THE REFORM OF COMMERCIAL ARBITRATION PROCEDURE

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MAJOR CONSTRUCTION CASES AND HOW THEY ARE DEALT

INTERNATIONALLY

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When one speaks of problems in international arbitration and of the need for reform, construction cases are among the first which come to mind. Typically they involve great numbers of claims, large volumes of documents, difficult technical issues and tedious quantification questions; they often concern large amounts of money, last for long periods and are costly.

30 minutes are of course too short to fully describe problems and the directions in which improvements might be sought; this paper, therefore, must be limited to a short overview.

I will start this overview with some case histories which might assist in locating the problems and identifying the stages of the proceedings on which most of the time and costs are spent. I will then consider some of the practical matters in these proceedings and possible improvements; in particular I will address questions concerning the organization of the procedure, documentary and witness evidence and questions relating to experts and expertise.
1. **Case histories**

   The first two cases arose out of contracts for tunnelling work, an area of construction where unexpected conditions and disputes are particularly frequent. One of these tunnelling cases is well known in Europe, even beyond the arbitration community, the other perhaps less so. I will start with the less known case.

   This case belongs to the increasing number of disputes involving international organizations such as those concerning the Tin Council, the arbitration of Westland Helicopters vs. the Arab Organisation for Industrialization and others, the Arab Monetary Fund case and the pending ICC arbitration by an unsuccessful tenderer acting under the Lomé III Convention against an organization of African States.

   Our case concerns the European Organization of Nuclear Research (CERN) and a group of contractors led by Fougerolle. Like these other cases involving international organizations, it raises very interesting issues in the border region between public international law and the domestic and possibly international law of contracts and a number of other issues, including that of sovereign immunity. These issues may have to be considered when dealing with the reform of arbitration law applicable to one of the world's major arbitration centers; but they fall outside the scope of my topic and I will
have to limit the following account to procedural aspects typical of construction disputes.

The arbitration between Fougerolle and others vs. CERN has been made public by an appeal to the Swiss Supreme Court in Lausanne.* This makes it possible for me to discuss some of its features here. The procedural history in many respects is typical for major construction arbitrations, especially for those influenced by continental international arbitration practice.

The dispute arose out of a contract made in 1983 for the construction of a circular tunnel of some 27 km length, to be used for the acceleration of nuclear particles (large electron positron - LEP); it involved claims for altogether some Sw.Frs.430 million.

An interesting and not untypical feature of the contract was the number and variety of sources for the rules governing the contractual relationship; in addition to the contract documents themselves, the following rules were applicable:

* Decision of the Swiss Supreme Court (ATF), vol. 118 (1992) I a, pp. 562-568
(i) General Conditions of Contract.

(ii) The SIA Standard N° 118, i.e. the principal set of collective conditions for a construction contract in Switzerland made for domestic contracts of a civil law type.

(iii) The FIDIC Civil Engineering Conditions in the 1977 edition made for international contracts but reflecting a strong English law influence.

(iv) The Swiss Code of Obligations.

For dispute settlement, ad hoc arbitration in Geneva had been provided; in the course of the proceedings it was agreed that the arbitrators would apply general principles of civil procedure.

While the works were still in progress (they were completed in July 1988), a request for arbitration was filed on 22 May 1986. The formation of the Tribunal took some 5 months and was completed by the Parties appointing as Chairman of the Tribunal Pierre Béllet, one of the most eminent European arbitrators, the former first President of the French Court of Cassation and sometime President of the Iran/US Claims Tribunal.
Although not required to do so under the arbitration clause, the Tribunal agreed Terms of Reference with the Parties. These Terms of Reference were completed on 12 November 1986, i.e. less than a month after the Tribunal's constitution.

At that occasion two rounds of successive exchanges of pleadings were agreed. These exchanges lasted for about one year. During this time the Tribunal inspected the site, the visit lasting half a day.

Thereafter, one of the party-appointed arbitrators had to be replaced for health reasons.

Less than one month after the completion of the exchange of pleadings, the first oral argument took place on 9 and 10 December 1987. At this occasion matters of substance were discussed together with procedural points, including the confirmation of the arbitrator's replacement by an amendment of the Terms of Reference.

Some 5 months after this hearing, the Tribunal issued on 13 May 1988 its first Partial Award, ruling on a question of law concerning the substance of the claim, deciding that an expert be appointed and defining his assignment.
The first Partial Award was followed by correspondence and exchanges of pleadings and oral argument on two occasions concerning the choice of the expert. The Arbitral Tribunal, in a second Partial Award of 8 November 1988, i.e. some 6 months after the first Partial Award, appointed the expert and fixed the advance to be paid for his costs and fees. Five months later the advance was paid and the expert could start his work.

In the meantime a dispute arose concerning an advance payment guarantee given by the contractor under the construction contract. The contractor requested interim measures of protection and the Tribunal rendered two decisions on this request in 1989.

