Techne, Technology, Technician
The creative practices of the mastercraftsperson

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INTRODUCTION

> There was a time when it was not technology alone that bore the name *techne* . . . Once there was a time when the bringing-forth of the true into the beautiful was called *techne.* And the *poiesis* of the fine arts also was called *techne.*
>
> (Martin Heidegger 1977: 17)

In this paper we attempt to begin to theorise the creative practices (*techne*) of the theatre technician. The use of the term 'technician', as starting-point, includes all those who explore and implement the technological apparatus of the performance: in professional terms, the staff of the lighting, sound, stage, workshop, costume and stage management departments. As many readers will be aware, Heidegger's mid-twentieth century account of the role of technology in contemporary society pointed to a perceived disconnection between the *techne* of technology (and so of the technician) and the *techne* of 'the bringing-forth of the true into the beautiful' (and so of the theatre artist). What we seek to promote and to begin to theorize is a view of the technician that reconnects the technologies of theatre and the arts of theatre, via the persons of the expert practitioners and their *expertise in action* – which we are arguing is ill-served by commonsensical uses of the term 'technical' itself. In addition, we seek to reconnect the expertise of the technician within a network of human relationships formed by all of those who operate creatively within theatre. Our emphasis, thus, is on an epistemic (or knowledge-centred, expert-practice-centred) shift, *away from* an understanding of the manipulation of technology as essentially instrumental and procedural, and *towards* an understanding of the qualitative judgements and imaginative role of expert theatre-technical practitioners across the board. On the basis of the above, the theatre technician, as we understand their work and their professional expertise, will henceforth be identified as the *mastercraftsperson.* The apparent clumsiness of the term should remind the reader of what has been brought about, for the ways theatre is understood, and what has been lost, in what we argue are casually abusive uses of the term 'technician' not least as it figures – or, rather, fails to figure – within the dominant discourses of Performance Studies writing. Our argument is that recent work by Simon McBurney and Robert Wilson, amongst others, is also the work of those who enabled them to realize the technologically challenging works to which they put their signatures.

In order to begin to outline some of the terms and mechanisms of such an epistemic shift, we need first to sketch out details of the knowledge-political context that has led to the work and contribution of this mastercraftsperson remaining largely unconsidered by Performance Studies in the university. Our starting point is the term *techne*, which is the root of 'technology' and 'technician' both etymologically and knowledge-politically.

TECHNE, POESIS, EPISTEME

In the philosophy of Aristotle, the terms *techne*, *poiesis* and *episteme* signal a value system that prioritizes 'activities that are an end in

themselves' over those that are not –
indicatively those that might be described
as 'instrumental'. This sort of value
system and the philosophemes that
inform or accrue to it (permitting certain
sorts of observations to be made) remains
influential today, despite the supposedly
radical 'knowledge-interventions' of the
final third of the twentieth century – not
least in the university and its knowledge-
programmes, modes of production,
production apparatuses and their
outcomes.

   The Greek word *techne*, the root of
technology and *technique*, is usually
translated as either art or craft, but in
ancient Greek (and particularly in uses by
Aristotle) it is used to invoke a particular
set of philosophical values. Today, despite
the greater pertinence of a pre-
Aristotelian entwining of '*techne*' and
'*episteme*',[1] to arts-making practices in
the university, what we find emerging
from the resilient Aristotelian positioning
is that two other terms, 'theory' and
'practice', tend to be reified in everyday
usage in the university. On this basis,
these two nouns are widely taken to
signal ontological difference, hierarchical
positioning (the one always first, the
other always second) and opposition – a
difference and an opposition that we
argue here is knowledge-political in
implication, and often patronizing
(especially when articulated in the
vicinity of the professional theatre). In
still widely-practiced university-based
approaches to the study of the arts and
humanities, 'theory' tends to default to
the means by which 'practice' (in
secondary position) is evaluated,
understood and placed in context, with
the consequence that whatever is
understood by 'theory' is dominant. In the
sciences more generally, the values given
to theoretical and other practices are

broadly equal, since they are linked
reflexively: each provokes and demands
the development of the other through the
cycle of hypothesis and experimentation –
and we might argue the same, in
(professional) fact, for knowledge-
practices in theatre itself. Nevertheless,
'theory' as written and reflective, tends
once again to be prioritised by the urge to
totalize, exemplified by the Grand Unified
Theory project in Physics, which attempts
to unite large, pre-existing areas of
theory. Outside the institutions of science
and the university, theoretical writing is
often seen as irrelevant to practice, which
means that in turn theatrical prac-
titioners might well misrecognize
themselves as 'non-theoretical'. Given the
division of labour and of ownership with
which we are concerned here, they may
also qualify their work as 'non-technical';
yet in our argument the technical, in
early-twentieth-century practices at least,
like the theoretical, involves a level of
abstraction that cannot be reduced to the
level of the procedural operations usually
identified with it. This is, in part, because
theatre production involves catalysis
between its component parts. On that
basis, no single professional engagement
can be abstracted, as though it were
causal, from the interfaces where its
impact is felt. The technical, from this
perspective, supposes an acute (and
abstract or virtual) grasp of all other
aspects of performance-making. Mastery
of the performance-technical systems, as
a whole, cannot then be fully understood
by simple analysis of one thread of the
component activities to which it
contributes; yet the single 'technicians'
must be able to grasp the (operational)
whole if they are to intervene effectively
in it.

   Value judgements of such kinds can, at
least in part, be traced back to that still

plus...

