

Reading Faces: Inferring Physical Traits from Behavioral Descriptions

THESIS

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Abstract

When we are first introduced to a new person, we use what little information we are offered about them to draw broader inferences. Without knowledge of someone's physical appearance, would the inferences we make extend to their looks? Across four studies, we examine how physical traits may be inferred from information about an individual's personality and behavior conveyed through a narrative. In Study 1, participants learned about a character in a narrative whose moral behavior varied between conditions. Participants' mental representations of the character, visually estimated using reverse correlation image classification, were reflective of the character's personality traits evinced in the story. Study 2 sought to replicate and extend these findings by examining how previously held stereotypes might also act as cues to appearance when no physical information is presented. The results of Study 2 replicate some of the personality trait effects of Study 1, but show no evidence of an effect on inferred race. Study 3 examines whether group-status threat would exacerbate the use of stereotypical information to draw inferences of physical appearance; here we find that threatened participants imagine a more stereotypical-looking individual than do unthreatened participants. Study 4 extends the results of Study 3 to examine whether threat could influence the memory of what a previously seen person looks like. The results of Study 4 show no effect of threat on reconstruction of physical appearance. This research suggests that in the absence of physical information about an individual, we may use what we

know of their personality and behavior to form a mental image of them; these effects may also be exacerbated when our sense of self is threatened.

Dedicated to my mother and father, for their infinite dimensions of endless and unyielding support, and without whom this would not have been possible.

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Chapter 1: Introduction

While playing doubles with his friend, Alvy is introduced to Annie. After the match, they begin getting to know one another, covering the basics of first time communication: whom they know, where they are from, what they do. The day goes on, and as Alvy prepares to say his goodbyes, he is faced with a decision: does he want to see Annie again? Making this choice all the more daunting is the limited information he knows about her. From their brief interaction and a few personal anecdotes, he must infer more significant character traits and decide whether to pursue to a second encounter sometime in the future.

When we are first introduced to a new person, we are offered relatively little information about them. From this limited evidence, however, we often draw broader inferences quickly (Ambady & Rosenthal, 1992). As we make inferences about the kind of person with whom we are interacting, we combine this information to create the impression of a person as a dynamic whole (i.e. a gestalt) (Asch, 1946). On what basis do we form such impressions? When all that is known about a novel person is what they look like, people frequently and quickly use their physical appearance to infer personality traits; when presented with a face, in as little as 100 milliseconds individuals derive holistic assessments of traits such as trustworthiness and aggressiveness (Willis & Todorov, 2006; Bar, Neta, & Linz, 2006). Given that we often see someone before

interacting with them, this rapid assessment has implications far beyond the first 100 milliseconds; inferences drawn from one's appearance may drive us towards interpreting new information in light of previous assessments. Hassin and Trope (2000) had participants read a short passage about an individual that gave an ambiguous impression of her dominant personality traits. When accompanied by a photograph of a "powerful-looking" woman, participants rated her personality (as evidenced by the verbal description) as more dominant than when accompanied by a "weak-looking" woman. Participants in a similar study were specifically instructed to ignore the photographs and use only the verbal information to make their decision. Such instructions were ineffective, with participants still using inferences from the faces to inform their choices. Regardless of whether they were instructed to ignore such information or not, the majority of participants believed that the photographs in no way influenced them. All together, this suggests that the use of faces to make personality inferences is automatic.

Given the persistence of basing inferences on physical appearance, it is unsurprising that such impressions are predictive of behavioral outcomes. Multiple dimensions of physical appearance have been shown to predict electoral results in gubernatorial and senatorial races (Little, Burriss, Jones, & Roberts, 2007; Ballew & Todorov, 2007; Todorov, Mandisodza, Goren, & Hall, 2005). Individuals also use physical appearances as a tool for predicting job candidate performance and making hiring decisions (Hassin et al., 2000).

What if we have not seen the person we are making inferences about? Would we engage in the reverse process and infer their appearance from what we know about their

personality? For example, had Alvy not met Annie himself but rather learned about her through a friend, and did not know what she looked like, would he use information about her personality to infer aspects of her physical appearance? Evidence from Hassin et al. (2000) suggests he might; individuals infer certain physical features, such as forehead height and eye shape, from holistic personality impressions. Of course, such inferences are not made in isolation. One important factor that has been shown to influence such inferences is the narrative that puts limited information about an individual into context; we are more likely to hear an anecdote about someone we do not know than a standalone description of their personality. A single action considered in isolation, as opposed to within a narrative arc, can be perceived as having different meanings, and leading to different conclusions about the actor (Jones & Goethals, 1972; Read, Drurian, & Miller, 1989). This may be in part due to the cohesive nature of narratives. When presented in narrative form, the temporal relation of distinct pieces of information about a character can lead readers to delay drawing conclusions until the narrative is complete. That is, individuals would be more likely to make holistic, memory-based judgments of the character than piecemeal, online judgments when information is presented in a narrative.

In Study 1, we examine how information about a character's personality traits may influence participants' impressions of what she looks like. Participants read about a character in Agatha Christie's *And Then There Were None*. In this story, ten strangers, all of whom have previously committed murder, are invited to an island by a mysterious host. For one character, a young governess, different participants are given differing information about her past. In one condition, she orchestrated the death of the child in her

care for financial gain. In the other, she risked her own life to save the child when he put himself in harm's way. Participants' impressions of what she looks like are then evaluated using *reverse correlation image classification* (hereinafter, 'reverse correlation'), a data driven method that allows for the approximation of participants' impressions of her facial features (Mangini & Biederman, 2004; Dotsch, Wigboldus, Langner, & van Knippenberg, 2008). We predict that the murderous description of the character will result in an image that appears to possess darker personality traits than the image resultant from the negligent character description.

Could these inferences of appearance based on personality extend beyond physical manifestations of personality? If one's personality or behavior is perceived to be stereotypical of a particular group, then perhaps they act as cues to physical indicators of group membership. In Study 2, we expand on the effect of narratives in making inferences by examining how another factor, namely stereotyping, may influence inferences about physical appearance when that appearance is inferred from a narrative. Stereotyping can be considered another example of traits being inferred from physical appearance. With a stereotype, however, physical features may serve as cues of group membership, activating previously learned associations between the group and behavioral or personality traits (Bodenhausen & Macrae, 1998). These traits seem to be automatically activated when a member of an associated group is presented (Blair, Judd, & Fallman, 2004). This automatic activation extends beyond categorization (e.g. categorizing a face as Black activates aggressiveness); these associations also vary within group based on prototypicality. Faces perceived as more stereotypically Black (having

more Afrocentric features) are rated as more likely to belong to individuals high in stereotypically Black traits, such as aggressiveness and musicality (Blair, Judd, Sadler, & Jenkins, 2002). Similarly, more prototypically Black faces elicited more automatic negativity than less prototypical Black faces (Livingston & Brewer, 2002). One trait associated with Black individuals that is moderated by perceived stereotypicality is criminality. Although the association between Black individuals and crime may be omnipresent, more stereotypically Black faces are more often associated with more stereotypically Black crimes (Osborne & Davies, 2013). Grades of stereotypicality also play a role in the sentencing of criminals: within a race, defendants who were perceived as more stereotypically Black received harsher sentences than those perceived as less stereotypical (Blair, Judd, & Chapleau, 2004). This bias extended to capital punishment as well: in murder cases with a White victim, defendants perceived as more stereotypically Black were more likely to receive the death penalty than less stereotypical defendants (Eberhardt, Davies, Purdie-Vaughns, & Johnson, 2006). In part, this longstanding association between Blacks and criminality is due to dehumanization of Black individuals. More specifically, there is an implicit belief that Black people are less evolved than Whites, as evidenced by an extant association between Black individuals and apes (Goff, Eberhardt, Williams, & Jackson, 2008). The belief that Black people are sub-human bolsters beliefs that they lack the same compassion and morality of other groups and are thus more inclined towards criminal behaviors. Given the strong association between Black people and criminal behavior, is it possible that the relationship between physical cues of race and perceptions of criminality have

bidirectional effects similar to those proposed between facial features and personality traits? That is, could descriptions of a character's criminal behavior evoke racially biased mental representations of the character?

