The costuming of Ariel in the original performances of The Tempest by the King's Men has an important bearing on our understanding of the play's significance for its first audiences. Costume changes are central to the representation of an "ayrie spirit" who can impersonate both a flying harpy and the earth goddess Ceres, who claims to have "flam'd amazement" aboard ship, and yet quite possibly spends most of the play dressed as a water-nymph. New evidence has recently come to light which gives us important clues about the design of Ariel's costumes. Taken together with the possible staging of certain moments in the play, especially those involving the use of flight machinery, the evidence concerning Ariel's costumes throws light on the means by which extremely rapid changes of appearance were made.

Ariel is never visible as himself to any character on the island except Prospero. Apart from his 'performances' as a harpy and as Ceres, both of which require a change of costume, Ariel's presence is detected by onstage characters only by the sounds he makes. The Folio stage directions\(^1\) describe his entrances as "inuisible" on just two occasions: in 1.2, "Enter Ferdinand & Ariel, inuisible playing & singing" (TLN 519), and in 3.2, "Enter Ariell inuisible" (TLN 1392). The logic of the play demands that Ariel is also invisible to onstage characters when he enters in 2.1, 4.1 and 5.1. The word 'invisible' is more of a literary than a theatrical signal since it informs the reader but not the actor or audience, and John Jowett considers its use to be a possible example of sophistication by Ralph Crane as he transcribed the copy for the Folio\(^2\). The inconsistent use of 'invisible' in stage directions can not help us determine whether a costume was used to indicate that Ariel could not be seen.

Michael Baird Saenger has claimed that the costumes of Caliban and Ariel-as-sea-nymph were first used in a sea-pageant on the Thames celebrating the investiture of Prince Henry as Prince of Wales, described in a pamphlet by Anthony Munday\(^3\). On 5 June 1610 Richard Burbage and a boy, John Rice, were rewarded by the London Corporation for their performance in this sea-pageant by being allowed to keep the expensive costumes that they wore. Munday builds up to the appearance of the actors thus:
Wherefore let vs thinke of Neptune, that out of his spacious watrie wildernes, he then suddenly sent a huge Whale and a Dolphin, and by the power of his commanding Trident, had seated two of his choicest Trytons on them, altering their deformed Sea-shapes, bestowing on them the borrowed bodies of two absolute Actors, even the verie best our instât time can yeeld; & personating in them, the seuerall Genii of Corinea, the beautifull Queene of Cornwaille, and Amphion the Father of hermonie or Musick. Munday's description inverts the impersonation and describes the tritons as being made man-like, which presumably means that they are made into bipeds in order to sit astride their mounts. But the impersonation does not end there. One of the tritons has to play the part of Corinea and the other Amphion. In an extended literary 'stage direction' which recreates the scene for the reader, Munday describes Corinea's approach to Prince Henry: CORINEA, a very fayre and beautifull Nimphe, representing the Genius of olde Corineus Queene, and the Prouince of Cornewall, suited in her watrie habit yet riche and costly, with a Coronet of Pearles and Cockle shelles on her head, saluteth the PRINCE. Saenger finds in this description strong echoes of Ariel's water-nymph costume, particularly in the coronet of pearls and cockle shells which is "a complementary sign of a sea-nymph" and which makes a "delicately ironic literalization" of Ariel's song to Ferdinand ("Full fadom fiue...") in 1.25. Munday's 'stage direction' for Burbage's 'entrance' in the sea-pageant includes similar head-gear: AMPION [sic], a graue and iudicious Prophet-like personage, attyred in his apte habits, euery way answerable to his state and profession, with his wreath of Sea-shelles on his head, and his harpe hanging in fayre twine before him: personating the Genius of Wales, giueth the Prince this Farewell.7

Saenger's case for the costumes described by Munday being those used in the first performances of The Tempest rests on two facts: they are appropriate for Caliban and Ariel-as-sea-nymph, and they came into the possession of Burbage and Rice around the time that Shakespeare was beginning composition of the play8. An additional piece of supporting evidence, not offered by Saenger, is that Ariel's transformation into a sea-nymph must be accomplished extremely quickly, between TLN 437 and 453. Moreover, if this costume becomes his normal appearance throughout the rest of the play, as Andrew Gurr has argued, he must be able to revert to it very quickly9. To establish the particular suitability of the costumes described by Munday requires an examination of the time allowed for each of Ariel's costume changes.