The work of the expert which had started in April 1989 lasted for over 16 months. The expert held 8 meetings with the Parties at various stages of his mission. Some 7 months after the start of his work, he produced an interim report which was discussed at a hearing with the Arbitral Tribunal, the expert and the Parties in November 1989. The expert's final report was produced on 31 August 1990.

While the work of the expert progressed, the contractor made a claim for an interim payment on the grounds that the work had been completed. The exchange of pleadings on the subject lasted for some 4 months and, some
3 months after the last pleading, the Arbitral Tribunal made a Partial Award on this issue. Relying in particular on Rule 14.1 of the Arbitration Rules issued by the Institution of Civil Engineers, the Arbitral Tribunal ordered an interim payment.

After the expert had produced his final report at the end of August 1990, the Parties exchanged written observations by 15 November, 7 and 8 December 1990; a hearing was held with the expert, the Parties and the Arbitral Tribunal concerning this report. This hearing was followed by another exchange of pleadings made simultaneously some 4 months later and a final hearing two weeks after this exchange of pleadings. The Parties then had 3 weeks to exchange by 31 May 1991 their final written observations. 7 months later, on 27 December 1991, the Final Award was rendered by the Arbitral Tribunal then composed of Pierre Bellet, Herbert Schönle and Jean-Flavien Lalive.

In conclusion: after the 5 months required for the formation of the Arbitral Tribunal and the one month for the preparation of the Terms of Reference, it took 61 months, just over 5 years, until the Final Award was handed down. If one considers the time critical for this 5 years period, one notes that over 2 years (26 months) were required by the Parties for preparing their written pleading. Some 16 months were absorbed by the work
of the expert, including the meetings with the Parties and the preparation of
his reports, but not counting the proceedings on his appointment and the 5
months lost waiting for his advance to be paid.

The Tribunal met 7 times with the Parties. With the exception of 2
meetings which lasted for 2 days, all were completed within one day. The
time for preparing the meetings after the receipt of the pleadings and the
loss of time due to scheduling difficulties amounted to slightly over 2 months,
which is probably less than what occurs normally in this type of arbitration.

The deliberations of the Arbitral Tribunal and the drafting of its
Awards required about 12 months of critical time, which is less than one half
of the time required by the Parties for their pleadings. Thus, the longest
periods in this arbitration were those required for preparing the pleadings, for
the work of the expert appointed by the Tribunal and for the Tribunal's
deliberations and its drafting of the Awards.

The other tunnelling case has been widely discussed in legal
publications and the press; parts of the dispute were brought before the
Courts and are discussed in a decision of the House of Lords in The Channel
Tunnel Group Ltd. and Another vs. Balfour Beatty Construction Ltd. and
Others. * From this publicly available information, the following case history emerges:

The case concerns the construction of what is called the Channel Fixed Link, i.e. the tunnel under the English Channel, under a contract of August 1986 between Eurotunnel and TML. The contract contains a dispute settlement clause which is patterned on Clause 67 of the FIDIC Civil Engineering conditions. In this clause, the preliminary reference to the engineer, as stipulated in the FIDIC Clause, is replaced by a reference to a "panel" of three. This panel must make its decision within 90 days. The dissatisfied Party may then bring arbitration proceedings under the ICC Rules.

During the course of the tunnel's construction, a number of disputes arose and were submitted to the Panel. Some of the disputes were settled after their referral, others had to be decided by the Panel. From among the disputes which the Panel did decide, very few were then referred to arbitration. Only one of them reached the stage of an award. This arbitration is discussed in the decision of the House of Lords.

* [1993] BLR 61, pp. 1-40
The arbitration concerned a claim for additional payment which had been submitted to the Panel and for which the Panel had awarded a large amount.

On 23 April 1992, the Employer, Eurotunnel, lodged a request for arbitration with the ICC, seeking to set aside the decision of the Panel. Within two months of this request, the Arbitral Tribunal had been formed and the Terms of Reference had been agreed between the Tribunal and the Parties. The hearing on the Terms of Reference was followed immediately by oral submissions on the merits. Further submissions were heard in September, but no witnesses and no experts.

On 30 September 1992, 5 months after the Request for arbitration, the Arbitral Tribunal made a Partial Award which set aside the Panel decision and substituted for it a provision for the retention by TML of sums which previously had been paid under the Panel's decision.

Thereafter the proceedings continued on other issues, mainly of a legal nature. These proceedings led to a subsequent award in March 1993 on which no information seems to be publicly available.
For our discussion on arbitration procedure here, the remarkable speed of this arbitration must be stressed: within 5 months from the Request of arbitration the Tribunal had been formed, had agreed the Terms of Reference, had heard the Parties on a central issue of the dispute and made a partial award on it.

Such speed is quite exceptional in international construction arbitration. Irrespective of the rules of procedure and the system of arbitration chosen, there are numerous obstacles to achieving such speed in a construction arbitration, but the Eurotunnel case shows that, under certain circumstances, these obstacles can be overcome.