The procedure of Study 2 mirrors that of Study 1: participants are given differing information about the same character from *And Then There Were None*, and then read a shortened version of the narrative. Participants' impressions of the character's physical appearance are again evaluated using reverse correlation. In this study, however, the stimuli used are racially ambiguous, allowing the resultant images to vary more in racial stereotypicality. We predict that, as in Study 1, the murderous description of the character will result in an image perceived as having a more negative personality than the image created by those in the negligent condition. Further, we expect that the 'murderous' image will be perceived as more stereotypically Black than the 'negligent' image.

If the image we form of someone's appearance is affected by stereotypes, as we examined in Study 2, then what factors are likely to affect such a process? One important influence on people's use of stereotypes is their feelings of threat. Stereotypes often serve an ego-defensive function (Katz, 1960; Snyder & Miene, 1994). By derogating members of an outgroup, we reaffirm ourselves as belonging to a superior group. Stereotypes' ego-defensive functions also aid in protecting us from more focused threats to our sense of self. When an individual's sense of self is threatened (e.g. learning they scored in the 47th percentile on an IQ test), they are more likely to automatically activate stereotypes associated with racial outgroups (Spencer, Fein, Wolfe, Fong, & Dunn, 1998). Threat not only increases automatic activation of stereotypes but increases their application as well.

When self-image was threatened in the presence of an outgroup member, participants evaluated the stereotyped target both more negatively and as more consistent with stereotypes (Fein & Spencer, 1997). There are two avenues, then, through which threat can increase stereotyping: by increasing the automatic activation of stereotypes, and by increasing the application of those stereotypes. What's more, in situations where an individual is a member of multiple groups, threat can modulate which stereotypes are activated. When praised by a Black doctor, participants inhibited Black stereotypes and activated doctor-related stereotypes. When criticized, participants showed the inverse result: they activated Black stereotypes and inhibited doctor-related stereotypes (Sinclair & Kunda, 1999). If threat can increase or modulate stereotype use in evaluations of an individual, it is possible that threat will also alter the use of stereotypic information when forming impressions of another's physical appearance.

Study 3 aims to expand on the findings of Study 2 by examining whether threatening information affects the stereotypicality of physical appearance imagined from a narrative. Participants in Study 3 were randomly assigned to read a summary of recent United States Census data. This summary either discussed the steepening ratio of racial minorities to White individuals in the United States or the increasing rate of geographic mobility in the United States; thus, these summaries were threatening to the participants' sense of self or not, respectively. All participants then read an ostensibly unrelated story about a day in the life of a student, Ben, whose behavior might be perceived as behaviorally stereotypical of a Black student. Participants' impressions of Ben's appearance were evaluated using reverse correlation. We predict that participants whose

sense of self has been threatened will use the stereotypical information about Ben to a greater extent than unthreatened participants, resulting in a more stereotypically Black image of Ben, as well as an image perceived as lower in positive personality traits.

In Study 4, we aim to replicate and extend the results of Study 3 by examining whether the effects of threat on inferences about the actor's race might occur even if participants are briefly exposed to what the actor looks like. That is, could threat affect not only the inferred race of an actor, but also the memory of what an actor looked like? To test this, we use a procedure similar to that of Study 3. Participants begin by reading the threatening or non-threatening Census summary described above. While reading about a day in Ben's life, they are shown a candid picture of Ben. To evaluate participants' memory of Ben's appearance, they are asked to choose which of a series of photos is Ben. These photos consist of a true photo of Ben, along with 8 other faces that are varying degrees of Ben morphed with higher and lower perceived stereotypicality faces. We predict that participants whose sense of self has been threatened will remember Ben as being more stereotypically Black than those participants who were not threatened.

Chapter 2: Study 1

The aim of Study 1 was to examine how personality traits may be used to inform inferences of physical characteristics in the absence of physical information. We hypothesized that when the appearance of an individual is unknown, the individual's personality traits will be used to inform one's mental representation of the individual. To test this hypothesis, participants read a narrative with instruction to pay attention to a particular character; the narrative about this character differed between the conditions with one group learning that the target character murdered a child and the other group learning that she was negligent in the death of child. Participants' impressions of the character's physical appearance were collected using reverse correlation to examine the effect of this divergent information.

Methods

Participants. A total of 67 participants were recruited for this study. Participants were undergraduate students enrolled in an introductory psychology course at The Ohio State University or individuals who had volunteered for a psychology experiment listserv. They were compensated for their participation with credit towards fulfillment of a course requirement or \$12 an hour, respectively. Participants completed the experiment alone or concurrently with one to three other participants. Work stations were separated by partitions to ensure that responses were made privately.

Narrative. Participants were met outside the laboratory and brought to an individual computer by an experimenter. After providing informed consent to continue with the experiment, participants were told that they would be reading an excerpt from the play adaptation of Agatha Christie's *And Then There Were None*, in which ten strangers, each secretly a murderer who escaped prosecution, are invited to an island by a mysterious host, only to find themselves being murdered one by one. Participants were told that after reading, they would be making judgments of two of the stories characters, and thus to pay particular attention to these characters as they read. Prior to commencing with the narrative, participants were given biographies of these two characters: Vera Claythorne and Philip Lombard. These biographies were printed so that participants could reference them at any time. To manipulate participants' impressions of a character, two versions of Vera's biography, including a different character history, were produced. Participants were randomly assigned to read one of the two versions of the character's biography.

For all participants, Vera's biography included the fact that she was a schoolteacher and secretary who had previously worked as a governess for a wealthy family, tending to their son, Peter. For half of the participants, her biography continued to say that she had fallen in love with Peter's uncle, second in line for the family fortune after Peter. To ensure that her lover would receive the inheritance, she orchestrated Peter's death by encouraging Peter, a weak and sickly child, to swim far out into the ocean, which she was sure he would not survive. To throw suspicion off herself, she pretended to go after him, but swam slowly to allow him time to drown (the *murderous*

condition). For the other participants, Vera's biography explained that despite being sickly, Peter constantly wanted to swim far out into the ocean, but she knew it wasn't safe for him. One day, as Vera had gone inside to fetch something, Peter snuck off to swim, putting himself in danger. As soon as Vera heard him enter the water, she raced after him to rescue him, but did not make it to him in time (the *negligent* condition). Lombard acted as a control; his biography was the same for all participants (See Appendix A for full text for Study 1).

