZEISS):

The voting formulars and an explication about the necessarity to arrange this voting processus was sent out together with Newsletter No.19 of the ISJS, December 1989. The voting should be a postal ballot. We received the filled-in voting formulars from January to July 1990.

The voting concerned the following proposals:

"The Tithonian shall be used as the formal uppermost Jurassic stage name.

The Kimmeridgian shall be used only in the restricted sense (sensu gallico).

The Volgian can still be used in boreal and subboreal regions as the equivalent of the Tithonian stage until a better solution of the correlation problem has been obtained.

The Kimmeridgian sensu anglico and the Portlandian should not be used any more."

The following numbers of votes were received:

I.

From Voting members of ISJS	: 14
Yes	: 13
Abstention	: 1
No	: 0
In addition we have to note:	
Refused to vote	: 1
No answer	: 5

Number of Voting members 18 plus chairmen and secretary: 20

The Vote received a majority of 65% in favour of the Voting proposals as mentioned above. Due to the guidelines of the ICS the proposals are accepted.

II.
From corresponding members:

Yes	: 11
Abstention	: 1
No	: 2

In addition we have to note:

No answer	: 31
Want to stop the vote	: 1

The voting possibility was offered to the corresponding members to give them a possiblitiy to express their views and thus to get an information about the general opinion within the subcommission.

Taking into account that those, who are really interested in this question did answer, we can state, that the result of the voting reflects the general opinion during the sessions of the concernd Working Group Meetings at the Second Symposium on Jurassic Stratigraphy at Lissabon in 1987, where an overwhelming majority was in favour of our proposals.

(A.Zeiss, past chairman of the ISJS)

4. COMMENTS TO "JURASSIC STAGE BOUNDARIES IN SOUTH AMERICA" (A. v. HILLEBRANDT)

Supplementary stratotypes should be designated only if knowledge is sufficient, which presently is not the case for the Sinemurian and Pliensbachian. Conditions for stratotypes are: (1) continuous sections with as many ammonite horizons as possible, with good preservation; (2) not only the base of each stage but also the top of the preceding stage can be determined exactly; (3) ammonites are sufficiently described, preferably in monographs; (4) national aspects should not influence the designation of stratotypes.
Once fixed, stratotypes are difficult to eliminate from the literature after been proved unfit.

1. Base of Jurassic (Hettangian) (see also HILLEBRANDT 1988)

The lowermost zone of the South American Jurassic (P. tilmanni Zone) was found with well preserved ammonites only in Northern Peru (TILMANN 1917, PRINZ 1985). The Utcubamba valley is certainly fit for establishing a stratotype in this region, but more detailed investigations are necessary to find the best boundary section. In Northern Chile the P. tilmanni Zone was not yet proved.

2. Sinemurian

First it should be clarified which ammonite horizons are biostratigraphically corresponding with the basal Sinemurian (Conybeari Subzone) in Europe. The Marmoreum Zone (Northern Alps) is of late Hettangian age (BLOOS 1988). At least the deeper part of the Badouxia canadensis Zone (North America) is comparable with the Marmoreum Zone. This is valid for South and North America. Species similar to *Angulaticeras marmoreum* are also found in Argentina (RICCARDI et al. 1988) and Northern Chile. Together with these *Angulaticeras* occure giant Alsatitinae (cf. *Alpinoceras*) which are also typical for the Upper Hettangian. Above the horizons containing *A.* cf. *marmoreum* is a horizon containing *Pseudaetomoceras* which is of latest Hettangian or earliest Sinemurian age. Above this horizon follow horizons containing a species of *Coroniceras* without tubercles (?= *Metophioceras*) which is very similar to a species from the Conybeari Subzone of France (surroundings of Semur).
Good sections with the Hettangian/Sinemurian boundary are found in the Coastal Cordillera of Northern Chile, the Cordillera Domeyko (Northern Chile) (QUINZIO 1987) and the Mendoza Province (Arroyo Malo) (RICCARDI et al. 1988) in Argentina.
Before fixing a stratotype it is necessary to describe in detail the most important fossiliferous sections.