AN EVIDENTIALLY-BASED GREEN
ROOM TALE: THE LIGHTING
OPERATOR'S TALE

'As the lighting operator, it is my job
during the lighting rehearsal or
"plotting" to follow the instructions of
the lighting designer, setting the level
of each light and recording the
resulting lighting "looks" as cues for
later replay during rehearsal and
performance. I sit at the lighting
console, perhaps with the lighting
designer and other members of the
production team (director, set designer
and so on) at the production desk in
the auditorium, or I may be located in
the lighting control room, in
communication with the lighting
designer via a headset intercom
(known as the "cans"). I hear the
lighting designer in my ear: "Channel 4
at 40 percent . . . no, make that 50
percent . . . Channels 12, 20 and 31 at
70 percent . . . up half a point . . . lose
Channel 112 . . . show me Channel 56
. . . good, keep that in at 60 percent
. . . down a touch . . . OK, plot this as
Cue 26 in a time of five seconds, and
show us the transition from the
previous cue." I comply, and through
the lighting designer's microphone I
hear the director's approval, and we
move on to the next cue.'

   In this process, it is the role of the
lighting designer to translate the
aesthetic logic of the imagined lighting
into a series of instructions encoded in a
mutually understood technical language.
The lighting operator follows the instruc-
tions of the lighting designer, converting
them into a series of button-presses and

other manipulations of the control surface of the lighting console. So far, so procedural . . .

'Sometimes, it doesn't always go so smoothly. I remember one time, the lighting designer just couldn't get this particular lighting state right. The director had asked one of the stage managers to stand where the actor would be standing on stage in the performance, and the lighting designer was asking me to bring up different lights, but none of them were quite right. Overhearing the discussion between the lighting designer and the director, I could tell that the director was getting frustrated and perhaps losing confidence, while the lighting designer could tell that too, and was starting to panic. I remembered a light that we had used in a previous scene that we hadn't tried yet, so when the lighting designer asked to see another channel, I brought this one up instead. I immediately apologized, "Sorry, my mistake, that was 56 not 54", and put up the channel that the lighting designer had asked for. The lighting designer responded, "actually, let's see 56" and it got the director's approval. It happened so quickly that the director wasn't aware of what I had done, and the lighting designer was back in control."

What is involved in the lighting operator's apparently simple act of delib-erately bringing up the wrong channel? First, and perhaps most clearly congruent with the procedural model suggested above, is the skilful dexterity with which the act is carried out: too fast for the director to notice. This involves, in part at least, the dexterity of the proficient machinist, but it is not limited to dexterity. We might think of the experienced driver who no longer needs to think consciously about clutch and gear stick, and can focus on higher-order matters – such as a greater understand-ing of the driving conditions themselves and the different roles and responsibili-ties, as well as causalities, involved. For the experienced lighting operator, there is no distance between thinking the channel on and doing it, but that lack of distance

widely popular Aristotelian tradition, according to which a further opposition is established between *poiesis* and *praxis* (Balaban). *Poiesis* refers in this case to an activity that is done not for itself, but in order to achieve an end; if the end could be reached without the activity, then the activity could, and should, be dispensed with. *Praxis* is an activity undertaken for its own sake: means and ends are the same. *Poiesis* has no intrinsic value, since it is only a means to an end, and so is ignoble:

[T]he citizens must not lead the life of artisans or tradesmen, for such a life is ignoble, and inimical to virtue. Neither must they be farmers, since leisure is necessary both for the development of virtue and the performance of political duties.
(Aristotle, *Politics*, 1328b 39-1329a 2, cited in Balaban)

In Aristotle, the 'good' or 'virtuous' life is one of *praxis*, not *poiesis*. Hence we now have three sets of terms – *episteme* and *techne*, theory and practice, *poiesis* and *praxis* – which we argue can readily be slipped the one over the other, such that the values accruing to the larger set thereby obtained tend to resonate through the smallest instance of use in particular situations and contexts. What is obtained is neither inert, nor crude: first, it functions as an apparatus, enabling the production, by users, of certain sorts of value-laden judgements as well as under-standings; secondly, the set itself is internally dynamic, and finessed: hence *episteme* (knowledge) does not encompass all knowledge but is limited to that which is universally true; *episteme* is arrived at through demonstration from first principles, and so is distinct from pragmatic knowledge of the contingent world. The craftsperson (*technites*) must have pragmatic knowledge, but, unlike

the 'mere artisan' (*cheirotechnes*), 'the one with *techne . . .* knows the cause and reason for what is done in his *techne. . . .* [T]he person with *techne* is like the person with *episteme*: both can make a universal judgement and both know the cause (Parry 2003). *Techne*, thus, is more than an experientially learnt skill: it is bound up with (yet distinct from) theoretical knowledge. The function of the *technites* is *poiesis*: the craftsperson is a maker, an achiever of ends. The craftsperson has both contingent knowledge and something like *episteme*, but is not a citizen whose business is *praxis* and the virtuous life.

The modern institutions of the arts and sciences have their roots in the invention of Greek alphabetic technology (around 700 BC) and in the intellectual practices such as discourse and analysis that Socrates, Plato, Aristotle and others developed using that technology. Our argument here is that the system of values inherent in Aristotle's philosophy has left its imprint on the modern academy (described elsewhere as 'scriptural' [Certeau 1984]) and science, with greater status given to a supposedly 'pure theory' and to abstract knowledge (*episteme*), above practical purpose (*techne*, *poiesis*). Outside of these insti-tutions – in, for example, expert theatre practices – the values are often, to some extent, at certain specific times, and at certain stages in production, reversed, with utility given greater value. The on-going tension between these two positions is revealed in the present UK government's strategy for Higher Education (2005).[2] Current government thinking places an emphasis on vocational qualifications and on links between the academy and industry, positioning education as a means of sustaining economic growth: learning as

poiesis. In contrast, the (traditional) academy attempts to maintain itself as the institution that sustains the 'knowledge project': learning as *praxis.*