When considering this achievement with respect to time and comparing it to the experiences in other arbitrations, one must bear in mind that, prior to the arbitration, the case had been argued in proceedings before a panel of independent experts. In other words, for all practical purposes, the arbitration was a case in appeal, a fact which must have greatly contributed to the speed of the decision. Nevertheless, credit must be given to the ICC, to the arbitrators appointed under its Rules and to the lawyers having prepared and argued the case. Without the constructive cooperation and combined efforts of all of them, such a result probably could not have been achieved.
These experiences in an ad hoc arbitration before a French chairman and in an ICC arbitration may be compared to a case before a Scandinavian chairman, proceeding according to the UNCITRAL Rules as adopted for the Iran/US Claims Tribunal. In the Starret Housing Corporation vs. Iran case before this Tribunal, claims for compensation relating to an uncompleted housing project in Iran were brought, in amounts of some US$ 180 million as the principal claims and some US$ 118 million as counterclaims.

The sequence in this procedure before Judge Lagergren followed generally that described earlier today by Dr. Briner. They lasted for some 5 1/2 years and were completed with a Final Award of 14 August 1987.*

About half of this period was absorbed by proceedings before the expert appointed by the Tribunal who received numerous submissions, held hearings with the Parties, visited Iran and the USA and consulted experts specialized in other fields. Much of the remaining time was used for the preparation of written pleadings on the substance of the dispute and on certain procedural issues. After the expert's report had been submitted and the Parties had discussed it in pleadings, a one-week hearing was held during

*16 CTR 112.
which both the expert appointed by the Tribunal and an expert by one of the Parties were questioned. Some 6 1/2 months after this hearing, the Tribunal rendered its Final Award.

Construction arbitrations in the English style do not necessarily require less time from beginning to end; but the time is allocated differently to the various phases of the arbitration.

I owe the following example to John Beachie: the case commenced in 1978 and proceeded for some 4 years with exchanges of pleadings, a vast exercise of discovery, producing thousands of documents, and the production of witness statements. The hearing which then was held lasted for some 260 working days. The deliberation and drafting of the Award was completed shortly after the hearing, but notified only 6 months later. From beginning to end this arbitration lasted some 5 1/2 years.

I understand that there are other cases of similar time patterns, but that changes are occurring in England both with respect to the overall duration of cases and their procedural structure. Construction arbitration proceedings now seem to be increasingly oriented around shorter hearings, with intermediary meetings for directions and partial awards. Written submissions prior to the hearing and post-hearing memorials play a greater
role and the duration of hearings are shortened. Discovery often is limited. The time for deliberations and drafting of awards seems to be shorter than in Continental practice.

The last case which I would like to mention here concerns a dispute under a contract for the rehabilitation of a major motor way in the Middle East.

The place of arbitration was in the Middle-East but all our arbitrators and most of the Parties' Counsel were resident outside the area. Hearings at the place of arbitration, therefore, caused particular scheduling problems and were costly.

After the Request for Arbitration had been filed in June 1989, it took some 6 months to form the Tribunal. Thereafter, the Respondent submitted its answer to the Request and, in early March 1990, the Tribunal and the Parties met to agree the Terms of Reference. Thus, it took some 9 months from the Request for arbitration to the actual start of the proceedings.

The arbitration clause in the contract had referred to a set of rules which turned out not to exist. The Parties and the arbitrators, therefore, agreed in the Terms of Reference on a number of procedural rules and left
the remainder to the decision of the Arbitral Tribunal. The procedure actually followed was a combination of Continental and English arbitration practice.

The case concerned a large number of claims, a complex issue of a technical nature which was central to the dispute and a number of jurisdiction and related issues.

In a first stage of the arbitration, the jurisdiction and related issues were dealt with. The exchange of pleadings required some 3 months, whereafter a two-day hearing for oral argument was held. This was followed by some new evidence and further argument.

In parallel to the proceedings on the jurisdiction issue, the Tribunal proceeded on those issues of the merits which were not affected by this issue. After an exchange of pleadings, a procedural meeting was held at which it was decided to consider first the Parties respective legal obligations on these issues. A 10-day hearing was then convened in December 1990. Before the beginning of this hearing, i.e. about a month after the oral argument on the jurisdiction issue, the decision on this issue was delivered.
At the December 1990 hearing and shortly thereafter, the Parties produced argument and evidence on the contested issues of contractual obligations. The Tribunal's Partial Award on these obligations was delivered in May 1991, immediately prior to the commencement of a new hearing dealing with the contested technical issues. After two weeks, these hearings had to be interrupted for procedural reasons. They then were continued for two further weeks in July and August 1991. At these hearings, the Parties' positions in law and in fact were clarified and the Parties' witnesses and experts - from which previous written statements had been submitted - were questioned. The Arbitral Tribunal was about to issue its Award when the Parties informed it that they have settled the case.