3. Pliensbachian

A preliminary zone of "Apoderoceras and Eoderoceras" was introduced as basal zone of the South American Pliensbachian by v. HILLEBRANDT (1987). Specimens found in Chile and Argentina were not well enough preserved for defining species. Moreover sections with well defined ammonite horizons of latest Sinemurian and earliest Pliensbachian age are not known.
At Arroyo El Pedrero (Rio Atuel, Mendoza province, Argentina) is a section with ammonite horizons of late Sinemurian and early Pliensbachian age, but the ammonites are not well enough preserved for an exact determination.
Two sections with ammonites of latest Sinemurian and basal Pliensbachian age are known from Northern Chile.

a) Quebrada Vaca Muerta:

Horizon with *Pseudoskirroceras wiedenmayeri* HILLEBRANDT (1981, pl. 3, text-figs. 8a-c) - latest Sinemurian.

Horizon with *Apoderoceras* (*Miltoceras*) sp. (HILLEBRANDT, 1987, pl. 1, text-figs. 11a, b) and *Eoderoceras* cf. *pinguecostatum* (BREMER) - basal Pliensbachian.

Horizon with *Dubariceras* cf. freboldi DOMM., MOUTERDE & RIVAS (=*Uptonia* cf.*obso - soleta* (Simpson) in v. HILLEBRANDT 1981, pl. 5, figs 2a, b) - early Pliensbachian.

b) Quebrada Doña Ines Chica (see also CHONG & HILLEBRANDT 1985, p. 1-190).

Horizon with *Paltechioceras* sp. - latest Sinemurian.

Horizons (difficult to separate) with *Apoderoceras* (*Miltoceras*), *Eoderoceras, Dubariceras* and *Tropidoceras* - early Pliensbachian.

4. Toarcian

HILLEBRANDT & SCHMIDT-EFFING (1981) defined the Simplex Subzone as basal zone of the South American Toarcian. This zone was also accepted by SCHLATTER (1982) (see also FISCHER 1984, p. 36). The Simplex Subzone was certainly proven up to now only in Northern Chile at Quebrada Chanchoquin (HILLEBRANDT & SCHMIDT-EFFING 1981, text-fig. 11). At the moment this is the only locality that should be considered as a supplementary stratotype.

5. Bathonian

New Bajocian/Bathonian boundary sections were found in the Precordillera of Northern Chile. Determination of the ammonites will perhaps deliver additional information on the basal Bathonian.

6. Callovian

In Northern Chile several sections are found which could be useful as supplementary stratotypes. Probably these sections are more useful than the Chacay Melehue section in the Neuquen province of Argentina. The latest, at least the upper Bathonian can be better defined in Northern Chile (e.g. with *Epistrenoceras*, *Parapatoceras*, *Hemigarantia*). The*Choffatia jupiter* Horizon (Riccardi et al. 1988) includes the late Bathonian *Epistrenoceras* .

7. Oxfordian

The Callovian/Oxfordian boundary in Northern Chile can be best defined with Peltoceratinae. A manuscript on the ammonites (mostly Peltoceratinae) of this interval is nearly finished by Gröschke und v. Hillebrandt. The Cerro Amarillo section described by GRÖSCHKE & HILLEBRANDT (1985, fig. 4, p. 141-145) is probably the best section for a supplementary stratotype.

8. Kimmeridgian

Horizons containing *Cubaspidoceras*, below, and *Orthaspidoceras*, above, a very characteristic gypsum are typical in Northern Chile. Up to now it is unknown whether the horizons containing *Cubaspidoceras* are of the latest Oxfordian or earliest Kimmeridgian age. It is difficult to select a supplementary stratotype because most sections near the gypsum are folded. Undisturbed sections and ammonites are rare.

BLOOS, G. (1988): *Ammonites marmoreus* OPPEL (Schlotheimiidae) im unteren Lias (angulata-Zone, depressa-Subzone) von Württemberg (Südwestdeutschland).- Stuttgarter Beitr. Naturk., Ser. B, 141, 47 pp., 11 text-figs., 3 tabs, 11 pls.; Stuttgart.