FROM TEXT TO PERFORMANCE, FROM PRODUCTION TO RECEPTION

The study of drama, theatre and performance as a distinct subject discipline emerged, in the UK at least, in the immediate post-Second World War period (Shepherd and Wallis 2005). Initially, the emphasis was on text/drama rather than theatre/performance, for reasons that we might consider to be variously knowledge-political and pragmatic. Knowledge-political, because drama as a subject discipline emerged from the older arts and humanities disciplines of English Literature and the Classics: those disciplines had long claimed proprietorial rights over the works of the poet-dramatists, including Shakespeare, the classical Greek writers and others. Pragmatic, because academic staff and institutions could most readily apply existing practices and philosophies to the new material by treating it in the lecture hall and seminar room as literature – hence relatively stable and transcendent. Furthermore, in the mid-twentieth century the academy was largely concerned with a traditional, well-understood view of the relationship between dramatic text and staging. Patrice Pavis describes this view of *mise en scène* in critical terms:

> The conception most people form when they reflect on the role of *mise en scène* (from which every other role flows) is one of a stage rendering of a pre-existing textual message. Stage expression should supply a more or less faithful (another magic word) equivalent to the text. It is sometimes felt that it is the function of the stage directions to transcode information about the dramatic universe into a decor or a stage figuration. . . . [S]uch observations are unencumbered by explanations concerning the logic of the transcription. It would seem that it is concrete experience which 'proves' that we can – and must – rediscover in the performance whatever was previously in the text.
>
> (Pavis 1982: 144–5)

Wherever this traditional perspective continues to be maintained,[3] performance can only ever be secondary, traced back to a text, in whose terms it assumes the status of an imperfect translation of the original work, while performance *production*, at least when it operates to criteria that apply outside the university, takes third place. It is as if the performance (consumable, discardable, superficial) stands in relation to the (generative) text[4] as a real horse stands in relation to the Platonic 'ideal' horse (although in the professional theatre itself, some still seem to think that they have direct access to the Platonic ideal in the shape of authored writing: they tend to refer, in these sorts of terms, to the nonsensical 'what Shakespeare is actually saying here is . . .', as though this might authorize their own decision-making). *Production*, *production values* and the *techne* of theatre's numerous craftspersons don't really figure in this particular register, not least where the signature of those craftspersons is systematically erased from the public representation of the stage work, overwritten instead by an authorial or directorial signature.

Over the last half-century, the university at least has substantially shifted its attention away from text-as-literature and towards theatre-as-performance. This shift has paralleled (and been in part a result of) broader changes of perspective in the arts and humanities, as well as in philosophy. Postmodern approaches to the cultural should not be confused with a lack of understanding of the larger, dynamic field of operations (including judgement of all kinds). The fact that these latent knowledges are rarely verbalized, and almost never written, does not reduce the vital professional role they play.

Second, then, is the lighting operator's understanding of the aesthetic parameters determining the lighting designer's 'problem', as these interface with a professional grasp of the larger project. It would have been worse than useless – a distraction and an irritation – had the lighting operator brought up a light that hit the right point on the stage but which did not have the required aesthetic quality. The lighting operator is typically not party to discussions between members of the creative team and the other processes involved in the development of the lighting design prior to the lighting rehearsal. The lighting operator's understanding of the aesthetic logic of this particular lighting design must therefore be entirely experiential, developed by observation of the lighting rehearsal so far, informed and contextualized by prior experience with the lighting designer, the director, the style of the production and so on.

Third, and perhaps furthest from the procedural model of the lighting operator's task, is the operator's understanding of the human dynamics of the situation. The lighting operator does not openly propose channel 56 as a solution to the lighting designer. At this point such a suggestion would most likely be brushed aside as an impertinence, or – worse – be picked up by the director and serve to further erode the director's confidence in the lighting designer ('even the operator knows how to light this show better than the designer', thinks the director). Instead, the lighting operator pretends to bring up the channel in error, so bringing it to the attention of the lighting designer, and then corrects the mistake so quickly that the director is unaware that anything has happened at all. It is not clear whether the lighting designer is aware that the operator's

action is a ruse. Either way, it gives the designer the choice to adopt the suggestion as her or his own, or to ignore it as a simple and easily forgivable error on the part of the operator. The lighting designer is put back in control by adopting the operator's suggestion, and the director's confidence in the designer, and the lighting design, is restored or at least boosted. 'Operation', here, requires of the operator a rarely-verbalized grasp, and an understanding of interface manip-ulations, within a rule-governed order, which also prioritizes contingent factors. It is the fact that that order is multi-dimensional, multi-participant and dynamic, as well as emergent in and contingent upon the curiously fraught circumstances specific to the lead-up to a production deadline, together with the fact that such interventions can rarely be deciphered as such in the performance product, that tends to militate against their being generalized in terms of one or another '-ology'. Yet in the apparently simple action of pretending to bring up the wrong channel, the lighting operator reveals to us an unsuspected complexity of understanding and thought by mapping simultaneously the realms of technical proficiency, aesthetic logic and human dynamics, while also accepting not to claim ownership of any of these. The mastercraftsperson navigates these different realms, finding possible points of intersection where an action taken will have the desired outcome in all of them. Let's begin to say so.

GREENROOM TALES

One of the problems we face when trying to inscribe professional practice, to codify it and pin it down for examination, is that it is just that – practice, or, rather, if we take on board the implications of theatre-making collaborations, relationality and catalysis, it is practices, which are internally self-varying and complex. If we are interested not simply in the performance that is produced but in the processes that lead to that performance, then what, if our concern is also to avoid mistaking effects for causes, can we take

landscape arising from late capitalism have, since the final decades of the twentieth century, moved the emphasis away from consideration of the means of production, and towards the study – description and critical analysis – of the processes of consumption, often pursued on the ground from the perspective of what have been called 'spectator theor[ies] of knowledge' (Rosenthal 1986). The study of drama has become the study of theatre, and then of performance, with prac-titioner-writers such as Richard Schechner applying a performance 'way of thinking' to anthropological and social studies and folding the results back into Performance Studies and performance practices. Drama/Theatre/Performance Studies have sought to gain legitimacy within the wider academy through notions of efficacy, adopting terms such as *transgression*, *resistance* and *liminality* to define an understanding of performance's social and cultural role that goes far beyond 'mere' entertainment (McKenzie 2001), seeming to retain an ideological charge and a taste for a self-acclaimed radicalism which can be argued to sit ill with the university itself as a major 'knowledge institution' (Melrose 2003).