My colleagues on this Arbitral Tribunal, our Secretary and the Parties' Counsel were kind enough to join us at this Conference for one of the Workshop discussions. In this Workshop, we propose to analyze the procedural aspects of this international construction case in a sort of "post-arbitration hearing". In this life-case study, we intend to examine the practical application of such a combined English/Continental procedure, the contributions that can be made by such a combination, their perceived advantages and possible defects in its application.
2. **Some Practical Aspects of Construction Arbitration Procedure and Possible Improvements**

2.1 **Organizing the procedure**

It is now generally recognized that, especially in complex international cases, the Parties' positions should be presented and discussed in writing prior to the hearing. This practice is followed since long on the European Continent where the pleadings are in fact the principal place for the Parties to produce their argument and evidence. In common-law countries, the usefulness of such pleadings, exchanged prior to the hearing, are increasingly recognized.

In construction disputes, a form of preliminary written statements has been used since long as part of contracting procedures or practices:

Where the arbitration, as it is frequently the case, concerns claims by the contractor, these claims normally will have been submitted to the employer, his engineer or architect prior to the arbitration.

Both in Anglo-American practice and on the European Continent contractors submit, at the end of the contract period or even before, memoranda or other documents setting out their claims. The principal objective of such statements of claims is not to initiate arbitration but to
receive payment from the employer for the claims. However, if the employer refuses payment, these claims will have to be brought to arbitration.

In some British and American contracting procedures, a further element of preliminary written procedure is introduced by the requirement for a preliminary reference of disputes to the engineer. This requirement found its way into international contracting practices through Clause 67 of the FIDIC Civil Engineering conditions.

These preliminary references normally take the form of written submissions, explaining the grounds for entitlement and the principles and calculations for quantification. They are comparable to the pleadings in an arbitration, especially to the initial statement of claims. The determination which the engineer then must make on the dispute referred to him normally has, or should have, some resemblance to a simplified arbitration award.

As a result, when a construction arbitration commences, the claims have already been the subject of a written presentation and possibly also of

* In the U.K., e.g. Institution of Civil Engineers, London: Conditions of Contract, Clause 66; and the New Engineering Contract (NEC), Clause 92 (Adjudicator); Government Contracts, GC/Works/1, Clause 59 (Adjudicator). In the U.S.A, see e.g. Engineers' Joint Contracts Documents Committee: Standard General Conditions, Clause 9.11.
pleadings and preliminary determination. These preliminary written proceedings could form a useful basis for simplifying the arbitration and sometimes do. They are probably one of the reasons which made it possible in the Eurotunnel arbitration, described above, to reach a Partial Award in such a short period of time.

If these preliminary written proceedings are not always used, this may in part be due to the fact that, in some cases, they are prepared prior to the consultation of counsel. When the claims then are rejected by the employer or the engineer and counsel is retained for presenting them in arbitration, he may not be happy with the way how they have been argued and may wish to present them differently. A possible solution would be to prepare all claims with the assistance of counsel. However, this would require intervention of outside counsel even in the many cases which are settled without going to arbitration.

The most suitable procedure would probably be for a contractor to establish his internal directions for claims preparation in consultation with the Counsel who would have to argue the case if it went to arbitration. Once these directions are established, the project manager and his team can apply them, requiring legal assistance only in exceptional situations. Here, as elsewhere in construction matters, important improvements in the dispute
settlement mechanism can be made if one addresses the issues at the time when the contract is made and during its performance, rather than waiting until the arbitration commences.

Once the Parties have stated their claims and arguments in writing, they will be heard by the Arbitral Tribunal. Hearings for witness testimony and experts, as well as for oral argument, are regular features in construction arbitrations. In this respect there is probably a movement of conversion between Continental and Anglo-American practice: Continental practice in construction arbitration seems to move away from the very short hearings, with no or only very few witnesses, as it was still practiced in the CERN arbitration; hearings of one or even several weeks are no longer rare exceptions in proceedings conducted by Continental arbitrators. In Anglo-American construction arbitrations, especially of an international nature, there seems to be a trend in the opposite direction, away from the long drawn-out hearing, lasting for weeks or months. It is now more frequent in Anglo-American style arbitrations that several shorter and more concentrated hearings are held.

Much depends, in this respect, on the role of documentary and witness evidence and the manner in which such evidence is marshalled, a point with which I shall deal later. The role of the arbitrator and the allocation of
responsibility for the conduct of the proceedings also is of central importance.

In this context, Professor Reymond spoke this morning of the moment when the proceedings are shifting from the hands of the lawyers into those of the arbitrator. He explained that this shift occurred at different moments according to the procedural system adopted. This is indeed an important distinction between different systems of arbitration procedure.

However, this shift in the conduct of the proceedings should be seen in the context of the coordination which occurs between the lawyers and the arbitrator and which Professor Reymond mentioned in the context of the organization of hearings. Irrespective of who takes the lead in the conduct of the proceeding, there is always some degree of consultation and coordination. Using a term of modern communication technology, one may speak of "inter-activity" in the conduct of the proceeding. This inter-activity is indeed a very important element in arbitration procedure. It would appear that there is much room for improvement in this respect so that modern international arbitration procedures, perhaps more than is now often the case, are conducted in an inter-active process.
There are, of course, different views concerning the extent of interactivity in the arbitration procedure and the manner in which it would best be implemented. Much depends on personal preferences and experience, both of the arbitrator and counsel appearing before him. Internationally experienced arbitration specialists, whether acting as counsel or as arbitrator, may and often do adapt the conduct of the procedure to take account of the rules and practice familiar to the other participants in a particular arbitration. No matter what approach is chosen, it is always essential that these matters be discussed at the beginning of the procedure so that all of the participants know the procedural approach which will be followed and may adapt their conduct accordingly.