Participants then proceeded to read the play. The excerpt encompassed much of the first two acts of the play, allowing the narrative's context to be set, as well as allowing readers to encounter scenes of Vera interacting with multiple different characters. The excerpt was edited to remove all physical descriptions of Vera, as well as any of Vera's interactions that presented her in an extremely positive or negative light. All participants read the same narrative, save one scene that reinforced Vera's personality. Approximately halfway through the excerpt, Vera has a flashback to her time as Peter's governess. For participants in the murderous condition, this flashback includes Vera encouraging Peter to swim, and a soliloquy about her plans to avoid blame should he survive. For participants in the negligent condition, this flashback includes Vera telling Peter it would not be safe for him to swim, returning to the house to get a game for him, Peter then running into the water, and Vera running in after to save him. In all, participants read approximately 30 pages of the play. It was presented in a PDF reader, allowing participants to go back and reference previously read text if they desired. The average reading time was approximately 45 minutes. Participants were instructed to alert

the experimenter when they had finished reading so they could begin the next phase of the experiment.

Reverse Correlation Image Classification. To measure the effect of the narrative about Vera on participants' impressions of her physical appearance, we used reverse correlation. In a reverse correlation paradigm, participants are shown a series of stimuli; each stimulus is an image of the same face (known as a 'base face'), masked with a unique pattern of visual noise. This noise subtly alters each image, making the individual stimuli vary in their appearance. On a given trial, two stimuli are presented side by side, and the participant evaluates them along a singular dimension of interest by choosing which image is a better representation of that dimension (e.g. for gender, on each trial participants may choose which image is more feminine). The answers given on successive trials allow for a composite image to be created, approximating the participants' mental representation of that dimension (e.g. a prototypical female face). Not only does this method allow us to gauge what participants picture in their minds, but eliminates concerns associated with other methods of facial evaluation. Reverse correlation is free from an experimenter's assumptions about what physical features will be used in evaluations; unlike other methods, it does not identify particular facial features for the participants to examine. Additionally, when designed properly it allows measurement of a sensitive variable, such as race, indirectly; this lessens the concerns of participants altering their responses to seem socially acceptable.

Reverse correlation stimuli. Stimuli for the reverse correlation task were created using the 'rcicr' package in R (Dotsch, 2016). All stimuli were used the same base face

image, a screenshot of a female actress's face¹. This image was converted to grayscale and cropped to remove the original background, and to include the actress's entire head. It was superimposed on a gray background and blurred using a Gaussian filter with a 3-pixel radius. 400 random patterns of sinusoidal noise and their inverses were superimposed on this image to create 800 unique stimuli (see fig. 1 for example stimuli).

Reverse correlation task. After reading the play, participants performed a reverse correlation task designed to assess their mental representation of Vera. This task was presented with PsychoPy (Peirce, 2007). Participants began by reading on-screen instructions explaining the structure of the subsequent task. Before the experimental trials began, participants were run through five practice trials, selecting images that most resembled how they imagined a different character in the narrative. The experimenter remained in the room for these trials to answer any procedural questions. When participants began the experimental trials, the experimenter left the room. On each trial, two images (a reverse classification stimulus and its inverted match) were shown, and participants selected which image most resembled how they had imagined Vera. Participants pressed the left arrow to indicate that the image on the left was more similar to how they imagined Vera and the right arrow key to indicate the image on the right. Between each trial, a fixation cross flashed at the center of the screen for 500 milliseconds. Participants completed 400 trials presented in random order and were given

¹ The screenshot was of actress Maeve Dermody, from a BBC production *And Then There Were None*. This image was chosen to allow for direct comparisons of classification images in a later experiment examining the interaction of medium and personality traits on mental representations of characters.

the option for a short break halfway through. When finished, participants informed the experimenter that they were ready for the next task.



Figure 1. Example of two reverse correlation stimuli from Study 1.

Personality Ratings. The final task participants completed was a personality questionnaire for the two characters of interest, Vera and Lombard. These personality questionnaires included the Big Five Inventory (John & Srivastava, 1999), adapted to refer to participants' perceptions of the characters, rather than themselves. Also included were questions from the warmth dimension of the Stereotype Content Model (Cuddy, Fiske, & Glick, 2008), questions about the characters' moral character (Goodwin, Piazza, & Rozin, 2014), and questions about characters' reaction to hypothetical moral dilemmas (e.g. 'how likely is Vera to cheat on an exam?'; see Appendix B for full questionnaire).

Finally, participants wrote a short biography of Vera in their own words and, as best they could, identified how they made their decisions in the reverse correlation task.

Participants were debriefed about the experiment's purpose and thanked for their participation.

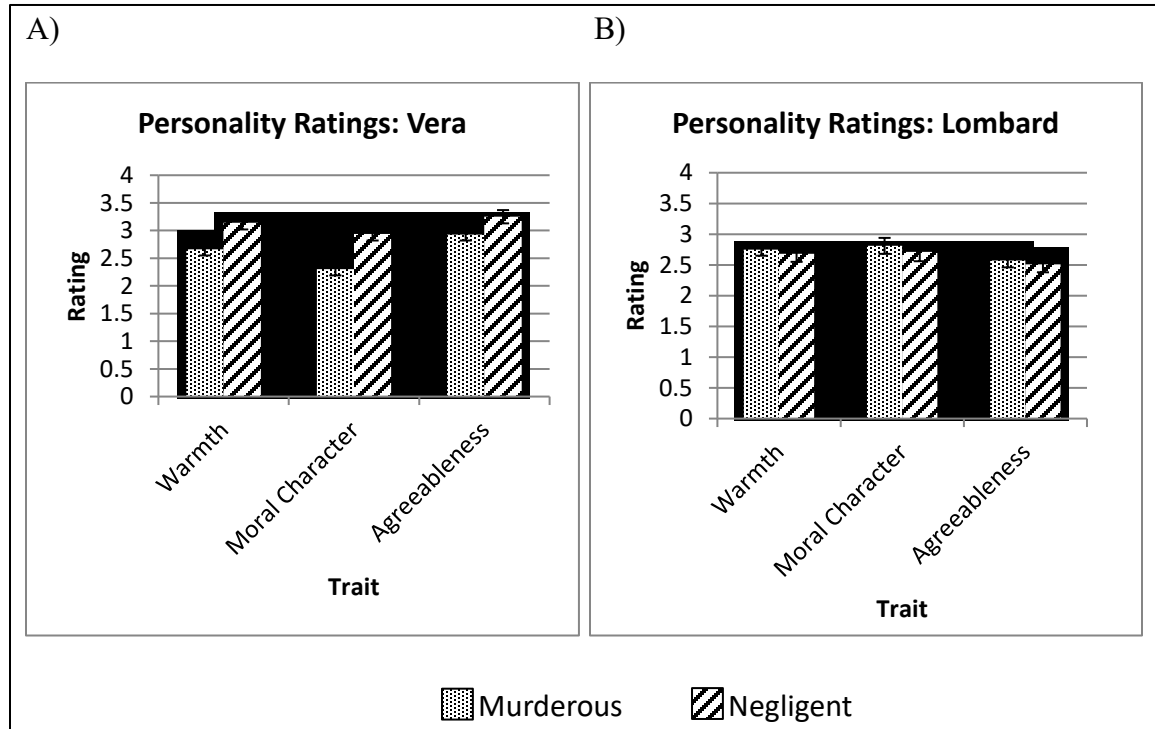


Figure 2. Personality ratings of A) Vera, and B) Lombard.