CHONG D., G. & HILLEBRANDT, A. v. (1985): El Triásico Preandino de Chile entre los 23°30' y 26°00' de Lat. Sur.- Actas IV Congr. Geol. Chile, 1, 1-162 - 1-210, 4 text-figs., 1 tab., 4 pls.; Antofagasta, Chile.

FISCHER, R. (1984): Some problems of Toarcian Biostratigraphy.- International Symposium on Jurassic Stratigraphy, Symposium volume I, 30 - 44, 3 text-figs.; Erlangen.

GRÖSCHKE, M. & HILLEBRANDT, A. v. (1984): Trias und Jura in der mittleren Cordillera Domeyko von Chile (23°30'-24°30').- N. Jb. Paläont. Abh., 170, 129-166, 10 text-figs.; Stuttgart.

HILLEBRANDT, A. v. (1981): Faunas de amonites del liasico inferior y medio (Hettangiano hasta Pliensbachiano) de America del Sur (excluyendo Argentina).- In: Cuencas sedimentarias del Jurásico y Cretácico de América del Sur, 2: 499-538, 10 pls.; Buenos Aires.

HILLEBRANDT, A. v. (1987): Liassic ammonite zones of South America and correlations with other provinces - Description of new genera and species of ammonites.- In: Bioestratigrafía de los Sistemas Regionales del Jurásico y Cretácico en América del Sur, 111-157, 2 text-figs., 2 tabs., 14 pls.; Mendoza.

HILLEBRANDT, A. v. (1988): Ammonite Biostratigraphy of the South American Hettangian - Description of two new species of Psiloceras.- In: 2nd Int. Symp. Jurassic Strat., 1, 55-70, 2 text-figs., 1 pl.; Lisbon.

HILLEBRANDT, A. v. & SCHMIDT-EFFING, R. (1981): Ammoniten aus dem Toarcium (Jura) von Chile (Südamerika). Die Arten der Gattungen Dactylioceras, Nodicoeloceras, Peronoceras und Collina.- Zitteliana, 6, 74 pp., 26 text-figs., 8 pls.; München.

PRINZ, P. (1985): Stratigraphie und Ammonitenfauna der Pucara-Gruppe (Obertrias-Unterjura) von Nord-Peru.- Palaeontographica Abt. A, 188, 153-197, 25 text-figs., 4 pls.; Stuttgart.

QUINZIO, S., L.A. (1987): Stratigraphische Untersuchungen im Unterjura des Südteils der Provinz Antofagasta in Nord-Chile.- Berliner Geowiss. Abh., A 87, 105 pp., 32 text-figs., 3 tab., 5 pls.; Berlin.

RICCARDI, A.C.; DAMBORENA, S.E.; MANCEÑIDO, M.O. & BALLENT, S.C. (1988): Hettangiano y Sinemuriano marinos en Argentina.- V Congr. Geol. Chileno, Santiago, 8-12 Agosto 1988, 2, C 359-C373, 2 text-figs., 3 pl.; Santiago de Chile.

RICCARDI, A.C.; WESTERMANN, G.E.G. & ELMI, S. (1988): The Bathonian - Callovian Ammonite Zones of the Argentine - Chilean Andes.- 2nd Int. Symp. Jurassic Strat., 347-358, 3 text-figs., 1 tab.; Lisboa.

SCHLATTER, R. (1982): Zur Grenze Pliensbachian-Toarcian im Klettgau (Kanton Schaffhausen, Schweiz).- Eclogae geol. Helv., 75 (3), 759-771, 1 fig., 1 pl.; Basel.

TILMANN, N. (1917): Die Fauna des Unteren Lias in Nord- und Mittelperu.- N. Jb. Geol., B.-B. 41, 628-712, 5 text-figs., pls. 21-26 ; Stuttgart.