As a result of this emphasis on social efficacy and audience reception, the drama/theatre/performance academy has become structured not along professional practice lines but on lines of academic study and performance context. A recent advertisement for a Chair in Drama at Manchester University typically identified the broad areas of expertise that candidates might offer to include 'Theatre History/Historiography, Theatre Criticism, Contemporary Performance Practice, Applied Theatre (including Theatre in Education & Heritage Sites, Theatre in Prisons, Theatre and

Development), Music/Theatre'.5 Such structuring of a complex disciplinary field is in marked contrast to the professional model based on what are seen as the 'components' of performance production: directing, acting, design, technical production, management, producing and so on. What we want to argue is not so much that the academy's structuring explicitly excludes areas of professional practice, but rather that the epistemological model implied and the hierarchies operating within it do not map onto those of professional practice: in professional practice it is much more likely to be the case that a theatre professional who is (for example) a stage manager for a theatre-in-education (TIE) company sees herself or himself as a stage manager first, who has chosen to work in TIE but may move elsewhere, not as a TIE professional with an undergradu-ate degree in community theatre, who has chosen to be a stage manager. The one seems – in terms of the values specific to the academic order – to involve a necessary degree of *abstraction from* the material-real (which real is located in secondary position), the other an unfortunate submerging in it. The one will tend to evaluate that abstraction in *writerly* terms, the other in terms of hands-on knowledge. Ancient prejudice, widely ignored as such, because naturalized and normalized, continues to resonate.

Historically, then, the development of drama/theatre/performance studies (at least in the university – this is precisely not the case in small-scale specialist theatre training institutions, which tend however to view their own practices as 'non-theoretical') tends to take theatre product and its consumption (by so-called 'readers') as its focus, rather than the *means of performance production.* It has

added to that focus on product and consumption, a critical-theoretical concern with social and cultural efficacy. This orientation in the later twentieth century has led to a widespread structuring of the subject discipline *in the university* ('Theatre Arts', 'Performing Arts', 'Performance Studies') in textualist terms ('the text of the stage', the 'discourse of *mise en scène*'; 'reading theatre'). The textualization of theatre practices has tended to be characterized, at the same time, by the *discursive* erasure of both the technical and the technological, together with associated professional practices. It has been possible, over a number of decades, wholly to overlook (by not naming these) the vital role of lighting and sound designer, as well as the professionalism of the performer and, more recently, the IT professional – in striking mainstream productions (amongst which we include the recent work of Wilson and McBurney). This tends to remain the case, in undergraduate courses, at least, even in instances where professional performance-making has undergone transformation through the application of so-called 'new technologies'. To the extent that the contribution of 'new technologies' to performance-making has required input from an IT specialist – hence from a disciplinary other – the *effects* of that input (and not its processes) have tended to be subsumed into performance product, still 'signed', and 'owned', by the theatre director.

CREATIVE PRACTICES AND COMPLEXITY

Before we consider the theatre master-craftsperson's possible place in the knowledge-political landscape that we have described, we need to signal what we mean by *creative practices*. To begin with,

we might note that creative practices are almost always syncretic, connective, relationally-positioned, catalytic and combinatorial: that is, they consist in an actional re-combination – unthinkable/ unwritable, not least by spectators, until it is realized – of a vast range of elements made available in any particular, technologically-defined, situation and context of use, with certain sorts of objectives in view (including the professional). Or, more accurately, the processes and products of creative practices (ideas, insights, expert intuitions, inventions, concrete artefacts and so on) are combinatorial in articulation: for these processes and products to exist in a meaningful sense, they must be communicable to others, in compositional, inventive, innovative but, more important, in conventional terms.

It is on the basis of this catalytic *combinatoire* that *performance-disciplinary* practices, as these are understood in the wider arts communities, are identified and developed[6] – not least in an externally-identified 'interdisciplinary' practice[7] between collaborators. For such communication to be achieved, creative interventions tend to be realized in modes of practice that in turn are able to be received, *worked on* and understood (albeit in terms of *differance*) by others. In semiotic terms, creative mixed-mode practice must be articulable in an agreed, disciplinary-specific set of multi-faceted codes,[8] which may well combine a number of 'process threads' (Massumi 2002: 111–12) – at least one of which involves thematization, while others are specific to the full range of models of performance intelligibility such as authorship, aesthetic signature, production values. Let's be quite clear here: self-proclaimedly *radical* practices can seem to send up a smoke-screen when it comes to their

as evidence? Certainly there is a literature of technical theatre, in the form of magazines and books, but traditionally skills and knowledge in the theatre profession have been passed down primarily by word of mouth. Walter Ong describes the learning mode of people in 'primary oral cultures' (that is, those that have never had a written form of language):

> They learn by apprenticeship – hunting with experienced hunters, for example – by discipleship, which is a kind of apprenticeship, by listening, by repeating what they hear, by mastering proverbs and ways of combining and recombining them, by assimilating other formulary materials, by participation in a kind of corporate retrospection – not by study in the strict sense.
> (Ong 2002: 9)

While the theatre profession is clearly not a Primary Oral Culture, it shares many of its characteristics as outlined by Ong, in particular the junior technicians learning from senior ones through observation, imitation and listening to the fables and legends of the theatre. In Ong's terms, they are 'hunting with experienced hunters'.