The following observations on the respective roles of counsel and arbitrator in the evolution of the procedure, while reflecting a trend in modern international arbitration, are influenced by my personal preferences and experiences; they are not necessarily shared by others in international arbitration practice:

It is for the parties and their counsel to make their respective cases. The initial statement of its case should be left to the party and the arbitrator should not interfere. He should, however, see to it that the case is expressed
clearly and completely so that the other party may respond and, after this response, the true dispute can be identified.

In order to achieve this objective, it will often be necessary for the arbitrator to give guidance or even directions at the very beginning of the case. Once the case and the defence have been presented, it will often be necessary for the arbitrator to require clarification on the parties' respective positions.

This stage of clarification, in my view, is essential to an efficient conduct of the proceedings. It requires that the arbitrator identifies the central issues of the dispute and the parties' respective positions on them. He should give to the parties an opportunity to complete and, when necessary, correct his perception of their positions and should adapt the defined issues accordingly. The remainder of the procedure should then be focused on these issues. This process of identifying and clarifying the issues is a very useful tool for focusing the procedure. It concerns both points of law and disputed issues of fact.

With respect to issues of fact, one may describe the process by the following three steps:
(i) Each party must state the facts on which it relies for its case.
(ii) Only facts alleged by one party need be contested by the other.
(iii) Only contested allegations require proof.

A clear presentation of a party's allegations or its challenges of the opposing party's allegations facilitates the presentation and understanding of offers of proof. With respect to each allegation or challenge, a Party may specify by what evidence it intends to prove the alleged facts.

This leads to a system of presenting the factual part of a Party's case which greatly facilitates the identification of contested issues and the required evidence. Since I have noticed in a number of international arbitrations with lawyers from different backgrounds that the system is not always well understood, a practical example may be helpful as it could arise in a construction arbitration:

A contractor claims time-extension and additional payments for losses caused by the flooding of the site. He might present the facts of this claim as follows:
1. On 16 October exceptionally heavy rains fell and the site was flooded.

Evidence:

- Daily site reports for 16 October.
- Summary of the meteorological records of the last 10 years.

2. It took until 25 October to clear the site and prepare it for work to resume. At that date, a site meeting was held at which the Engineers' Representative agreed to grant a 9-day time-extension.

Evidence:

- Draft minutes of the meeting submitted with the contractor's letter of 26 October to the engineers' representative.
- Testimony of Mr. X., the Contractor's Site Manager.

3. On 26 October, the Contractor's Site Manager carried to the Engineers' Representative the draft minutes and a covering letter. The Representative read the minutes and raised no objections to their content. However, he stated that, before signing them, he wished to consult the Employer.

Evidence:

- Testimony of (a) Mr. X
  (b) Mr. Y, the Engineers' Representative

4. Despite several reminders, the Engineer's Representative never returned the signed minutes.

Evidence:

- Letters of 31 October, 15 November and 7 December.
- Testimony of (a) Mr. X
  (b) Mr. Y.
To this statement of fact, the Employer may reply by contesting that the meeting on 26 October was held or that, at that meeting, the Engineer's Representative made the alleged statements. He would then produce counter-evidence or offer witnesses.

But he might adopt a different reply, arguing that the rain was not exceptional or that oral statements by the Engineer's Representative are not binding and that in any event the circumstances might entitle the Contractor only to time-extension but not to additional payments.

If the Employer chooses this latter type of defence, there is no need to hear the Engineer's Representative and the Contractor's Contract Manager as witnesses. The Tribunal might have to hear a meteorological expert on the question whether the recorded rain must be characterized as exceptional and it would have to decide legal and contractual issues, such as the question whether exceptional rain entitled the contractor to time-extension and additional payments, or whether the Engineer's Representative's oral statement is binding on the Employer.

Obviously, time and costs in the proceedings can be saved if it is clarified before the hearing of witnesses which of the positions the Employer takes (since they are not exclusive of each other, he may choose to take
both). Applying the principle of the burden of allegation and presentation of the facts and offers of evidence in the manner described, much facilitates this task.

In any event, the positions of the parties should be clarified as early as possible and the procedure should be organized accordingly. Lengthy hearings of witnesses should be ordered only if their testimony is likely to provide evidence on disputed facts.

In their practical application, these principles are not always as easy as it may have sounded in this example. But they show one of the directions in which one may look for improving efficiency in the organization of the procedure.