5. ANNOUNCEMENTS

5.1. Aalenian-Bajocian W.G.

Conference on Aalenian - Bajocian Stratigraphy Isle of Skye (Scotland), April 13th -20th 1991

Second Circular, November 1990

Arrangements are now almost complete for the joint meeting of the Aalenian and Bajocian Working Groups to be held in the Isle of Skye, North-West Scotland, in April 1991. One of the main purposes of the conference is to enable recommendations for selection of Global Boundary Stratotype and Point (GSSP) for the bases of the Aalenian and Bajocian Stages to be prepared for the next meeting of the Jurassic Subcommission, in Poitiers during September 1991. There will also be field excursions to examine the Jurassic geology of Skye and Raasay, with particular emphasis on the Aalenian and Bajocian rocks. More than 30 responses to the first circular, from 12 countries, have been received. To date sponsorship of the conference has been offered by BP Exploration and Fina Exploration.

Scientific proceedings

Topics for discussion

The following topics are proposed for discussion, and contributions are invited, for oral communication or as a poster presentation :

1. The Toarcian-Aalenian and Aalenian-Bajocian stage boundaries, selection of GSSP and possible Auxiliary Stratotype Points and formal definition of the bases of the Aalenian and Bajocian Stages.

2. Refinement and development of regional and inter-regional zonal and subzonal schemes for the Aalenian and Bajocian.

3. Integration of ammonite biostratigraphy with micro- and nanno-fossil biostratigraphy, magnetostratigraphy and other methods of dating and correlation.

4. Dating Aalenian - Bajocian eustatic sea level and tectonic events, and comparisons between different areas.

Abstracts

Intending contributors should submit the abstract of their communication, which should not exceed two A4 pages of double-spaced text with adequate margins, in a format similar to that of this circular if possible. These must be received by the conference organisor by the 1st March to be included in the conference programme. Please indicate whether the paper will be for oral or poster presentation.

Publication

Acceptable papers presented at the conference will be edited rapidly and published by Birkbeck College as a special conference volume using an Apple Mackintosh system. It is intended that publication will be in time for the Jurassic conference in September 1991. A strict deadline of 15th May for receipt by the editor will have to be imposed if this is to be achieved. Detailed instructions, and a prepared disc if submission in this form is possible, will be provided for authors.

Field trips

There will be three full days of field trips to examine the Jurassic of Skye and Raasay, and a field guide will be provided. Delegates are warned that some walking in rough terrain will be required and that adequate footwear and warm and waterproof clothing are advised. Weather in the area is very unpredictable, but the scenery is always magnificent.

1. (a) Bearreraig (most of the day to allow plenty of time for collecting samples): type section of the Bearreraig Sandstone Formation, with succession from uppermost Toarcian Aalensis Subzone to Lower Bajocian Humphriesianum Zone, possible GSSP for base of Bajocian Stage, type locality of *Ammonites Murchisonae* Sowerby; and much else;

(b) Rigg: thick fossiliferous section in lower two subzones of Humphriesianum Zone;

(c) Torvaig (time permitting): type locality of *Dorsetensia hebridica* Morton.

2. Isle of Raasay : sections in Lower and Middle Jurassic at various localities according to delegates' preferences and time available; structural style of Hebrides Basin and demonstration of genetic sequences.

3. Broadford and Strathaird : outcrops in the Lower and Middle Jurassic and introduction to the Central Skye Tertiary plutonic igneous centre.

In addition to the Jurassic geology a great variety of outstanding geological and geomorphological phenomena will be seen.

Conference venue

The conference sessions will be held in the Council Chambers of the Skye and Lochalsh District Council in Portree, Isle of Skye, which is within five minutes walk of the conference hotel. The main conference room has full projection facilities, including two screens for projection, two 35mm slide projectors and an overhead projector. Posters will be displayed in a separate room, which will also be the venue for coffee and tea intervals.

Conference hotel

The main hotel which will be used to accommodate delegates throughout the conference is the Rosedale Hotel (proprietor Mr. Hugh Andrew), Portree, Isle of Skye, IV51 9DB, tel. 0478 2531 (international 44 478 2531). This is a small hotel specially chosen for its spectacular situation and excellent food, and all rooms (twin, double, single) have private facilities. The conference fee includes full board, with packed lunch when appropriate.

Travel arrangements

The normal conference fee includes transport by coach between Inverness Airport and the Isle of Skye and return (journey time approx. 3 hrs), and all local travel including the ferry to/from Raasay.