Results

17 participants were excluded from data analysis due to indications of misunderstanding or not attending to the task. Inclusion of these participants' data was shown not to substantively change the results. The data of the 50 participants who did not show evidence of misunderstanding or not attending to the narrative are presented here;

of these participants, 26 were in the murderous condition, and 24 in the negligent condition.

Personality Ratings. To check that the divergent character information about Vera was affecting participants' perceptions of her personality, we compared ratings of Vera's warmth, moral character, and agreeableness across conditions. Indeed, we see that participants in the murderous condition rated Vera as less warm, $M = 2.66$, $t(48) = 2.94$, $p < 0.01$, less moral, $M = 2.30$, $t(48) = 4.11$, $p < 0.001$, and less agreeable, $M = 2.93$, $t(48) = 2.05$, $p < 0.05$, than participants in the negligent condition ($M_{Warmth} = 3.14$; $M_{Moral\ Character} = 2.94$; $M_{Agreeable} = 3.25$). Ratings of our control character, Lombard, showed no such differences across conditions (Warmth: $\Delta M = 0.07$, $t(48) = 0.44$, $p = 0.66$; Moral character: $\Delta M = 0.10$, $t(48) = 0.50$, $p = 0.62$; Agreeable: $\Delta M = 0.06$, $t(48) = 0.34$, $p = 0.73$; fig. 2).

Reverse Correlation. To estimate participants' mental representations of Vera, participants' choices from the reverse correlation task were combined to create a composite image of Vera for each condition. The noise patterns corresponding to each participant's selections on all trials of the reverse correlation task were averaged with those selections from all participants in the same condition (murderous or negligent). These average noise patterns were then superimposed over the original base face to create a classification image for each condition. These images represent an estimate of the average mental representation of Vera's face for participants in each condition (see fig. 3 A and B for resultant images).

To estimate the influence of narrative information on participants' impressions of Vera's physical appearance, the group-level images created in the reverse correlation task were presented to a group of third-party raters on Amazon's Mechanical Turk for evaluation. 28 independent raters, naïve to the original story and reverse correlation procedure, were shown the pair of classification images: one on the left, labeled "image A," and one on the right labeled "image B." Image position (which classification image was labeled "A") was randomized across participants. Raters were asked to evaluate in which image the woman appeared warmer, more trustworthy, and more likely to murder a child. All responses were made on a six-point scale, with the anchors "Image A, much more so" and "Image B, much more so."² The image of Vera created by participants in the negligent condition was perceived as the warmer image significantly more often, $\chi^2(1, N = 28) = 11.56, p < 0.001$. The negligent image was also significantly more frequently seen as more trustworthy, $\chi^2(1, N = 28) = 14.29, p < 0.001$, and less likely to murder a child, $\chi^2(1, N = 28) = 11.56, p < 0.001$ than the image created by participants in the murderous condition³ (fig. 3C). This suggests that the personality information participants read about Vera influenced their impressions of her physical appearance such

² As a more conservative test of narrative's effect, analyses collapsed choices across extremity, treating the participants' choices as a dichotomous 'Image A' or Image B.' These frequencies were then compared to a null distribution with 50% of participants choosing each image. Treating the ratings as interval data and performing t-tests against the full scale midpoint yields similar results.

³ Analyses of the classification images created from the full 67 subjects yielded results in the same direction – Warmth: $\chi^2(1, N = 28) = 11.57, p < 0.001$; Trustworthiness: $\chi^2(1, N = 28) = 17.28, p < 0.0001$; Murderous: $\chi^2(1, N = 28) = 11.57, p < 0.001$.

that the mental image they had reflected her malicious intent or lack thereof towards Peter.

Discussion

In this study, we found that personality information given about a character in a narrative was used to form impressions of the character's physical appearance in the absence of physical description. Specifically, we found that participants inferred physical manifestations of personality traits they attributed to the character. Given the relatively small number of raters here, these results are tentative, and should be replicated with a larger sample. The inferences we draw in such cases may not be limited to personality. Given associations between certain behaviors, traits, and members of a given group, a character's actions may act as a cue to race. In Study 2, we aim to extend the current findings by examining how stereotypes may interact with personality information to form impressions of physical appearance. We hypothesize that we will replicate the current results, in that the murderous image would be perceived as more negative than the 'negligent' image. We further expect that given negative stereotypes about Black individuals, the classification image for the murderous condition will be perceived as more stereotypically Black than the classification image for the negligent condition.