Ariel appears in four different costumes in the play. The costuming for his first entrance, in 1.2, is not specified in the text. Next comes the water-nymph costume he puts on at Prospero's command. The third costume is whatever makes Ariel be "like a Harpey" in 3.3, the banquet scene, and the fourth is the costume that transforms him into Ceres for the masque in 4.1. It is not clear from the text as we have it whether the water-nymph costume becomes Ariel's normal appearance for the rest of the play. It is possible that at some point Ariel removes this costume and reverts to whatever he wore on his first appearance, or even some other unnamed costume.
Gurr has undertaken a timing of Ariel's costume changes and concluded that Shakespeare was in London during the composition of the play and that by experimentation in the playhouse he determined precisely the length of time needed for each change of appearance. Gurr notes a symmetry in the time allowed for Ariel to put on and remove his costumes, which he attributes to Shakespeare demanding the quickest possible change in each case. An examination of each costume change in turn will reveal that the situation is more complex than Gurr allows.

In 1.2 Ariel is allowed 16 lines to fulfil Prospero's command to make himself "like a Nymph o'th'Sea", between his exit at TLN 437 and his re-entrance "like a water-Nymph" at TLN 454. Gurr assumes that this change of appearance involves a costume which "takes sixteen lines to put on", but there are other possibilities. If a costume is to be put on there are two further possibilities to be considered: the actor may remove some clothing first, or else wear the new costume over the existing one. We have no direct evidence in this case but the question becomes increasingly important as further changes of appearance are required. Whichever is done here, the 16 lines of dialogue do not allow much time for the actor playing Ariel to effect the transformation. Gurr believes that it is the water-nymph costume that confers invisibility on Ariel and that, having put it on in 1.2, he wears this continually except when wearing the harpy and Ceres costumes. Ariel's invisibility is first mentioned when he is told to make himself "like a Nymph o'th'Sea" and Gurr's assumption has the dramatic advantage of providing a visual signal for the audience who have not the benefit of Crane's readerly stage directions. For the Oxford Shakespeare Stephen Orgel makes the opposite assumption, that Ariel "is no longer dressed as a water nymph" when he enters to wake Gonzalo in 2.1 (TLN 999) but does not give any evidence for this, and without making it clear whether the two intervening entrances (TLN 519 and 862) were without the water-nymph outfit, although the song "Full fadom fiue..." would clearly benefit from the visual effect.

Ariel's next change of appearance requires that he become "like a Harpey" for the banquet scene, 3.3. To prepare for this Ariel exits at the end of the previous scene, at TLN 1512, and 71 lines of dialogue elapse before he re-enters at TLN 1583 as the courtiers approach the banquet. As with the water-nymph costume, Gurr assumes that the harpy costume is something that Ariel puts on: "He then has seventy-one lines to dress himself with the Harpy costume and wings before entering to the courtiers and their banquet". If so, the harpy costume is either worn over the water-nymph costume, or the 71 lines available include some allowance for removing the water-nymph costume. Both Jowett and John Cranford Adams have convincingly argued that Ariel descends from above, and if we accept this hypothesis the harpy costume might not be something Ariel 'puts on' at all. Adams's analysis of the staging of this scene offers the possibility that the harpy costume was a kind of 'car' into which the actor was strapped and then lowered over the table in a prone position. Adams considers this an evolutionary development from Jupiter's descent on an eagle in Cymbeline, rather than a true free-flight. The harness which attached to the suspension lines was part of the harpy
costume rather than a separate item worn by the actor prior to putting on the costume.

