

# Proceedings of the Institute of Acoustics

## THEATRE CONSULTANTS AND ACOUSTICIANS - FRIENDS OR FOES?

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### 1. INTRODUCTION

In this short talk, the author, a practising Theatre Consultant for nearly 30 years, describes some of his experiences in working closely with Acousticians on theatre and concert hall projects. The importance of close co-operation between disciplines, and the need to understand the other persons point of view, will be evident.

This paper is given from the standpoint of a Theatre Consultant whose primary interest lies in the development of Auditorium Concepts for theatres and concert-halls. Attention to the planning and technology of the stage, and of other supporting areas, of course will be given in equal measure, for the one cannot function effectively without the other. But the first and greatest challenge, for this Consultant at least, is to initiate a preliminary concept that can eventually be developed by a full Design Team into an exciting and effective auditorium, that will stimulate the audiences and the performers who eventually will populate it.

### 2. TEAMWORK

Architects, Engineers and Quantity Surveyors, must forgive any implied suggestion that the Acoustician and the Theatre Consultant alone will provide all the ideas necessary to ensure eventual success. But by virtue of their almost exclusive dedication to work in this specialised field, these two Consultants will be better placed than most in the team to suggest what is or is not appropriate, and what will or will not, work.

In particular, the Theatre Consultant may have been commissioned to write the Planning & Design Brief before a full team has been selected; but for that, the Consultant must have some initial ideas for a concept if the Brief is to be a realistic basis for design development. A sensible Consultant, however, either will have already from past experience, an understanding of the probable acoustic requirements, or will consult a colleague with suitable qualifications while the Brief is being compiled. Nevertheless, it must be emphasized that detailed building design is mainly the province of the Architect - aided, of course, by all the Consultants - and it is his controlling hand that ultimately will determine the success or failure of the scheme. So with such complex issues involved, teamwork is everything, and it may well be unreasonable for any one individual to claim sole credit for a satisfactory outcome.

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### 3. PROBLEMS IN AUDITORIUM DESIGN

Theatre Consultants and Acousticians share common difficulties in attempting to quantify objectively the essentials which go to make a good auditorium. We all may think we know which auditoria work, and which do not, but such judgements inevitably are in the main subjective - unless there happens to be some obvious disaster to (e.g.) sight lines, upon which we might all for once agree!

But who is to dictate priorities? Should preference be given to the acoustics in a concert hall, or to sight lines in a theatre? In restored buildings should historical accuracy take precedence over contemporary technical needs? Should the same standards of seat spacing and environment apply in both, or should it be assumed that concert-goers require greater space because (on the whole) the time span between intervals tends to be longer in musical performance? But in a theatre, interaction amongst the audience is another important ingredient, and will be heightened if the seats are closely centred, and diffused if they are too generously spaced.

Should the Acoustician's stated need for a particular volume, or for reflecting surfaces at certain angles, be permitted to dictate the layout of seating? How far should safety regulations be allowed to restrict the imagination of the designers? These, and many other practical questions have to be resolved largely on an empirical basis, for there are no formal rules - and thankfully, therefore, little opportunity for standardisation in auditorium design.

Auditoria depend for success also upon a sensible balance in technical provisions to ensure that (e.g.) the artistes can be adequately illuminated from sufficient variety of angles to serve different performance needs, which lights then can be effectively controlled by operators who can both see and hear what is happening on the stage. These are basic essentials to any performance, but important though they may be, they should not be so specifically stated as to dominate the design, or to detract from the overall "feel" of the space. Equally, however, light usually travels only in straight lines, so the insertion of acoustic reflectors in the intended light path will not meet with universal approval.

On the whole, the needs of technicians in an auditorium should be subservient to the needs of the audience, and for most, that includes the ability both to see and to hear the action on stage, clearly.

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### 4. PRIORITIES ON THE STAGE

Within a theatre stage, or upon a dedicated concert platform, priorities can be allocated; in the former the technical requirements dominate, whereas on the latter, acoustic necessities are the more demanding.

Inside a conventional theatre stage, the emphasis has to be upon the techniques of production and the use of scenery, allowing little scope for acoustic treatment other than by way of surface finishes - though even here, the Theatre Consultant will want to restrict the areas affected to surfaces where no equipment is likely to be installed. Suggestions for overhead reflectors, or absorbent surfaces on walls at low level, will be firmly ruled out of court on the grounds of practical expediency.

On the concert platform, however, technology will be less dominant and the Acoustician is likely to have the upper hand in deploying (for example) overhead reflectors to assist internal cohesion and balance between sections of an orchestra. Here the Theatre Consultant may well have to grit his teeth and accept whatever gaps remain for lighting or suspension, although everyone must recognise that the area has to be properly lit, predominantly from above to avoid blinding glare.

### 5. MULTI-PURPOSE HALLS

It is in this dreaded format that the greatest conflicts are likely to arise, for here the demand for effective "theatre" performances is likely to be overlaid upon the need to maintain satisfactory conditions for concerts. Most probably, elements of walls or ceilings will be made either movable or totally demountable, and perhaps seats may be re-arranged. Performance may take place in different positions - (e.g.) in an "Arena" format, with the audience surrounding. Ensuring adequate opportunities for both lighting and acoustic reflections may then present particular headaches for the Consultants.

For lyric theatre an orchestra pit will be essential, raising another set of potential disagreement between theatrical and acoustic requirements; for example, should orchestral musicians be pushed beneath the stage, to minimise the chasm of the pit, maximise seating capacity at the time of greatest economic need, and allow singers some chance of being heard above the noise? Even though the Acoustician may secretly sympathise with all these points, it takes a brave man to tell an orchestra that they will actually sound better to the audience if half of them are underneath the stage overhang! Did Wagner have a point - at least for his own operas?

It is in extending the range of use for an auditorium that the real challenge emerges for both Acoustician and Theatre Consultant, and it is here then that a willingness to co-operate, and to show respect and an understanding for the other person's point of view, are in greatest demand.

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### 6. CONCLUDING THOUGHTS

Some may question then whether it would not be sense for one person to combine the disciplines and to act as both Acoustician and Theatre Consultant. One or two notable exceptions notwithstanding, this writer is of the opinion that the essence of practical Theatre Consultancy is experience at the sharp end of theatrical/musical production - frequently by working in Stage Management where one is well placed to observe all the many facets of human activity and behaviour that go to make a successful performance. Knowledge in the field cannot be gained from academic studies, nor is it possible to garner the necessary experience merely by watching others at work. One needs actually to have been in control of some element of a performance to understand how easily things can go wrong on a stage, and what steps need to be taken to minimise that risk.

Theatre Consultants, therefore, are basically simple theatre technicians whose interest is in providing the means for a successful performance to take place. They are neither engineers nor scientists nor architects, though their enthusiasm may embrace facets of all these disciplines; fortuitously, an ability with mathematics is not essential to their work!

Acousticians, on the other hand, must share similar enthusiasms, but will approach the problem from a more scientific angle. They thus may appear more clinical in their approach than the Theatre Consultant, and perhaps less inclined to the hyperbole that is often to be found within the entertainment industry.

On this basis there is something to be said for separate personalities; for put the two together and if the chemistry is right, the sparks may well fly, but in a common direction. That then must be the ultimate hope.