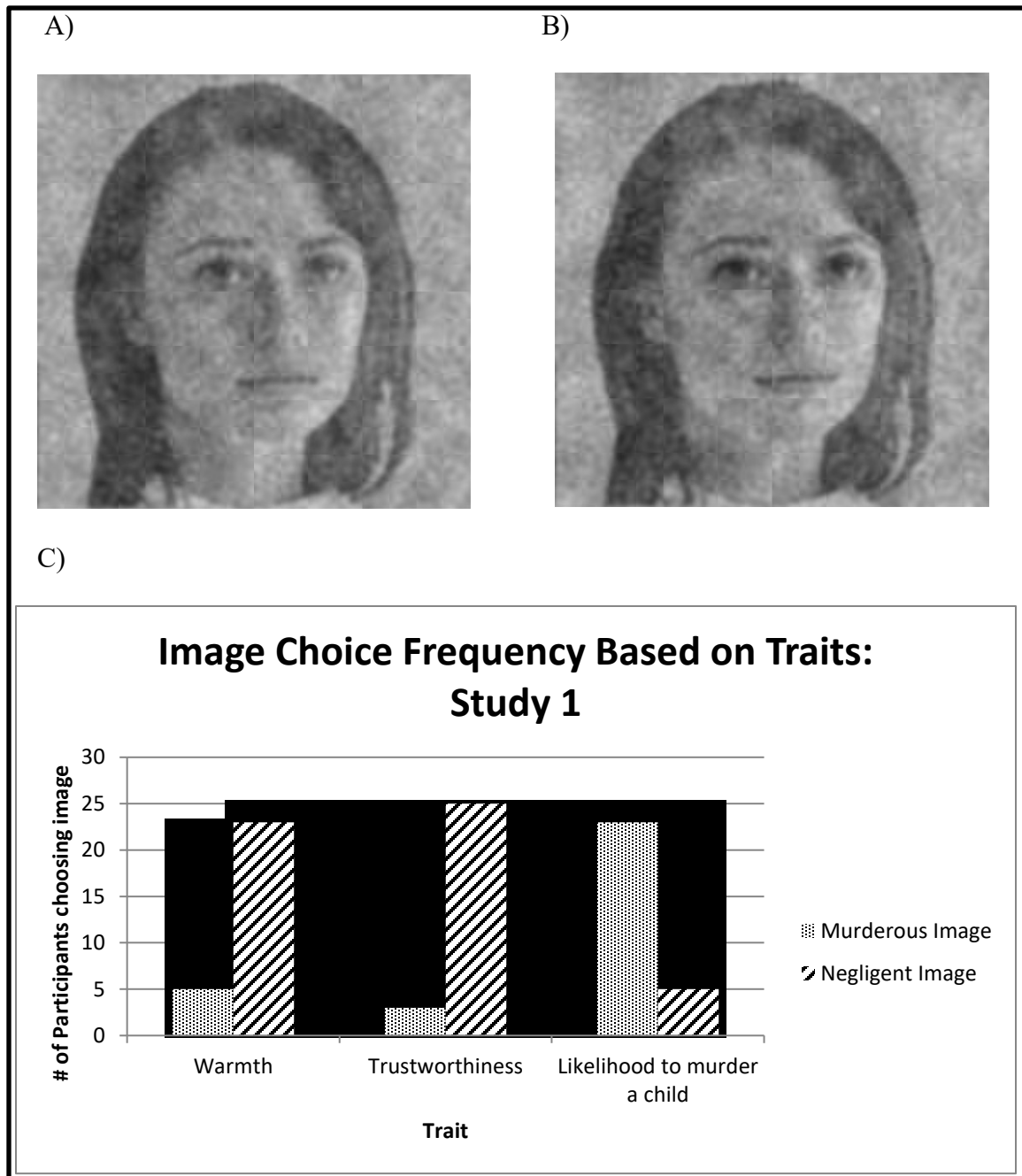


Figure 3. Classification images of Vera from A) the murderous condition and B) the negligent condition. C) Third party ratings of the classification images. More negative ratings reflect Image A as more representative of the trait, more positive ratings reflect Image B as more representative of the trait.

Chapter 3: Study 2

Methods

Participants. A total of 75 participants were recruited for this study. All participants were undergraduate students enrolled in an introductory psychology course at The Ohio State University and were compensated for their participation with credit towards fulfillment of a course requirement. Participants completed the experiment alone or concurrently with one to four other participants. Work stations were separated by partitions to ensure that responses were made privately.

Narrative. Prior to the arrival of the participants, the experimenter opened a prepared Qualtrics survey on each computer. This survey was used to present instructions and study materials to the participants.

Participants were met outside the laboratory and brought to an individual computer by an experimenter. After providing informed consent to continue with the experiment, participants were told that they would be reading an excerpt from the play adaptation of Agatha Christie's *And Then There Were None*. Participants were told that after reading, they would be making judgments of two of the stories characters, and thus to pay particular attention to these characters as they read. Participants were directed to their screens, where the Qualtrics survey reiterated the instructions. Participants were

presented biographies of two characters: Vera Claythorne and Philip Lombard. These biographies were the same as in Study 1.

Participants then proceeded to read the play, also on Qualtrics. To decrease participant disinterest and confusion, the excerpt of the play used here was half of that from Study 1. This excerpt encompassed the first act of the play, still allowing the narrative's context to be set, as well as allowing readers to encounter scenes of Vera interacting with multiple different characters. All participants read the same narrative, save the one scene that reinforced Vera's personality; the variants of this scene were the same as in Study 1. In all, participants read approximately 15 pages of the play (See Appendix A for Study 2 text). To further increase data quality, an attention check was added. After reading the first two pages of the story, participants were asked a question about what they had just read. If they answered correctly, they proceeded on to the next page. If they answered incorrectly, the survey informed them that they would be asked to reread the first two pages to ensure understanding of the material. After rereading these pages, they proceeded with the rest of the narrative. The average reading time was approximately 30 minutes. After completing the narrative, participants answered two attention check questions. Participants were instructed to alert the experimenter when they had finished reading so they could begin the next phase of the experiment.

Reverse correlation stimuli. Stimuli for the reverse correlation task were created using the 'rcicr' package in R (Dotsch, 2016). All stimuli were used the same base face image. For this study, the base image was a composite photograph of four women, two White women and two Black women. This image was converted to grayscale and

cropped to remove the original background, and to include the entire head. It was superimposed on a gray background, and blurred using a Gaussian filter with a 3-pixel radius. 400 random patterns and of sinusoidal noise and their inverses were superimposed on this image to create 800 unique stimuli (see fig. 3 for example stimuli). Importantly, there is greater variation in apparent race of these stimuli compared to the stimuli in Study 1. As such, the resultant classification images had more potential to vary in perceived stereotypicality.

Reverse Correlation Task. The instructions, design, and presentation of the reverse correlation task for this study were identical to that of Study 1; here, though, we used the new stimuli described above. When finished with the reverse correlation task, participants were debriefed about the experiment's purpose and thanked for their participation.



Figure 4. Example of two reverse correlation stimuli from Study 2.

Results

10 participants were excluded from data analysis due to indications of their not attending to the task (reading times of under five seconds for multiple pages of the narrative); 1 participant's data were excluded because he did not complete the reverse correlation task. Of the remaining 64 participants, 33 were in the murderous condition, and 31 were in the negligent condition.

Reverse Correlation Results. To estimate participants' mental representations of Vera, participants' choices from the reverse correlation task were combined to create a composite image of Vera for each condition in the same manner as in Study 1. The resultant images represent an estimate of the average mental representation of Vera's face for participants in both the murderous and negligent condition (fig. 4A and B). To estimate the influence of narrative information on participants' impressions of Vera's physical appearance, the group-level images created in the reverse correlation task were presented to a group of third-party raters on Amazon's Mechanical Turk for evaluation. 121 independent raters, naïve to the original story and reverse correlation procedure, were shown the pair of classification images: one on the left, labeled "image A" and one on the right labeled "image B." Image position (which classification image was labeled "A") was randomized across participants. As in Study 1, raters were asked to evaluate in which image the woman appeared more warm, trustworthy, and likely to murder a child. Additionally, raters were asked in which image the woman appeared more stereotypically Black. All responses were made on a six-point scale, with the anchors "Image A, much

more so” and “Image B, much more so.”⁴ The image of Vera created by participants in the murderous condition is chosen as less warm significantly more often, $\chi^2(1, N = 121) = 6.03, p < 0.05$. There was no readily discernable difference between images, though, in trustworthiness, $\chi^2(1, N = 121) = 1.4, p = 0.24$, or murderousness⁵, $\chi^2(1, N = 119) = 1.42, p = 0.23$, although all choice frequencies were in the expected directions. Negative stereotypes of Black individuals also seem not to influence the mental representation participants have of Vera; there was no significant difference in which image was chosen as more stereotypically Black, $\chi^2(1, N = 121) = 0.53, p = 0.47$ (fig. 4C).

Discussion

Although Study 2 shows some evidence of replicating the results of Study 1, it is not nearly as much as we would hope. Only one out of the three traits previously shown to be affected by narrative (warmth) remains significant, and this effect is demonstrably smaller in Study 2. We also do not find evidence of racial differences between conditions in the impressions of physical appearance. It could be that a child dying due to a caregiver’s neglect or malicious financial incentives may not be closely associated with Black women, and thus do not activate the stereotype when participants are reading the story. Another possibility is that the process of applying stereotypic information to mental representations of a character may be further influenced by additional factors; one

⁴ The distribution of results suggest a strong tendency for subjects to choose between the two most central options, ‘Image A, a little more so’ and ‘Image B, a little more so.’ Given the reduced scale usage, analyses collapsed choices across extremity, treating the participants’ choices as a dichotomous ‘Image A’ or Image B.’

⁵ Two raters chose did not choose which image looked more likely to murder a child.

such factor is feelings of threat. Study 3 aims to look effects of threat on inferences of physical appearance from a narrative.