It is these sorts of fables and legends, in the form of the Greenroom Tale cited above, which we take as our indicative evidence base. This particular tale is not presented as specific in terms of time, place and incident; rather, it takes specific events that have been retold, altered, amalgamated, passed on, and recombined until they have become exemplary. Our intention is that this indicative Tale should serve as one composite example taken from amongst many of the same type, to stand for and represent them all.[1]

NOTE

[1] Brian Massumi describes a similar use of the exemplary (2002: 17–18). Massumi in turn cites Agamben (1993: 9–10).

disciplinary identity, in order to conceal the latter (judged to be conservative) and to profile the former. Expert spectators have tended, on the (later twentieth century) evidence, to misrecognize the disciplinary continuum that grounds challenging practices, identifying instead with challenge itself. But codes operate, in disciplinary terms (and this is as true of Forced Entertainment's output as it is of work by the RSC), by recombining existing, pre-agreed elements, while allowing new elements (and new meanings accruing to existing elements) to be added only gradually (through processes which are widely and well-practised, while largely remaining inadequately theorized), such that they become understood in terms of the specific setups, situation/s and context in which they are used.

The playwright – where this role applies – works mostly with well-understood materials of written-to-spoken language, together with conventions of narrative, including characterization, plot, as well as those structuring aspects specific to performance as event. Such a work, articulated as it is through the arrangement of pre-existing materials into a form structured by convention, tends, nevertheless, when it works as such, to be considered, with relatively wide agreement by critics and expert spectators and others, to be creative. And this combinatorial-compositional creative connectivity applies not only to formal elements: aspects of content or thematic focus, too, are typically invented within and in terms of pre-existing convention – such as the relatively constrained range of subjects that are judged to be articulated in the dramatico-theatrical medium (as distinct, for example, from film or television drama). Only occasionally does creative invention involve substantially new elements, whether this newness is thematic or formal.

Among many possible examples, we might contrast the reception of Harold Pinter's first play, *The Birthday Party*, which played to almost empty houses and was described by a one critic as 'full of non-sequiturs, half-gibberish, and lunatic ravings' (cited in Lawson 2005), with the reception of Forced Entertainment's *Club of No Regrets* and Theatre de Complicite's *Street of Crocodiles*, each of which was challenging in its way. In the first case, the affective content of the play required Pinter to explore innovative modes of dramatic characterization and plot-structure, while retaining other conventions of form and presentation; the second, some forty years later, had already

observed the relative normalization of non-sequitur, half-gibberish, and lunatic ravings delivered as oral object, as had its audience; while the third retained many progressively modified conventions, intruding movement-based and ludic elements into spectacle in the heart of dramatic characterization itself. Each of these, importantly, drew on performance-production systems, in order to challenge in its own terms.

Creative practice might be understood in terms of a continuum from interpretation (re-articulating existing ideas and works – in theatre terms, the artistry of the performer) to innovation (new ideas and works – in theatre terms, the artistry attributed to the authorial and directorial figure, but also involving the work of the full range of the theatre-technical) (Wikipedia 2005: 'creativity'). The precise point at which a particular creative practice is located on this continuum might well signal the degree to which that creative practice is combinatorial-compositional, rather than 'radical' as such. However, while creative practices may be located on the interpretation-innovation continuum, not all interpretation and innovation is substantially creative, not least because certain factors in a multi-participant framework, such as theatre almost always entails, are contingent upon situational set-up and context, and on accident; or they are based on compromise when production pressures *press in on* decision-making. (In more of these cases than the conventional 'creatives' allow, it is when such production pressures are felt that the creative imagination of the mastercraftsperson tends to come rather significantly into play.)

While creative practices can be characterized, then, by their place on the interpretation-innovation continuum, they are not fully defined by it. We need an additional defining characteristic, and we would identify *complexity*, and point to theatre's recourse to a range of creative practitioners as a major complexifying factor. It might be useful at this point to look at the distinction Cilliers (1998) makes between the *complex* and the merely *complicated*. A complicated (but non-complex) system may have many component parts but relatively few rules determine the operation of the system, and those rules will be unambiguous. Such a system is amenable to procedural manipulation by one's learning and applying of the rules; it can be understood hermeneutically on the basis of its component parts. In contrast, in a complex system

the interaction among constituents of the system, and the interaction between the system and its environment, are of such a nature that the system as a whole cannot be fully understood simply by analyzing its components. Moreover, these relationships are not fixed, but shift and change, often as a result of self-organization. This can result in novel features, usually referred to in terms of *emergent properties.*

(Cilliers 1998: viii)

Complex systems, then, cannot be effectively manipulated through procedural, rule-based approaches. A task that might initially appear to be interpretive and combinatorial, if it operates in terms of a complex system, requires a range of heterogeneous creative intervention because the absence of absolute rules and the system's tendency towards emergent properties together demand the continual reinvention of *understandings* of the system (viewed as dynamic, responsive both to set-up and to contingency and open to judgement). The behaviour of such a system makes it impossible to predict precisely the outcomes arising from a given input; to guide the system towards the desired state requires judgement as well as a continual reappraisal of technique and method.

Heterogeneous creative practice, then, is not simply a matter of bringing-forth the new. While it is characterized by a degree of making-new, creativity may also be substantially interpretive and combinatorial where it is applied to complex systems. In our attempt to theorize the creativity of the theatre technician, we will be seeking evidence not only of the bringing-forth of the new but also evidence of interpretive practices operating within complex systems.

COMPLEX SYSTEMS: OPERATING IN THREE REALMS

We have seen how the value system of Aristotle's philosophy, which is still influential today, has prioritized the universalizing and abstracting tendencies of art, science and philosophy over the pragmatic specifics of craft and technology. We have also seen how the operation of these values in the academy, together with the particular evolution of Performance Studies, have resulted in the discursive erasure of the work of the master-craftsperson from performance writing. In our attempt to theorize the creativity of the mastercraftsperson, we have considered the nature of creativity, concluding that what superficially appears to be the procedural and combinatorial manipulation of a system may be creative if the system

involved is complex rather than merely complicated. At this point we can ask: what are the characteristics of complex systems, and what grounds are there to argue that theatre mastercraftspersons are involved in manipulating such systems?