For travel between London and Inverness a special group return fare of £120 has been negotiated with Dan-Air, and to ensure seat availability provisional reservations for 25 seats have been made for the flights specified below. These must be reviewed in mid January when a 10% deposit is required, and final confirmation with full payment must be received by the airline by early March. Payments should be made to the conference organisor, and details of the conference bank account for all payments are given below.

Please note that payment in advance must be made for travel between London and Inverness, so that if you wish to take advantage of the special fare the following deadlines, which are the last possible dates, must be strictly adhered to :
1. Provisional reservation and payment of £12 deposit by 15th January (subsequent cancellation is possible before the second deadline);
2. Confirmation and payment of balance of £108 by 1st March.

Arrival

Delegates travelling by air should arrange to arrive at London Heathrow Airport on Saturday 13th April in time to connect with **Dan-Air flight DA156** to Inverness, departing from **Terminal 1 at 13.40** and arriving Inverness at 15.05.
[N.B. Most European flights to London Heathrow by British Airways will arrive at Terminal 1, allow 1 hr. for transfer; most other airlines will arrive at Terminal 2, allow 1hr20mins for transfer. In each case you should pass through passport control and customs with baggage before proceeding to the Domestic Flight check-in.]

A Skye-Ways Travel coach will meet the flight at Inverness Airport (Dalcross) for onward travel to Portree, Isle of Skye (via Loch Ness - keep a sharp look-out for the Monster !).

Departure

The coach will depart from Portree on Saturday 20th April in time to connect with **Dan-Air flight DA155 departing Inverness at 11.35 to London Heathrow Terminal 1 arriving 13.05.** This should be in time to connect with onward flights to most destinations.

Alternative travel

Delegates wishing to make their own independent travel arrangements should travel directly to Portree. Alternatively arrangements for the coach to stop at Inverness Rail Station may be possible - please contact the conference organisor as soon as possible if you wish to make other arangements.

Provisional programme

Sat. 13th April: Arrive Portree late afternoon and register at hotel; Welcome reception by Skye and Lochalsh District Council.

Sun. 14th April : Morning - free; meeting of ERASMUS group; Afternoon - visit to historic Dunvegan Castle and gardens; coach tour of Northern Skye.

Mon. 15th April : Morning and early afternoon - first conference session. Late afternoon - visit to Talisker Distillery (the only distillery in Skye) to see production of and taste this highly reputed single malt whisky. If time and weather permit we may visit Glenbrittle to see the Cuillins.

Tues. 16th April : Morning and afternoon - second conference session.

Wed. 17th April : Field trip to Bearreraig (with access facilitated by the North of Scotland Hydro-Electric Board), Rigg and (possibly) Torvaig.

Thur. 18th April : Field trip to Raasay, via Sconser-Raasay ferry.

Frid. 19th April : Field trip to Broadford area and to Strathaird.

Sat. 20th April : Depart Portree in morning for travel to Inverness and on.

Cost

The total cost for the conference is expected to be £330. This includes full board accommodation, local travel and all visits, abstracts and field guide, and a copy of the conference proceedings. It does not include return travel by Dan-Air flights between London and Inverness, for which the additional cost, £120, is indicated in the section on Travel.

Payment of travel and conference fees should be made as follows :

Travel -
1. £12 deposit for London to Inverness flight by 15th January.
2. £108 balance for London to Inverness flight by 1st March.

Conference -
3. £330 for accommodation, local travel etc. by 10th March.

Payment

Payments should be sent to Dr. N. Morton, Department of Geology, Birkbeck College, University of London, Malet Street, London WC1E 7HX, and payable to Dr. N. Morton Conference Account.

Alternatively payment should be made directly to the special conference account :

Account : Dr. N. Morton Conference Account; Acount number : 27554066

Bank : National Westminster Bank,
P.O. Box No. 86,
46, High Street,
Brentwood,
Essex CM14 4AL,
Great Britain.
Bank sort code : 60-03-25.