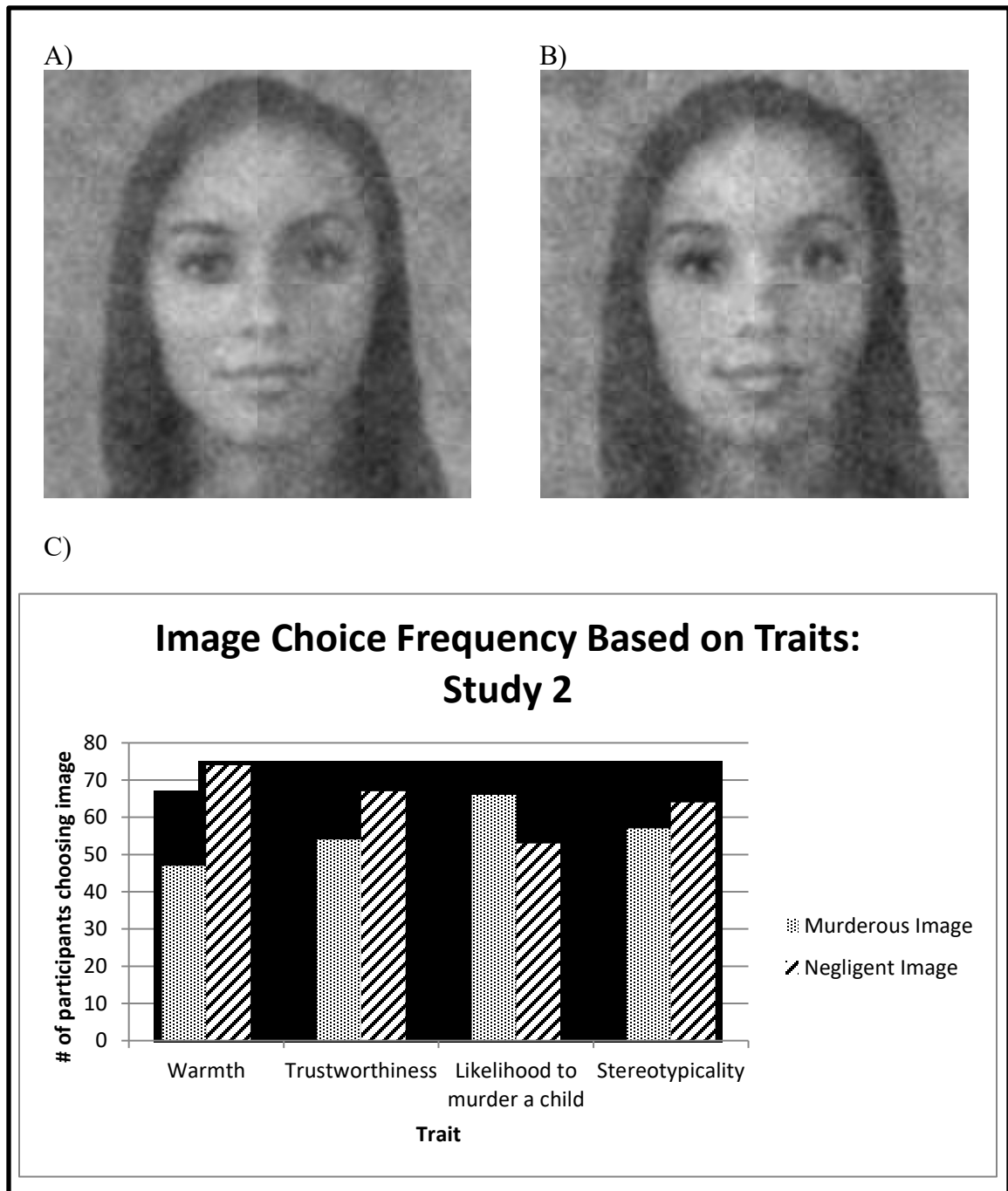


Figure 5. Classification images of Vera from A) the murderous condition and B) the negligent condition. C) Third party ratings of the classification images. More negative ratings reflect Image A as more representative of the trait, more positive ratings reflect Image B as more representative of the trait.

Chapter 4: Study 3

Methods

Participants. A total of 120 participants were recruited for this study. All participants were undergraduate students enrolled in an introductory psychology course at The Ohio State University and were compensated for their participation with credit towards fulfillment of a course requirement. Participants completed the experiment online.

Threat Manipulation. Participants completed this study online in a Qualtrics survey. Participants were told that they would be taking part in an experiment on competing memory tasks, and therefore they would be asked to read two short, unrelated articles, on which they would later be tested. To manipulate participants' sense of group status threat, all participants were told that they would first read a summary of recent United States Census data (adapted from Craig & Richeson, 2014). Participants randomly assigned to the 'no-threat' condition read a short article explaining the increasing geographic mobility of American families in recent years. Participants in the 'threat' condition read a short article suggesting that within the next 40 years, the United States would become a 'minority-majority' nation, where racial minorities would outnumber

White individuals. This manipulation has previously been shown to be threatening to group status (Major, Blodorn, & Major Blascovich, 2016) to White individuals.⁶

Narrative. When participants finished reading the summary of Census data, they were told that they would now read a second, unrelated piece about a day in the life of a student. As the title suggests, this story follows a university student, Ben, through a typical day, including going to classes and having lunch with his friends (see Appendix C for full Study 3 materials). Ben's behaviors in the story were chosen to correspond to traits often associated with Black men (e.g aggressiveness, laziness), and create a holistic impression of Ben as low in warmth and low in competence (occupying the third quadrant of the Stereotype Content Model [Cuddy et al., 2008]). In context, though, the behaviors described could be attributed to any college student, regardless of race, and could be attributed externally. For example, while running late to class, Ben stole the parking spot of another person who had been waiting for the spot. To check whether this story left Ben's race ambiguous, 30 Mechanical Turk workers read this narrative (with no manipulation of threat) and were asked to give their best guess about Ben's race. 94% of workers believed Ben to be White, but also agreed he could have been Black.

Reverse Correlation Stimuli. Stimuli for the reverse correlation task were created using the 'rcicr' package in R (Dotsch, 2016). All stimuli were used the same base face image. For this study, the base image was a composite photograph of two men,

⁶ We changed the 'minority-majority' Census report slightly from the original Craig and Richeson version, suggesting that it was primarily the Black and Hispanic communities that were going to become a majority, rather than 'minorities.' Ostensibly, this extends the group status threat to Asian individuals, of which there is a sizable population in Introduction to Psychology and The Ohio State University.

one White and one Black. This image was converted to grayscale and cropped to remove the original background, and to include the entire head. It was superimposed on a gray background, and blurred using a Gaussian filter with a 3-pixel radius. 400 random patterns and of sinusoidal noise and their inverses were superimposed on this image to create 800 unique stimuli (see fig. 5 for example stimuli). Importantly, there is variation in apparent race of these stimuli; as such, the resultant classification images had more potential to vary in perceived stereotypicality.

Reverse Correlation Task. After reading the story, participants performed a reverse correlation task designed to assess their mental representation of Ben. This task was presented within the same Qualtrics survey. Participants began by reading on-screen instructions explaining the structure of the subsequent task. On each trial, two images (a reverse classification stimulus and its inverted match) were shown, and participants selected which image most resembled how they had imagined Ben. Unlike the previous studies, participants selected the image by clicking it with their mouse, and then submitted their choice by clicking a button to take them to the next trial. Participants completed 400 trials presented in random order and were given the option for a short break halfway through.