2.2 Documentary evidence

The production of vast numbers of documents is one of the characteristic features of construction arbitrations. A number of issues deserve consideration in this context.
2.2.1 Voluntary production vs. discovery

Most of the documents which are relevant for construction claims are known to the parties because, prior to the arbitration, they have passed from one party to the other or were generated as part of the project. Indeed, on modern construction sites, practically every event is documented in one form or another.

Consequently, a party could build much of its case with the documents in its possession. However, in addition to the records of the project, there are documents internal to one or the other party. Some of these internal documents may contain information useful to the other. There may be compromising reports within the contractor's organization. Some times the relations between the employer, his engineer or architect, may generate documents which the contractor would find useful for his claim.

My English and American colleagues perhaps would disagree with me when I say that the importance of documents obtained in discovery probably is less than they tend to believe. Even the most "favorable" documents discovered, in most cases, provide merely support for facts or opinions which can be established otherwise, although perhaps not always quite as persuasively.
It should also be pointed out that judges and arbitrators in proceedings where no or only limited discovery is available, may view the evidence before them in a slightly different manner than in cases where full discovery was practised. In the former case they may make allowance for the possibility that undiscovered documents exist. I also must say that, in my experience, arbitrators to whom internal documents were produced often did not show that they were very impressed by the admissions (often of doubtful relevance) which they may contain.

In any event, even in the Continental style of arbitration the possibility exists to obtain, under certain circumstances, specifically identified and relevant documents.

2.2.2 The time for the production of documents

Eric Schwartz mentioned this morning the case where a claimant produced, if I remember correctly, some 60 files with its request for arbitration. As he recognizes, this is exceptional and in most cases probably not desirable. Under most rules of arbitration it is sufficient, and for all practical purposes also adequate, to limit the documents produced at that stage to a few essential ones, such as the contract and some documents highlighting events such as a letter of termination.
The bulk of the documents should be produced with the pleadings, prior to the hearing. In most cases, it is probably preferable to produce the documents themselves rather than merely lists. However, the system of such production of documents should be discussed in advance, along the lines to be described presently.

The production of new documents at the hearing should be avoided as far as possible so as to protect the parties against suprises.

In some cases, counsel prepare for the hearing special files of documents relevant at that occasion. In a similar practice in France, the "dossiers de plaidoirie", of which Professor Reymond spoke this morning, are delivered at the end of the hearing. In proceedings where vast numbers of documents have been produced, such files may be useful. However, they have the disadvantage of increasing the volume of paper before the arbitrators. Since the arbitrators should have read the documents produced earlier, the production of additional copies of the same documents may not only be wasteful but even confusing. In my view, it is much preferable to see to it from the beginning that the documents produced are organized in such a fashion that the arbitrators at the hearing and in their deliberations can find easily the documentary evidence on which they must rely for their decision.
2.2.3 **System of referencing and filing**

Given the great number of documents in construction arbitrations, the manner in which they are filed and referenced is obviously of great practical importance. The controlling consideration should be to assist the arbitrators in retrieving rapidly the documents which they may need in their deliberations.

In many arbitrations, this matter receives insufficient attention, if it is considered at all: In some cases, documents are produced without any identifications or references. Where systems of numbering are used, they normally list the documents in the sequence as produced or as quoted in the pleading. This may be useful when checking a particular argument against the document on which it relies. It is much less useful and can lead to confusion when documents are produced at a number of successive occasions, as is normally the case in construction arbitrations.

A much better system consists in organizing the documents by categories and producing them in distinct files. For instance, there may be files containing
- contract documents
- monthly progress invoices
- site minutes
- test certificates
- acceptance procedures
- correspondence.

It is important that these files are open for later additions so that they can be completed as the case goes on. The correspondence file should best be organized chronologically. Here it is particularly important that the file be open so that subsequently produced correspondence can be inserted at the right place.

In many construction projects, the parties adopt a system of documents at the beginning of the work. Wherever possible, this system should also be used in the arbitration.

In any event, classification and referencing of documents should be discussed between the tribunal and the parties at the very beginning of the arbitration. At that time, a system should be adopted jointly and applied throughout the entire procedure.
If excessive sophistication is avoided, such a system of classification and referencing of documents is very helpful in coping with the great volume of documents produced in construction arbitrations.

2.2.4 Computerization

The subject is vast and particularly relevant in construction cases. However, until now there seems to be only limited experience with the computerization in international arbitration proceedings. I can mention here only some of the questions which arise in this context.

The principal use for computerization in construction arbitration probably concerns the data base for documents and possibly also for the pleadings. In addition, computer models may be used, for instance, for the investigation of certain technical issues and for quantification.

Who establishes the data base? Normally this would be one of the parties. If a party wishes to make a data base available to the arbitral tribunal, the other party would also have to have access to it.
If the data base is available to the tribunal, the question of control over the input arises. One possible approach would be that one party establishes the data base under the control of the other.

If the arbitral tribunal establishes a computer model, or if such a model is placed at its disposal by one or both of the parties, one would have to ask whether the tribunal should be entirely free in its use and adaptation. In particular, one might argue that the arbitral tribunal, when it uses the model on its own initiative, should give to the parties an opportunity to discuss the results reached by such use.