Please complete and return (to Dr. Nicol Morton) the attached registration form if you plan to attend the conference. We look forward to welcoming you to Scotland, and in particular to the Isles of Skye and Raasay. We can promise that you will have a rewarding visit and an unforgetable experience.

Prof. Antonio Goy
Chairman Aalenian W.G.
Universidad Complutense
Madrid

Prof. Giulio Pavia
Chairman Bajocian W.G.
Universita degli Studi
Torino

Dr. Nicol Morton
Conf. Organisor
Birkbeck College
Univ. of London

26th November 1990.

Registration form : see enclosure n° 2.

5.2. 3rd International Symposium on Jurassic Stratigraphy, Poitiers (F) 1991

INTERNATIONAL SUBCOMMISSION ON JURASSIC STRATIGRAPHY

1991 POITIERS

3rd INTERNATIONAL SYMPOSIUM ON JURASSIC STRATIGRAPHY

POITIERS (FRANCE), September 22-29 1991

First Circular

The third symposium will be held in Poitiers (France) during the period September 22-29 1991

Before and after the scientific sessions (September 24-27), the following field trips are proposed.

a) pre-Symposium field trip (September 22-23)

Cross section in the classic Jurassic series from the northern Aquitaine basin to the South of Paris basin (including the Toarcian stratotype).

b) post-Symposium field trip (September 28-29)

The Jurassic reef formations on the northern margin of the Aquitaine Basin.

During the sessions, four topics are proposed :

Section 1 - Paleontological methods of stratigraphy. Subdivision of the Jurassic system by different fossil groups. System, stage and substage boundaries in terms of standard chronostratigraphy.

Section 2 - Other methods : radiochronology, mineralo-stratigraphy, magnetostratigraphy, seismic stratigraphy, etc...

Section 3 - Integrated stratigraphy : Tectonic, sedimentological and eustatic approaches. Paleogeographical and paleobiogeographical implications.

Section 4 - Climates and environments : multidisciplinary methods (geochemistry, sedimentology, ecology, etc...).

Official and working languages of the Symposium will be French and English.

Provisional participation form : see enclosure n° 3.

5.3. International program of Geological correlation
Project presented by A.C. Riccardi

Short title: Jurassic Events

Full title: Jurassic Events in South America

Nature of the Project: Correlation of Jurassic Events at the Stage level, and regional scale to global scale.

Correlation: regional, intercontinental and global.

Brief outline: Definition and correlation of local and regional events (transgressions, regressions, changes of sea level, migration of sedimentary basins, paleogeographic changes, geographic and chronologic biotic changes, oceanic connections and climatic patterns, magmatic and magnetic events) on the basis of data from sedimentology, petrology, macro- and micropaleontology, sequential stratigraphy, geochronology. Data will be compiled in local and regional correlation charts and paleogeographic reconstructions for each Jurassic stage.

Estimated duration: 5 years.

Tentative work schedule:

1. Compilation of chronologically significative data from paleontology and isotope dating, and from all related disciplines.
2. Comparison and interpretation of all data.
3. Definition of local chronostratigraphic units (boundary stratotypes), and correlation with the Global Chronostratigraphic Scale.
4. Completion of correlation charts and paleogeographic maps for each Jurassic stage.

Concrete Results:

a) Theoretical: Understanding of all aspects of regional Jurassic geology at the Stage level.

b) Applied: Correlation charts of different events and paleogeographic maps are essential for exploration of mineral resources.

Short term results:

1. In 2 years selection and study of prospective local stratotypes for the different Jurassic Stages of South America.
2. In 3-4 years a set of local chronostratigraphic scales tied to the Standard Global Chronostratigraphic Scale.
3. In 5 years correlation charts and paleogeographic maps for all stages of the Jurassic of the area.

Present State of activities:

There are numerous individuals in different countries engaged in studies directly or indirectly related to one or several subjects included in this proposal. And one IGCP Project, No. 171, on the Circum Pacific Jurassic, now completed, provided basic information on some aspects of the Jurassic of South America. This proposal will continue and improve for the area studies done within that project. Related studies on the Cretaceous of the same area are under way within IGCP 242 Cretaceous of Latin America.