Demographics. Participants were asked to indicate their race, gender, age, and the zip codes of where they grew up and where they currently live. After answering these questions, participants were debriefed about the experiment's purpose and thanked for their participation.



Figure 6. Example of two reverse correlation stimuli from Study 3.

Results

Because an impending minority-majority nation would not produce group status threat in Black participants, 9 Black or multi-racial participants were excluded from data analysis; 18 participants' data were excluded because they did not complete the reverse correlation task. Of the remaining 93 participants, 48 were in the no threat condition, and 45 were in the threat condition.⁷

Reverse Correlation Results. To estimate participants' mental representations of Ben, participants' choices from the reverse correlation task were combined to create a

⁷ The same analyses were also run using smaller subsets of the participants, with more participants being excluded due to short readings times on the story or the threat manipulation; exclusion of these subjects does not substantively change the results.

composite image of Ben for each condition in the same manner as in Studies 1 and 2. The resultant images represent an estimate of the average mental representation of Ben's face for participants in both the no-threat and threat conditions (fig. 6 A and B).

To estimate the influence of group-status threat on participants' impressions of Ben's physical appearance, the group-level images created in the reverse correlation task were presented to a group of third-party raters on Amazon's Mechanical Turk for evaluation. 128 independent raters, naïve to the original story and reverse correlation procedure, were shown the pair of classification images: one on the left, labeled "image A" and one on the right labeled "image B." Image position (which classification image was labeled "A") was randomized across participants. Raters were asked to evaluate in which image the man appeared warmer, rudier, lazier, and more competent, as well as in which image the man appeared more stereotypically Black. All responses were made on a six-point scale, with the anchors "Image A, much more so" and "Image B, much more so."⁸ Personality traits had an exacerbated effect on impressions of Ben's appearance when participants were threatened; the image of Ben from the threatened condition was chosen significantly less often as the warmer image, $\chi^2(1, N = 128) = 60.50, p < 0.0001$, and less often chosen as the more competent image, $\chi^2(1, N = 128) = 42.78, p < 0.0001$. Ben as imagined by threatened participants was also seen as significantly rudier, $\chi^2(1, N = 128) = 69.03, p < 0.0001$, and lazier, $\chi^2(1, N = 128) = 34.04, p < 0.0001$, than the image created by participants in the no-threat condition (fig. 6C). In other words, the

⁸ As in Study 2, the distribution of results suggest a strong tendency for subjects to choose between the two most central options, 'Image A, a little more so' and 'Image B, a little more so.' Given the reduced scale usage, analyses collapsed choices across extremity, treating the participants' choices as a dichotomous 'Image A' or Image B.'

stereotypical behaviors Ben exhibits contribute more to impressions of Ben's appearance when the participant is under threat.

The image created by threatened participants was not only seen as having more negative personality traits; it was also seen as more stereotypically Black: raters frequently chose the image of Ben from the threat condition to as more stereotypically Black than the image of Ben from the no-threat condition, $\chi^2(1, N = 128) = 22.78, p < 0.0001$ (fig. 6C).

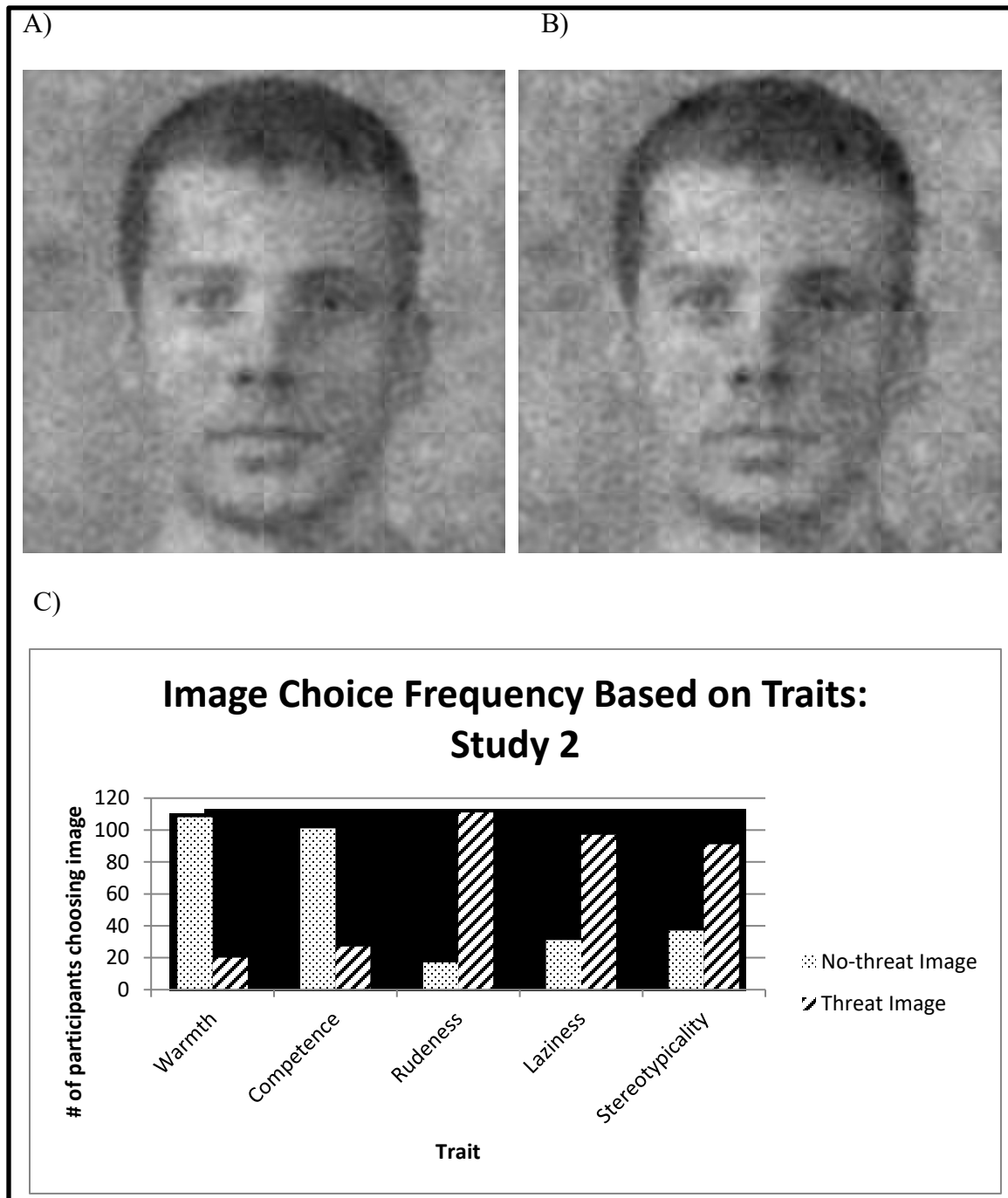


Figure 7. Classification images of Ben from A) the no-threat condition and B) the threat condition. C) Third party ratings of the classification images. More negative ratings reflect Image A as more representative of the trait, more positive ratings reflect Image B as more representative of the trait.