In an analysis of the staging of gallows scenes in Elizabethan drama, and the problem of realistically representing a hanging, John H. Astington has shown examples of basketwork and canvas being used to make a harness to which the real suspension line was attached, the noose itself remaining safely free of tension\(^\text{17}\). Such constructions were designed to absorb the shock of sudden suspension and prevent injury to the actor. This technology was available from the 1570s, according to Astington, and we might wonder why it did not lead to the use of free-flight as soon as playhouses were fitted with a stage-cover. In case of failure of the suspension lines a fall from a gallows is much less dangerous than a fall from the height of the stage-cover, of course, but this does not seem to have discouraged descent within a vehicle such as a throne. These vehicles must have been sufficiently well designed and strongly built as to inspire the confidence of the actor riding them. Adams's suggestion of a evolutionary change from descent within a throne to free-flight locates the explanation within theatrical technology: the vehicle was reduced in size until it was just a harness around the actor. This new vehicle would need to be as securely fastened to its suspension lines as the throne had been whilst being as unobtrusive as the gallows-harness. Adams sees Jupiter's eagle and Ariel's harpy costume as evidence of the King's Men leading this impressive drive towards unencumbered flight\(^\text{18}\). If Ariel-as-harpy descends from above an allowance must be made not only for putting on (or being strapped into) the harpy costume, but also for getting from the backstage area to the loading station from where the descent begins.

Both Adams and Jowett argue that a descent to a position above the banquet is the most likely staging, and that Ariel re-ascends at the stage direction "He vanishes in Thunder" (TLN 1616). Gurr, on the other hand, appears to be thinking of Ariel entering and leaving on foot via the stage doors, since he wonders whether Ariel is to "remain on stage" to hear Prospero's praise for his performance as the harpy\(^\text{19}\). The means of exit is important because Gurr notes that there are 71 lines of dialogue between Ariel-as-harpy's exit at TLN 1616 and his reappearance as himself at TLN 1687, the intervening time being used by the actor to remove the harpy costume. It is no coincidence, Gurr argues, that 71 lines of dialogue are required to remove the harpy costume since it took the same number of lines to put on, between TLN 1512 and TLN 1583. However there is the problem of Ariel being addressed by Prospero (“Brauely the figure of this Harpie, hast thou / Perform'd, (my Ariell)" TLN 1619-20) after Ariel's direction to exit, and Gurr examines the consequence of Ariel not being able to leave until Prospero departs at the end of the scene (TLN 1649). This would rob Ariel of the time taken to speak 33 lines, thereby upsetting the symmetry and leaving little time for the change of costume.

Gurr responds to this problem by invoking the duration of the act interval between 3.3 and 4.1, which he asserts would "have lasted the equivalent of about thirty lines of dialogue"\(^\text{20}\). In support of this assertion Gurr offers the evidence of the final act interval of Francis Beaumont's _The Knight of the_
Burning Pestle which lasts "a little over thirty lines"\textsuperscript{21}. This play is unique in having the material intended for the act intervals reproduced in the early printed text. The material consists of scripted dialogue and cues for music and dancing, and the fourth interval is occupied by a speech of some 36 lines by Rafe\textsuperscript{22}. Or rather, this is the fourth interval if we agree with Gurr that the marker "Finis Act. 4" is misplaced at the end of Rafe's speech and belongs before it\textsuperscript{23}. Two objections can be raised against this evidence. The very singularity of this example should make us wary of relying too heavily upon it without corroboration, and, more importantly, the authorial scripting of such material means these are scarcely act intervals at all in the usual sense. There is no reason to suppose that there was any standard length for act intervals, and the occasional use of the expression 'long act' in prompt books and early printed texts suggests that intervals of uneven length could be scheduled within a single play\textsuperscript{24}. However, if we accept Gurr's figure of 30 lines as the length of the act interval between 3.3 and 4.1 of The Tempest, and do not allow Ariel to exit until the end of 3.3 as Gurr suggests, the approximate symmetry of 70 lines to put on and another 70 to take off the harpy costume is restored.