While the specifics of the system manipulated by the mastercraftsperson will vary considerably depending on the professional role (that of a stage manager will be quite different from that of a lighting technician), we can identify a system that all mastercraftspersons are both part of and manipulate. We shall term this system the *production organism*, choosing 'organism' over 'machine' or one of its synonyms to serve as a reminder that the system here is greater than the technological infrastructure of the theatre. We shall subdivide the production organism for our purposes into three parts or *realms*: 1. the *technological-real*, 2. the *fictional-affective*, and 3. the *human-real.* The mastercraftsperson is most obviously involved with the realm of the technological-real, including the apparatus of the stage itself and its associated facilities such as workshops, together with the material of the performance: set, costumes, props. Her/his role here tends to be boundary-marked in terms of a particular, named field of competence. The fictional-affective realm involves the imaginary 'little world' of the performance, and real actions here are specific to worlding' strategies. Sometimes (for example in the case of much contemporary dance) the fictional-affective is relatively abstract, designed for unfictionalized affect and lacking the dimension of character and plot. The third realm, the human-real, entails the full set of professional roles associated with the performance, people with whom the mastercraftsperson interacts: the director, designers, other mastercraftspersons, the audience and so on.

These realms are closely interlinked; an action in one has immediate consequences in the others. For example: a sound technician chooses the physical location of a loudspeaker for the playback of a sound effect (the *technological-real*); the positioning of the loudspeaker in part determines the sense of 'presence' of the sound as it is heard by the audience (the *fictional-affective*); the director, performers and others change, however slightly, their understanding of the performance aesthetic as well as their judgement of the sound technician's professionalism. This later consequence closes the loop: the director's understanding of what it is possible for sound to do in the

fictional-affective realm is changed and, consequently, so are the demands that the director may make of the sound technician (the accompanying 'Greenroom Tale' offers a further, and more detailed, example of how the master-craftsperson operates in the three realms to find points of sensitivity where change in one realm can effect change in the others).

What evidence is there that the production organism is a complex system? While it is not possible to arrive at a universal definition of what constitutes a complex system, we can (drawing in significant part on Cilliers's analysis [1998: 2–4]) identify some of their characteristics:

- **Complex systems have many elements.** In the production organism, the realm of the technological-real clearly has many elements (the infrastructure of the performance space, the set, costumes, lighting equipment, sound equipment and so on) each of which comprises a much larger number of subsidiary elements. The realm of the fictional-affective similarly has many elements; many of the elements in the technological-real have a counterpart in the fictional-affective, and in addition there are the spoken and other performance texts mediated by the actors. The realm of the human-real typically has the fewest elements (in the form of the production personnel).
- **The elements must interact, and in a rich, *other-than-linear* way.** Interactions that expand in space are essential to the performance organism: the size of one element's response to a stimulus will vary according to the current state of the system, to its past state, and according to the practitioner aspiration to qualitative transformation.[9]
- **There are loops in the interactions (*recurrency*).** Positive and negative feedback occurs.
- **Complex systems are usually open systems – they interact with their environment.** The production organism as an entity, and its constituent elements, interact with the production organisms of other performances and the theatre industry as a whole, as well as with the wider social, cultural, political and technological environment.
- **Complex systems operate far from equilibrium, in a state of continual interaction and change.** Continual change is self-evidently the case during the 'rehearsal and development' phase, but live theatre – despite the stabilizing strategies employed through *mise en scène* –

is made anew each time it is performed.[10] The event is not the production organism in stasis or total equilibrium but in a process of guided, constrained change.
- **Complex systems have history: their past is co-determining of and co-responsible for their present behaviour.** Their history, viewed as traditions of professional practice and experience, is embedded in the realms of the technological-real and human-real. The realm of the fictional-affective is similarly inflected historically.
- **Each element is ignorant of the system as a whole, responding only to local influences.** That is, no one element – not even the 'auteur'-function – contains or controls the complexity of the system.

In one respect, however, the production organism departs from the model of complexity described by Cilliers. Both the human brain and written and verbal language are complex systems in Cilliers' terms, and the production organism contains both, but Cilliers does not explicitly consider complex systems that contain other complex systems. Nevertheless, and leaving aside the possibility of a yet more complicated complexity, we can reasonably conclude that the production organism is complex in terms of Cilliers' model.

TECHNICAL RATIONALITY AND REFLECTIVE PRACTICE

Cilliers' model of complex systems achieves reasonable 'fit' for the practices and operational environment of the mastercraftsperson, but what basis do we have for preferring this model to the conventional and widely-held 'procedural' model? While the accompanying 'Greenroom Tale' examines the complexity model in terms of the specifics of the theatre mastercraftsperson's practice, Schön's mid-1980s analysis of professional practice (focused on professionals such as doctors, lawyers, architects and engineers) is also useful and revealing. Although we cannot fully rehearse Schön's arguments here, we note his opening questions and observations:

> We are in need of inquiry into the epistemology of practice. What is the kind of knowing in which competent prac-titioners engage? How is professional knowing like and unlike the kinds of knowledge presented in academic textbooks, scientific papers, and learned journals? In what

sense, if any, is there intellectual rigor in professional practice?

(Schön 1983: viii)

Schön goes on to describe the traditional view of how professionals operate ('Technical Rationality', which we have called the 'procedural' model) in which 'professional activity consists in instrumental problem solving made rigorous by the application of scientific theory and technique':

> The systematic knowledge base of a profession is thought to have four essential properties. It is specialized, firmly bounded, scientific, and standardized. This last point is particularly important, because it bears on the paradigmatic relationship which holds, according to Technical Rationality, between a profession's knowledge base and its practice.
>
> (Schön 1983: 23–4)

While the work of the theatre mastercraftsperson is not generally seen as 'scientific', it is seen as being skills- and craft-based, 'specialized, firmly bounded . . . and standardized'. Under both Schön's model of 'technical rationality' and our 'procedural' model, the process of achieving professional mastery is the same: acquire the professional knowledge, learn the techniques of applying this knowledge to predefined, well-understood (by professional masters) situations. The focus is on problem-*solving*, with little consideration given to problem-*setting*.