Countries and Institutions

Researchers from the following countries and institutions have been invited to participate:

Argentina

Facultad de Ciencias Naturales y Museo, Universidad Nacional de La Plata.

Museo Argentino de Ciencias Naturales "Bernardino Rivadavia", Buenos Aires.

Departamento de Geología, Universidad Nacional del Sur.

Servicio Nacional de Geología, Buenos Aires.

Universidad Nacional de la Patagonia, C. Rivadavia.

Brazil

Instituto de Geologia, Universidade Sao Paulo.

Chile

Servicio Geològico Nacional, Santiago.

Departamento de Geologia, Universidad de Chile, Santiago.

Departamento de Geologia, Universidad de Concepciòn.

Departamento de Geologia, Universidad de Antofagasta.

ENAP, Punta Arenas.

Colombia

Departamento de Geociencias, Universidad Nacional de Colombia, Bogotà.

Perù

INGEMMET, Lima.

Venezuela

Instituto Venezolano de Investigaciones Cientificas, Caracas.

Uruguay

Major field activities

1991. Field conference on the Jurassic of central west Argentina and central Chile.

1992. Field conference on the Jurassic of northern Chile.

1993. Field conference on the Jurassic of Colombia.

1994. Field conference on the Jurassic of Perù.

1995. Field conference on the Jurassic of Brazil.

Further remarks

To reach an agreement on the correlation of local and regional events is basic for an accurate reconstruction of the Jurassic of South America. In order to attain such a goal it is necessary to compile and analyze a large amount of data from different disciplines, all of which requires international and interdisciplinary cooperation. The benefits are obvious, i.e. production and correlation of local stratigraphic scales; paleogeographic reconstructions for each stage on a regional scale; establishment of a reference system for other studies, including applied geology; international cooperation to equalize the knowledge of the Jurassic of South America in relation to other areas of the world.

Description of the Proposed Project

1. Compilation for each Stage of chronologically significant data from paleontology and isotope dating. These data will include: stratigraphic and geographic distribution of all fossil groups usable for zonation and correlation; isotope chronology from sedimentary and igneous rocks.

Compilation of data from all related disciplines on a Stage basis, including the following: lithologic and paleontologic data bearing on facies and basin analysis, climatology, paleoecology, land-sea distribution, sea connections.

2. All data will be analyzed for each Stage to obtain conclusions on: paleobiogeography, history of the sedimentary basins, paleoclimatology, paleooceanology, magmatic and diastrophic history.

3. Definition of local and regional stratigraphic units as a basis for correlation and reference system. These will include the following: use of all available information to define boundary stratotypes for each local stage; correlation between the regional and the global scales.

4. Finally correlation charts and paleogeographic maps at the Stage level will be produced. These will include: correlation charts for local basins and regions; on litho-, bio- and chronostratigraphic units; paleogeographic maps on basinal and regional scales for each Jurassic Stage.

Work Plan

The activities of this project will be assigned to Working Groups (WG) by areas and research subjects. Each area will be covered by a Local Working Group, i.e. Southern Patagonia, Central Patagonia, central west Argentina and central Chile, northern Chile, Perú, Ecuador-Colombia and Venezuela, Brazil-Uruguay and Paraguay. Each Local Working Group will include specialists on different research subjects (paleontology, sedimentology, petrology, biostratigraphy, geochronology, regional geology, basin analysis). Most of these specialists will be part, at the same time, of Regional Working Groups on research subjects (biostratigraphy, magmatism, paleogeography, etc.). The Regional Working Groups will have teams focused on the Early, Middle and Late Jurassic.

Work Plan Schedule

1990. Compilation of chronologically significative data from paleontology and isotope dating.

1991. Project members compile data from all related disciplines and request contributions from other specialists.

1992. Analysis and correlation of all data.

1993. Definition of local and regional stratigraphic units.

1994. Project members complete reports, correlation charts and paleogeographic maps, including all compiled and produced information.

See enclosure n°4.