Because he is looking for symmetry Gurr considers only the two staging possibilities that give Ariel roughly 70 lines to get out of the harpy costume, since that is how long it took to put on. In fact there is no reason for Ariel to wait for Prospero to finish his speech, since only the first four lines are addressed to him and he may leave after them. This is especially true if Ariel is ascending into the heavens during this address. Several of the Folio text's stage directions conflate into a single instruction actions that occur over the next few lines of dialogue. The long direction for the setting out of the banquet (TLN 1535-8) and the long direction for the break up of the masque (TLN 1805-8) use a mode of continuous narrative which, as Jowett points out, has the effect of "running events together which are separate in the text"\textsuperscript{25}. The stage direction for Ariel-as-harpy's exit is another such case and rather than imagine that he "vanishes" and then is addressed by Prospero, or fails to vanish despite the stage direction instructing him to do so, it were better to imagine Prospero commending Ariel as he rises and disappears into the heavens. This commendation occupies the first four lines of Prospero's speech (TLN 1619-22) until, with Ariel disappearing from view, he turns his attention to the "meaner ministers" who have been gracefully removing the banquet table. Such a staging would give Ariel 65 lines plus an act interval to remove the harpy costume. If the interval was about 30 lines, as Gurr argues, the symmetry that is central to Gurr's argument about the precise timing of costume changes is destroyed, since only 71 lines were required to become "like a Harpey" but 95 lines are allowed to reverse the process.

Ariel's next costume change is required for him to take the part of Ceres in the masque in 4.1. This is a piece of doubling suggested by the need for a good singing voice for both parts and also by Ariel's statement that he "presented Ceres" (TLN 1840). Ariel is allowed 27 lines to get into the Ceres costume, between his exit at TLN 1706 and his entrance as Ceres at TLN 1733. Assuming that Ceres, Juno and Iris exit when the nymphs and reapers "vanish" as the masque is halted by Prospero (TLN 1808), Ariel has 29 lines
before his re-entrance as himself at TLN 1837. If we read this stage direction as another running together of events then the spirits in the masque should probably freeze when Prospero "starts sodainly and speakes" (TLN 1807) but not "vanish" until he says "Well done, auoid: no more" (TLN 1812). This gives Ariel just 25 lines before he re-enters at 1837. This example appears at first to exhibit the rough symmetry that Gurr posits.

The problem of removal of existing costume before putting on another is particularly acute if Ariel plays Ceres in the masque, and all the more so if, as Gurr believes, Ariel's water-nymph appearance is achieved by putting on a costume. To avoid the actor having to put on a third layer to represent Ceres (on top of the water-nymph costume which is on top of whatever Ariel first appeared in) some shedding of clothes might have preceded the transformation into Ceres. Gurr does not refer to Ceres's means of departure and probably assumes entrance and exit by stage doors when summarizing this example of symmetry:

He gets 27 lines between his exit as Ariel at TLN 1706 and his entry as Ceres at TLN 1733, then has 29 lines, or 25 lines of dialogue plus some business, between his departure as Ceres at the end of the masque at TLN 1808 and his re-entry at TLN 1837 in 'Thy shape invisible', as Prospero calls it at TLN 1859.26

Gurr believes that the water-nymph costume denotes Ariel's invisibility. If so, the 25-29 lines available to remove the Ceres costume must include some time allowed for putting the water-nymph costume back on, unless the actor is already wearing it underneath the Ceres costume. If Gurr is right that the water-nymph and Ceres costumes are things to be 'put on' there is either some frantic swapping of layers or the latter can be worn over the former.