As an alternative to technical rationality, Schön has proposed a model based on knowledge-in-action, reflection-on-action and reflection-in-action. The model of the operating environment that Schön describes is characterized by 'complexity, uncertainty, instability, uniqueness and value conflict'. This environment has much in common with complex systems as defined by Cilliers. It is uncertain because the large number of interacting elements make it impossible to fully predict the system's behaviour. It is systematically lacking in stability for the same reasons, recalling the observation that complex systems are non-linear. Hence, small stimuli may produce large responses, and the response to a particular stimulus will depend on the state of the rest of the system, itself not fully knowable. It is unique because of its capacity for evolving emergent properties. It permits and makes inevitable value-conflict because it is not rigidly structured in accordance with a single value-system. In this model, practitioners do not simply categorize their found situation within a taxonomy of predefined problems with

predefined solutions but are active in problem-definition as much as problem-solution: in Schön's terms:

> When someone reflects-in-action, he becomes a researcher in the practice context. He is not dependent on the categories of established theory and technique but constructs a new theory of the unique case. . . . Because his experimenting is a kind of action, implementation is built into his inquiry. Thus reflection-in-action can proceed, even in situations of uncertainty or uniqueness, because it is not bound by the dichotomies of Technical Rationality.
>
> (Schön 1983: 68–9)

An important consequence of our epistemic shift, from a procedural model of the work of the theatre master-craftsperson to one operating within and as part of a complex system, is that the mastercraftsperson's actions can now be seen to be based on qualitative judgements. Without rigid, predefined procedures that have system-wide values hard-coded into them, the mastercraftsperson must make judgements that compare the (imperfectly) predicted outcomes of action with the desired outcomes. These desired outcomes are again a matter of judgement, since the mastercraftsperson calculates them on the basis of an understanding (again imperfect) of the total system. To return to our example of the sound technician positioning a loudspeaker, this mastercraftsperson must come to a value judgement as to the best location by mapping the consequences of the possible choices in the realms of the technical-real ('where is it physically possible to position the loudspeaker, given practical constraints of access, health and safety regulations and so on?'), fictional-affective ('where will it create the best result in terms of the desired aesthetic effect of the sound?') and human-real ('does the director have the same aesthetic understanding of the sound that I do?'). This is quite different from the procedural model, in which judgement is not required; the decision is more likely to be based on 'this is the best place according to the textbook or the manufacturer's guidelines or what I was told' or even 'this is where the loudspeaker always goes'.

Brian Massumi offers a further variation of the procedural/complexity opposition, proposing instrumental/operative reason: 'instrumental reason' (equivalent to our 'procedural' model and Schön's 'technical rationality') as opposed to 'operative reason' (equivalent to our 'complexity' model and Schön's 'reflection on/in action'). Massumi describes operative reason as

pragmatic rather than analytic. It doesn't master a situation with exhaustive knowledge of alternative outcomes. It 'tweaks' it. Rather than probing the situation to bring it under maximum control, it prods it, recognizing it to be finally indomitable and respecting its autonomy. Operative reason is concerned with effects – specifically counter-effects – more than causes. It deploys local interventions in an attempt to induce a qualitative global transformation: small causes with disproportionate effect, excess-effect, a little tweak for a big return. Operative reason is inseparable from a process of trial and error, with occasional shots in the dark, guided in every case by a pragmatic sense of the situation's *responsivity* (as opposed to its manipulability).

(Massumi 2002: 111–12)

Massumi's description reminds us of the importance of *imagination* in the work of the mastercraftsperson. The mastercraftsperson 'thinks the future' (*futurity*) not in a simple sense of a predefined, known, generic outcome imagined in the specific here-and-now, but in a way that attempts to calculate (again, imperfectly) the effect on the totality of the production organism: to deploy 'local inter-ventions in an attempt to induce a qualitative global trans-formation'. This intervention is ontogenetic. Tweaking and prodding the production organism to find lines of (imagined) potential, the mastercraftsperson is as much concerned with preventing the unwanted response, for qualitative transformation, particularly in the fictional-affective realm, may well be destructive: an ill-judged small input can readily destroy the desired effect and affect of the moment in the performance event.

The mastercraftsperson also employs imagination in another sense: not to judge the outcomes of specific actions but to redefine the relationship between the technological-real and the other realms of the production organism. In other words, mastercraftspersons *dream (in action)*. This dreaming is an imagining of technological potential ('what if we could . . .?'; 'how can we . . .?') and a mapping of that potential onto the realm of the fictional-affective ('what would it be like if . . .?'). Dreaming is often shared, involving several mastercraftspersons, and may be outside of the context of a particular production. Such 'greenroom' or 'pub' conversations often take the form of wild flights of fancy, following the 'agreeing and adding' form used in improvisational comedy: 'what if we did . . .?', 'yes, and then you could . . .', 'hey, yes, and then . . .'. The technical-real is often seen as imposing limits on the fictional-affective – the limits of the technically possible – and in one sense this is the case. However, the human-real

also imposes its limits on the fictional-affective, in the form of *perceived* limits of the technically possible; these limits are actually set by custom and practice and the already-imagined. In other words, what is thought by production personnel to be possible is not the same as what is possible in terms of available technology. The dreaming of mastercraftspersons acts to push the envelope of what is thought possible, opening up new possibilities for directors, designers and other personnel.

CAVEATS AND CONCLUSIONS

We have argued that the contribution of the master-craftsperson to theatre-making has been erased from Performance Studies writing and ways of knowing, with the result that it has remained largely untheorized in expert writing. We have further argued that what we have called the 'production organism' is a complex system and that the work of the mastercraftsperson can better be understood by making an epistemic shift away from a 'procedural' model (what Schön calls 'technical rationality' and Massumi 'instrumental reason') and towards a 'complexity' model (what Schön calls 'reflection on/in action' and Massumi 'operative reason'). This epistemic shift has lead us to an understanding of the master-craftsperson as operating within a complex system, which demands creativity in the face of uncertainty in order to make value judgements as to the outcomes of her/his actions in the three realms of the technological-real, the fictional-affective and the human-real. We have also proposed that the mastercraftsperson has a role as dreamer, in order to redefine some of the interrelation-ships between the three realms. In parallel to this consciously theoretical thrust, an 'evidence' thread which we have briefly represented above (the 'Greenroom Tale') has deconstructed an exemplary incident drawn from professional practice in order to provide a complementary perspective.