2.3 Witnesses

The issues of fact which arise in construction disputes to a very large extent can be decided on the basis of documents without requiring witness testimony.

Nevertheless, hearing witnesses is useful for an Arbitral Tribunal even if it is proceeding in the Continental style. Witnesses assist in the understanding of the circumstances of the case and of the documents produced. In some cases witness testimony is decisive for a correct understanding of the events.
It is the Parties who identify the witnesses who should be heard. The practice of submitting affidavits or witness statements is gaining ground also on the European Continent. Differences still exist when it comes to deciding which witnesses to hear and how they should be questioned. The choice may be left to the Parties who may fix the program of the hearing jointly or the tribunal may decide which witness testimony it deems relevant. Even if it does not make the decision the arbitral tribunal, in my view, should at least give guidance to the parties on the choice of witnesses so as to avoid wastage of time and money by hearing witnesses whose testimony is unrelated to the contested issues.

When it comes to interrogating witnesses, the systems in the Court differ: examination and cross-examination are practiced in the common-law system and interrogation by the Court in the civil law systems. In international arbitration, the differences are not as clear as in court proceedings. On the Continent, one finds experienced arbitrators who adopt alternatively to one or the other system or apply a mix, choosing what appears most suitable for the circumstances of the case, including the preference of counsel. In practice, there is a great variety of approaches as the discussions in the Geneva Group of the Swiss Arbitration Association
(ASA) and the documents from arbitration proceedings published in the Bulletin have shown. *

Questions relating to witness testimony are of course not specific to construction arbitration; they have been discussed this morning by Professor Reymond and Eric Schwartz. However, there is one aspect which is particularly relevant for witness evidence in construction arbitration: it concerns what may be called the "collective" interrogation of witnesses.

This method or interrogating witnesses, which I have first seen practised by Professor Alain Hirsch, can be applied when several persons are invited to testify on the same facts. They can be called to testify at the same time. The questioning, which in this method normally is carried out by the chairman of the arbitral tribunal, starts with one of the witnesses and then turns to the others, inquiring from them where they disagree. The method reduces drastically the time required for hearing witnesses. Often it also produces a remarkable reduction in contradictions and thus greatly facilitates the establishment of the facts.

* On witnesses, see ASA Bulletin 1993 N° 2, pp. 302-336 and N° 4, pp. 568-597.
The elimination of many contradictions which is produced by this method may be explained, at least in part, by the fact that, when they are questioned "collectively", the witnesses speak not only under the control of the tribunal and opposing counsel but also, and above all, under the control of persons who themselves have witnessed the facts. In construction cases, these persons, although they are often committed to one or the other party as employees or otherwise, they also know each other from working together on the project. Testifying in the presence of colleagues with whom they have worked for many months or years and who may point out immediately any incorrect statement, is a strong stimulant for telling the truth.

It is true that in this method of collective interrogation, the testimony of the first witness has a dominating effect and may influence the statements of the others who are requested to confirm, or contradict, the testimony, unless they wish to give their own account on a particular point. Thus one might fear a loss of spontaneity. However, in international arbitration, the practice of "preparing" witnesses, which for Continental lawyers acting in Court proceedings is a serious violation of their professional ethics, is gaining ground. In construction arbitrations, where most of the witnesses are or were employees of the party presenting them, uninfluenced testimony is rare.
In any event, collective interrogation may well be combined with individual interrogation on specific facts. Where testimony is required on a particularly delicate or contested fact, witnesses may be heard separately so as to avoid that the second testimony is influenced by the first. * Here, like in many other procedural questions, the principal criteria for choosing between one or the other method is its suitability of the specific circumstances of the case.

2.4 Experts and expertise

When one speaks of experts in construction arbitration one thinks mainly of experts in engineering and science; from a lawyer's point of view they are described as "technical experts". But in international arbitration, more than in domestic construction disputes, a high degree of legal expertise is required. This is often overlooked by those who state that arbitration should preferably be conducted without the lawyers.

The legal expertise required in international arbitration concerns such areas as conflicts of laws, various aspects of substantive law, in particular

* For an example of this combined approach, see the transcript of a hearing reproducing the discussion between the Chairman of the Arbitral Tribunal and Counsel of one of the Parties in ASA Bulletin 1993 No. 4, pp. 593-595.
the law of contract - often one or even both of the parties and sometimes even their Counsel are not familiar with this law. Questions of comparative law may arise. Finally, the law of arbitration procedure at the place of arbitration, and sometimes at other places too, must be known to the arbitrators and they must have international arbitration expertise.