Gurr's hypothesis is plausible for exits and entrances via stage doors. There is good reason, however, to believe that although Ceres enters by a stage door, she exits by ascending into the heavens with Juno at the end of the masque. Jowett makes a convincing case for Ceres joining Juno in her descended throne and the two of them being raised into the air. The spur for this line of thinking is the problem of interpreting Juno's command to Ceres, "goe with me / To blesse this twaine" (TLN 1764-5). Juno has probably only just landed in her throne, since her descent was indicated by Ceres's remark "Great Juno comes, I know her by her gate" (TLN 1763). Juno here begins the second part of her descent, which could not start until the question of Venus's absence was addressed. Since in the very next line Juno says to Ceres "goe with me", Jowett asks the rhetorical question "has she in the space of a line arrived on the stage and disembarked?". As an alternative to the hypothesis that Juno has stepped out of her throne and on to the stage, Jowett suggests:

Might not Juno invite Ceres to join her in her throne? If this was the case, the goddesses would then be raised to a halfway stance between the stage and the heavens for their song. This would not bring them closer to Ferdinand and Miranda, but would suggest that blessings 'shower' or 'fall' on the couple. The spectacle of the suspended deities would justify Ferdinand's comment 'This is a most maiesticke vision'--far more so than three characters standing on the
stage with a bathetically grounded throne. As the text might imply, Ceres would have joined Juno in her element, rather than the other way round. This arrangement would also enhance the significance of Iris's role as intermediary between the goddesses and the dancers. Apart from her presence, the masque area of the stage would be clear for the dancing. From their station aloft, Juno and Ceres would be rapidly pulled up to the heavens when the spirits 'vanish'.

Orgel is so convinced by Jowett's conjectured staging that he relies upon it when emending the clearly incomplete stage directions of the Folio. It must be noted, however, that this staging makes Gurr's analysis of costume changes unworkable. The 25-9 lines Ariel has to remove the Ceres costume and revert to the water-nymph appearance roughly match the 27 lines earlier taken to become Ceres. But the earlier operation was performed within the backstage area. If Ariel-as-Ceres vanishes into the heavens with Juno then the actor must also rush down from wherever the throne is unloaded, which at the Blackfriars playhouse was probably the room above the Upper Frater. Getting down to the backstage area as well as changing out of the Ceres costume and into the water-nymph costume within the 25-9 lines available is clearly impossible. Nevill Coghill estimated that 20 lines were spoken in a minute of Elizabethan drama by its original actors. From Spevack's concordances we may determine that the average number of lines in a Shakespeare play is 291830. If we take the minimum running time as 2 hours and the maximum as 3 hours, this line count works out at 24 lines per minute and 16 lines per minute respectively, and hence Coghill's figure of 20 lines per minute is reasonable. Some allowance must be made for wordless action, of course, but Coghill's average is useful for long stretches of text within which wordless action occurs. This average will be a little too low for shorter segments consisting only of speech. As well as variations in pace between different plays, it must also be granted that the pace can change within a play and hence that the average figure for the whole of a single play may well be significantly more or less than the actual figure for a particular section of the text. But even if Prospero's "Clowd-capt Towres..." speech is delivered at half the average speed, 10 lines per minute, Ariel still has less than three minutes before he must re-appear. The situation is eased if the water-nymph costume is worn underneath the Ceres costume, but Gurr does not consider this possibility. Even if it were possible for Ariel to change costume and get into position for his next entrance, the symmetry of Gurr's thesis is broken since the 27 lines allowed to become Ceres in the relative comfort of the backstage area cannot match 25-9 lines allowed to reverse the process whilst racing down from the room above. We can accept either Jowett's staging or Gurr's symmetrical costume changes, but not both.