Interestingly enough, Schön acknowledged the limits of his proposal concerning the ways in which an expert prac-titioner develops in practice: he wrote in the mid-1980s that

as a practice becomes more repetitive and routine, and as knowing-in-practice becomes increasingly tacit and spontaneous, the practitioner may miss important oppor-tunities to think about what he is doing. . . . When this happens, the practitioner has 'overlearned' what he knows.

[On the other hand,] a practitioner's reflection can [in fact] serve as a corrective to over tacit understandings that have grown up around the repetitive experiences of a specialized practice, and can make new sense of the situations of uncertainty or uniqueness which he may allow himself to experience.

(Schön 1983: 61)

Our own argument here, concerning the individual practitioner's role in expert *theatrical* collaborations and interfaces and the focus on a future calculated as transformative, may well, in the case of the theatre practitioner, militate against the sense of 'repetitive experiences'. Where a public institution, pedagogic or medical, may aim for 'best practice' and 'individual responsibility' within relatively restrictive frameworks, theatre practices in the European and English-language models of the twentieth and twenty-first centuries continue to draw on convention precisely in order to explore difference. A technical operator in the theatre who cannot take that challenge on board is unlikely to prosper professionally.

However, Schön's model of the 'reflective practitioner' has not gone uncriticized. Shirley Lawes has argued (in the context of teacher training) that 'the process of reflection . . . is necessarily subjective, and necessarily inward-looking.' 'Far from encouraging a critical perspective', she claims, 'reflective practice is more likely to encourage conformity and compliance' (2004: 197–201). Lawes does not argue that the reflective practitioner model is not an accurate or useful description of how professionals operate, but she does identify it as a destructive model to pursue in the training of such professionals and in terms of professionals' self-understanding. Instead, Lawes argues for a return to placing 'theory' – whatever she might understand that term to mean – not reflection, at the centre of 'practice'. She thereby reiterates the sort of prejudice that concerned us at the beginning of this paper.

How then can we resolve the problematic theory vs. (reflective) practice dichotomy, both

in terms of how academics understand the practice of the theatre mastercraftsperson, and in terms of how mastercraftspersons should be educated and so come to understand their own practice? On the one hand, giving primacy to theoretical *writing* leads to the procedural model that we have already criticized as unrealistically simplistic. On the other hand, giving primacy to mixed-mode practices leads to the complexity model that (however effective it might be as a *description* of practice) runs the risk of encouraging practitioners to reject theoretical positioning and discourses, becoming excessively inward-looking. They thereby create their own localized understanding that seems to lack abstraction, generality and transferability. For the practitioner operating within the uncertainty of a complex system, Cilliers offers one approach: we should 'follow principles *as if they were universal rules* . . . but we have to remotivate the legitimacy of the rule *each time we use it*' (Cilliers 1998: 139). Rules must not be followed blindly but responsibly (which is to make value judgements), and it may be necessary to break them. Cilliers argues that making responsible judgements involves:

- Respecting otherness and difference as values in themselves.
- Gathering as much information on the issue as possible, notwithstanding the fact that it is impossible to gather *all* the information.
- Considering as many as possible of the possible consequences of the judgement, notwithstanding the fact that it is impossible to consider *all* the consequences.
- Making sure that it is possible to revise the judgement as soon as it becomes clear that it has flaws, whether it be under specific circumstances, or in general.

(Cilliers 1998: 139–40)

This approach suggested by Cilliers, and brought into productive overlap with notions and ways of seeing set out by Schön and Massumi, may not seem especially radical from the perspective of Performance Studies, which has often embraced a postmodern sidestepping

NOTES

[1] According to Richard Parry (2003), 'In Plato's dialogues the relation between knowledge (*episteme*) and craft or skill (*techne*) is complex and surprising'.

[2] DfES, *The Future of Higher Education.*

[3] Christopher Balme sets out the bases for an understanding of *mise en scène* that is not narrowly bound back to the dramatic textual tradition.

[4] This 'surface versus depth' model derives loosely from Noam Chomsky's generative linguistics, reinterpreted by some writers in terms of theatre traditionalists' own, similarly idealizing agendas, according to which theatrical 'truth' is writing-based, authorially-signed, able to generate multiple theatrical representations each of which is resolvable to the dramatic text.

[5] Standing Conference of University Drama Departments email list, March 2004.

[6] This despite the theoretical drift away from *discipline* in, for example, McKenzie's important contribution to debate in his *Perform or Else: From Discipline to Performance* (2001).

NOTES /continued

7 We might want to note the difference between a professional interdisciplinarity (where artists from different disciplines collaborate in performance-making) and a university-specific interdisciplinarity, which in the worst, inadequately-resourced instances, results from a lack of any one disciplinary mastery as such.

8 For the present purposes we are assuming that such communication is possible, at least approximately, whilst acknowledging the limitations of such a position expressed by Jacques Derrida and others.

9 'Qualitative transformation' appears in Massumi (2002).

10 We might argue that in certain performance traditions, such as the long-running commercial show, some aspects of the production organism operate in such a deterministic and stable fashion as to become non-complex. See Hunt (2001) for a discussion of this question in the context of lighting operation.

of universalizing rules, claiming to prefer the local and the particular. However, postmodern approaches have not always been able to theorize the ways judgement is consistently performed in the face of uncertain and changing circumstances. Academics and theatre professionals alike may benefit from a reappraisal of their understanding of the practices – whence the potential contribution to theatre-making and understandings – of the expertise of the mastercraftspersons.

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