5.4. 29th International Geological Congress, Kyoto

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International Union of Geological Sciences

Memorandum

June 18, 1990

To : IUGS Commissions

From : Secretary General

Subject : Sundry Matters

Both the new IUGS Bureau and Executive Committee are working well together. The minutes of the Executive Committee meeting held in Moscow in February will be mailed to you in the next week or two. The following are items that arose from a Bureau meeting held 3 weeks ago in the Washington, D.C. area.

I. 29th International Geological Congress

a) Sponsorship of IGC Symposia. Copies of the First Circular for the 29th IGC have been distributed. If you have not received one please notify the Organizing Committee. If your organization wishes to co-sponsor any of the symposia listed in the Circular, please notify the *Organizing Committee, IGC-92 Office, P.O. Box 65, Tsukuba, Ibaraki 305, JAPAN.*

b) Exhibits. If your Commission wishes to prepare an exhibit for the 29th IGC, to be part of a larger IUGS exhibit, please advise me how many square meters of space you will need and what facilities. I strongly advise you to do this to advertise the activities of your Commission.

c) Business meetings. If you wish to have business meeting(s) at the Congress, please let me know, using the enclosed form. If you have already notified the Organizing Committee, (which my previous instructions told you to do), please ignore this message.

II. Rouble account

You were previously informed that an IUGS account in roubles is held for us by the USSR NC for Geology. This account is available to pay costs of travel, room and board, within the Soviet Union for approved meetings and/or field trips of your Commission. Use of this account does not require repayment to IUGS. To apply to use the account, please write Dr. Michael Schmidt-Thomé, the IUGS Treasurer, listing the purpose of the meeting, place, dates, attendees and other relevant details.

III. Comments

Please let me know if you have any comments or criticisms that you believe will improve IUGS. What can we do to help you in your Commission's work? I know that asking for more money immediately comes to mind, but please don't, we are working on it.

Attachment

Rob. Brett

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1 - Do you agree with the Lisboa Proposal ?

YES ☒ NO ☐

(im Prinzip) but

2 - If Yes

are you interested by microbiostratigraphical studies on the section ?

Which paleontological groups :

Name and adress :

Collaborating scientists :

3 - If No

- Why ?

Additional

- Other proposal : Before a formal voting the proposed stratotype should be demonstrated in the field to the members of JSJS.

12.5.91

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Aalenian and Bajocian Working Groups
Conference in Isle of Skye (Scotland), April 13th-20th 1991

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Travel arrangements : Please indicate your travel requirements -
Reserve Dan-Air flights London-Inverness
Deposit of £12 must be paid by 15th January
Balance of £108 must be paid by 1st March

Independent travel arrangements

Signature Date

ENCLOSURE N° 3

INTERNATIONAL SUBCOMMISSION ON JURASSIC STRATIGRAPHY

—

3rd INTERNATIONAL SYMPOSIUM ON JURASSIC STRATIGRAPHY

PROVISIONAL PARTICIPATION FORM

To be filled and returned until September 30st 1990 to :

3rd International Symposium on Jurassic Stratigraphy
Université de Poitiers, Géologie stratigraphique et structurale
40, Avenue du Recteur Pineau
86022 POITIERS Cédex - FRANCE

Surname : _____ First name : _____

Institution/Company : _____

Address : _____

(Number and street)

_____

(Postal code) (City) (Country)

_____

(Phone n°) (Telex n°)

	Yes	No
Do you intend to participate in the 3rd I.S.J.S.	[ ]	[ ]
Do you intend to present		
1a. Single-authored paper	[ ]	[ ]
1b. Co-authored paper	[ ]	[ ]
2a. Oral presentation	[ ]	[ ]
2b. Poster presentation	[ ]	[ ]
2c. Any other	[ ]	[ ]

	Yes	No
Do you intend to participate in field trips		
a) pre-Symposium	[ ]	[ ]
b) post-Symposium	[ ]	[ ]
Do you require accomodation in Poitiers	[ ]	[ ]
Will you bring accompanying participants	[ ]	[ ]

Please note the number of communications according to the sections of the first circular :

Section 1 [ ] Section 2 [ ] Section 3 [ ] Section 4 [ ]

Suggestions to the Organising Committee : _____

_____

_____