There is a way to reconcile the time allowed for Ariel's changes of costume with the staging conjectured by Jowett. The solution is a water-nymph costume that Ariel can wear underneath all the other costumes. This close-fitting suit is underneath whatever Ariel wears when he first enters in 1.2. Because he simply has to shed his outer layer to perform the transformation into a water-nymph, the 16 lines available are quite adequate. To become the harpy in 3.3 Ariel merely has to be strapped into the 'harpy-harness' that
Adams envisaged, and to effect the change back into the water-nymph he merely has to be released from it by the stage-hands operating the descent machinery. The 71 lines allowed for this operation represent not the difficulty of a costume change but the time taken to secure an actor safely into a piece of theatrical machinery, and the same to release him again. The final change into and out of the Ceres costume (which is in fact his only true costume change in the usual sense) is rapid, but the 25-9 lines allowed for the removal and sprint down to the main stage are sufficient because the removal is all that is required: the water-nymph costume is, as always, underneath.

If Ariel retains the water-nymph appearance throughout the play the costumes from Munday’s sea-pageant, which Saenger argues were re-used in The Tempest, have more to commend them than he has noted. The two tritons in the sea-pageant are doubly transformed: first by Neptune "altring their deformed Sea-shapes, bestowing on them the borrowed bodies of two absolute Actors", and then by these actors "personating in them" Corinea and Amphion. The costumes must show this double transformation, and it is reasonable to suppose that Burbage and Rice wore close-fitting costumes that represented the tritons transformed into bipeds, and over these they wore the layers that made them Amphion and Corinea respectively. For Corinea this required merely enhancing this aquatic outfit, since she was "a very fayre and beautifull Nimphe", and the description names the "Coronet of Pearles and Cockle shelles" as a specific adornment. Amphion, on the other hand, was a "graeue and iudicious Prophet-like personage" and although he has a "wreathe of Sea-shelles on his head" we may guess that the "apte habits, every way answerable to his state and profession" were the robes recorded in the payment to Burbage and Rice. Saenger believes that the Corinea costume became Ariel's water-nymph costume and the Amphion costume became Caliban's costume. Since both Corinea and Amphion have portable items such as a coronet and a wreath, and both must have close-fitting sea-shape outfits, there is no reason to treat either as an integrated costume. Rather it is better to imagine the King's Men's wardrobe enriched with two close-fitting sea-shape outfits and a collection of aquatic adornments. Because Rice was a boy, his sea-shape outfit would be smaller than Burbage's, and hence Corinea's suit would be suitable for the boy playing Ariel. The importance of Saenger's find, however, is that it provides an explanation for the otherwise impossibly rapid costume changing required in The Tempest. The water-nymph costume that Ariel wears throughout the play, with other costumes overlaid as required, was one of the two sea-shape outfits which transformed two tritons by "bestowing on them the borrowed bodies of two absolute Actors". Orgel's assumption that Ariel discards the water-nymph appearance some time before his entrance to wake Gonzalo in 2.1 (TLN 999) cannot be disproved by the evidence of the pageant costumes. But the lack of any textual instruction indicating another change of appearance, or reversion to original appearance, together with the delightful simplicity of the close-fitting triton suits as a means of rapid costume change, makes this solution more attractive.

Notes
All references to the Folio are from Charlton Hinman (ed), *The Norton Facsimile of The First Folio of Shakespeare*, New York, 1968 and using Through Line Numbering.


10 Gurr, "*The Tempest's Tempest at Blackfriars*", p. 94-5.

11 Gurr, "*The Tempest's Tempest at Blackfriars*", p. 95.

12 Gurr, "*The Tempest's Tempest at Blackfriars*", p. 95.


14 Gurr, "*The Tempest's Tempest at Blackfriars*", p. 94.


19 Gurr, "The Tempest's Tempest at Blackfriars", p. 94.

20 Gurr, "The Tempest's Tempest at Blackfriars", p. 94.
21 Gurr, "The Tempest's Tempest at Blackfriars", p. 93.


24 See the examples given in John Jowett and Gary Taylor, Shakespeare Reshaped: 1606-1623, Oxford, 1993, pp. 5-6, 11.


26 Gurr, "The Tempest's Tempest at Blackfriars", p. 94.

27 Jowett, "New Created Creatures: Ralph Crane and the Stage Directions in The Tempest", p. 117.

28 Orgel pp. 175-7.