It can fairly be said that no individual person has the expertise to deal competently with all issues of law, science and engineering, which arise in a major international construction arbitration. Various methods can be used to make available the required expertise to the arbitral tribunal:

First of all, one may provide the expertise by a mix of qualifications among the tribunal's members. Occasionally, this has been done with good results. However, the normal appointment mechanism in international arbitration often leads to the appointment of lawyers.*

Secondly, experts may be retained by the parties. Their expertise often is essential for the preparation of a party's case. It may also be helpful in presenting this case to the tribunal, either by written opinions or oral explanations. However, arbitrators on the Continent often are reluctant to

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rely in their determination of technical issues on experts retained by the parties. This reluctance or even distrust was clearly apparent in the recent conference on the subject organized by the ICC Institute of International Business Law and Practice in Paris. However, arbitrators on the Continent, too, have a growing understanding of the useful role which experts retained by the parties may play. As Professor Reymond explained this morning, these experts may help the arbitrator to understand the technical issues.

Finally, the expert may be appointed directly by the tribunal. Courts in civil law countries often proceed in this fashion and arbitrators from these countries often do likewise. In England and in proceedings elsewhere, in which non-lawyers sit as arbitrators, the inverse approach is followed: legal questions are referred to an assessor or other legally trained assistant instructed by the arbitral tribunal; sometimes, such arbitrators refer the legal issues for which they are not qualified directly to the Courts. Thus, it can be said that, functionally, the old procedure of the statement of case and now the determination of a preliminary point of law by the Court* is similar to the appointment of a technical expert by a Tribunal composed of lawyers.

* Section 2 of the 1979 Arbitration Act.
There is a certain attractiveness in referring to experts for those technical or legal issues in which the arbitrators are not qualified. In this manner, difficult issues are handled by the specialist best qualified to address them. However, by referring critical issues to an expert, the arbitrators transfer to an outsider an essential part of their task. It may be frustrating for the parties to see the arbitrators relinquish part of their responsibility for deciding the dispute to an expert.

A particularly important aspect concerns the relationship between the legal and the technical issues of a dispute. The technical issues do not arise in the abstract but as part of a dispute expressed in legal terms. Before submitting technical issues to an expert, the arbitral tribunal should define the specific legal context in which these issues arise. If this is done correctly, many technical issues become of secondary importance or irrelevant for the arbitrators' decision.

The point can be illustrated by the following example taken from a recent arbitration: a contractor supplied a power station on a turn-key basis. At the trial run, the ash-handling system of the power station did not evacuate all ash produced. The employer stated that the ash-handling system was of insufficient capacity, rejected it and required the supply of a new system. The contractor stated that the original system's failure to evacuate
all ash was due to the employer using coal of a quality other than that agreed in the contract.

Prior and during the arbitration, the Parties and their experts spent much time on argument concerning the quality of the coal used and the capacity of the system. In the end, the case was decided on legal grounds: the employer had rejected the system without giving the contractor a proper opportunity to test it in the contractually prescribed forms with coal as stipulated in the contract. The very complex technical issues remained unresolved: the disputes about the quality of the coal actually used and the capacity of the system supplied which, if it could have been resolved at all, would have required complex technical investigations and speculative technical argument (at the time of arbitration, the old system had been dismantled and there were no undisputed records about the coal used during the performance test). But these issues did not have to be decided by the arbitral tribunal. In legal terms, the central issue of the dispute was reduced to the following question: was the employer entitled to reject the old system and to require the supply of a new one free of charge? The answer to the question depended to a large extent on legal issues and, in particular, on the compliance with contractual provisions on acceptance procedures. This "legal" approach conditioned the outcome of the dispute and placed the technical issues in their proper context.
Summarized in this fashion, the solution to the dispute may appear to be obvious. However, in this case as in many others, much argument and analysis were required to reduce the dispute to this central issue. Indeed, in complex construction disputes it is particularly most important of the arbitrator to clearly identify the legal framework in which the technical issues must be determined. This process of defining the technical issues in their legal finality is critical for the satisfactory and efficient resolution of the dispute and is among the most difficult tasks of an arbitrator in construction disputes.

To conclude these observations on experts in construction arbitration, I would like to add some comments on their interrogation: earlier this afternoon, Andrew Rogers suggested that, at the hearing, experts retained by one of the parties should be allowed to ask questions to those of the other. I fully subscribe to this proposal and recommend that the procedure of "collective" interrogation also be applied to experts. Since the experts often belong to a small group of specialists, their interrogation in the presence of or by their colleagues is particularly suitable to addressing the technical issues and to fully informing the arbitral tribunal about them.

Another form of interrogating the Parties' experts can be used if the arbitrator himself has technical expertise. Anthony Canham described to me
the method as follows: when the case has been presented by the parties, the arbitrator calls the experts for a discussion on the disputed technical issues. At the end of this discussion he reaches preliminary findings on these issues. He then puts these findings to the parties for argument and evidence. In the light of this argument and evidence he makes his award. The method greatly simplifies the hearing of the experts and nevertheless reserves to the parties their full right of argument and evidence.

Innovative approaches such as these, guided by the practical requirements for the conduct of case, are necessary for improving the efficiency of arbitration procedures. But in order to find and apply such efficient practices, the appropriate regulative framework must be assured. Where this regulatory framework is too rigid, reform of arbitration practice must be preceded by reform of the law.