Discussion

The results of Study 3 suggest that an individual narrative can inform both physical manifestations of personality and race when participants' group status is threatened. The three prior studies have focused on 'construction' of physical appearances; that is, participants have had to form an impression given no physical information whatsoever, creating the image from scratch. In Study 3, we found that those under group-status threat used stereotypes as cues when forming such impressions. Would such motivations to stereotype still have an effect on *reconstructions* of someone's physical appearance? That is, if we had prior knowledge of physical appearance, could a motivation to stereotype alter our memory of that individual's appearance? Study 4 aims to examine whether group status threat could motivate people to stereotype, affecting impressions of appearance even when people have had previous exposure to that person's appearance.

Chapter 5: Study 4

Methods

Participants. A total of 400 participants were recruited for this study on Amazon's Mechanical Turk. Participants were compensated \$0.30 for their participation.

Threat Manipulation. Participants completed this study online in a Qualtrics survey. Participants were told that they would be taking part in an experiment on competing memory tasks, and therefore they would be asked to read two short, unrelated articles, on which they would later be tested. To manipulate participants' sense of group status threat, all participants were told that they would first read a summary of recent United States Census. The same articles were used here as in Study 3. Participants were randomly assigned to either the threat or no-threat condition and read the corresponding article.

Narrative. When participants finished reading the summary of Census data, they were told that they would now read a second, unrelated piece about a day in the life of an individual, Ben. In this study, the narrative was preceded by a candid photograph of a young man, identified as Ben, exiting a building; pilot testing identified the individual portraying Ben as moderate in perceived-stereotypicality (fig. 7A). Given that our sample was no longer composed of students (as in Study 3), Ben was presented as an employee at a fast food chain, rather than a student. The narrative was structured to contain behaviors similar to those in Study 3, cuing the same traits (e.g. aggressiveness and

laziness), and creating a similar holistic characterization of Ben. Again, in context the behaviors described could easily be attributed externally (see Appendix D for full Study 4 materials).

Identification Stimuli. For use in the dependent measure, 9 images of faces were created. One of these images was a headshot-style photograph of the actor who had portrayed Ben in the candid shot. The other 8 images were varying degrees of facial morphs of this actor with either a Black male or a White male.⁹ Thus, 4 of the images are more stereotypically White and 4 more stereotypically Black than Ben (see fig. 7B and C for example stimuli). For analyses, these images were ranked on a 9-point interval scale of racial stereotypicality, with 1 being the most stereotypically White, and 9 being the most stereotypically Black, with the true photo of Ben as 5.

Identification Measure. After reading about Ben, participants were asked to identify which in a series of 9 photographs (described above) was Ben. These photos were presented in a 3 x 3 grid in random order.

Demographics. Participants were asked to indicate their race, gender, age, and the zip codes of where they grew up and where they currently live. After answering these questions, participants were debriefed about the experiment's purpose and thanked for their participation.

Results

To limit our sample to participants who would be most threatened by a minority-majority nation, 92 non-White participants were excluded from data analysis; 30

⁹ A special thanks to Danny Osborne and Paul Davies for the use of their facial stimuli.

participants' data were excluded from analysis due to indications of their not attending to the task (reading times of under five seconds for the manipulation or the narrative). Of the remaining 278 subjects, 137 were in the no-threat condition, and 141 were in the threat condition.

We predicted that participants whose group status was threatened would remember Ben as more stereotypically Black than he actually was; that is, participants in the threat condition would be more likely to choose a higher-stereotypicality morph when identifying Ben than those in the no threat condition. Our results, however, show this not to be the case; there was no significant difference between conditions in the stereotypicality of face chosen, $\Delta M = 0.007$, $t(276) = 0.03$, $p = 0.98$.¹⁰ The effects of group status threat on impressions of physical appearance observed in Study 3 do not seem to extend to biasing memory. The results were not without bias, however. Interestingly, all participants, regardless of condition, seem to be remembering Ben as significantly more stereotypically Black ($M = 5.51$) than he actually is, $t(277) = 3.99$, $p < 0.0001$.¹¹

Discussion

Study 4 is distinct from Studies 1, 2, and 3 in two main ways. First, the dependent variable is operationalized differently, using a series of facial morphs rather than a

¹⁰ The comparable results when the 30 participants previously excluded for poor quality are

$\Delta M = 0.003$, $t(306) = 0.10$, $p = 0.92$.

¹¹ The comparable results when the 30 participants previously excluded for poor quality are

$M = 5.57$, $t(306) = 4.64$, $p < 0.0001$.

A)



B)



C)



Figure 8. A) Candid photo of Ben presented with biography. B) An example of a low-stereotypicality stimulus. C) An example of a high-stereotypicality stimulus.

reverse correlation procedure to measure impressions of appearance. Second, rather than assessing physical impressions formed without any prior knowledge of appearance, participants here are given a picture of Ben prior to reading about his day. Whereas in Study 3 we see that group status threat leads to more stereotypically impressions of Ben's appearance, Study 4 shows no effect of threat on reconstruction of what Ben looks like. Why this differential effect of threat?

One possibility is that reverse correlation is a more sensitive measure than the facial morph choice and therefore has a better chance to detect the effect of threat. Whereas the facial morph task is a single choice from 9 stimuli, reverse correlation uses 400 two-alternative forced choice comparisons, with 800 'unique' stimuli.¹² It is likely that within those 800 stimuli, faces of comparable stereotypic gradation to the facial morphs exist; this means that it is likely that a reverse correlation task subsumes the same choice as does the facial morphs. The other benefit to reverse correlation is that the stimuli are not constrained in their variation in the same way the facial morphs are. The facial morph stimuli are each a composite of two faces, varying in the weight a particular face is given. That weight, however, is applied to all dimensions of a face uniformly; that is, a morph that is 75% a highly-stereotypical face compared to a 60% highly-stereotypical morph should be 15% more stereotypical in skin tone, nose shape, lip size, etc. Reverse correlation stimuli are created by superimposing random noise on an image. That means that two stimuli may vary only in the stereotypicality of their lips, but have no other feature differences, or vary greatly in features without changing much in

¹² While 800 unique patterns of random noise are used to generate reverse correlation, the holistic facial appearance of any two stimuli may not significantly vary.

perceived skin tone. The mental representation of an unknown individual will not necessarily fall in line with one of the linear gradations of sequence of face morphs; the unconstrained variation of reverse correlation stimuli is more akin to the freedom of individual participants.

Another potential reason we see different effects of threat in Studies 3 and 4 is the different samples used. Participants in Study 3 were undergraduate students at The Ohio State University enrolled in an introductory psychology course. Participants in Study 4 were Mechanical Turk workers, who had more varied ages, locations, and occupations than the participants in Study 3. One way the different samples may have affected the results is that the Mechanical Turk workers may have been less threatened by an impending minority-majority nation than were Ohio State students. It is unclear why Mechanical Turk workers may experience less threat, however. A second way the different samples may have affected the results is that the Mechanical Turk workers may respond to threat with less stereotyping than Ohio State students, but again it is unclear why the workers would respond with less stereotyping. Though it remains possible that the difference in sample may account for the results no compelling story for why that would be the case is evident at this point.

Methodological distinctions aside, the difference in threat effect between Studies 3 and 4 may have to do with the difference between construction and reconstruction of physical appearance; that is, a difference in previous exposure to what someone looks like. In Study 3, participants are repeatedly asked to identify which of two presented images is most similar to how they imagined Ben to look. In theory, on any given reverse

correlation trial, participants are comparing their endogenous representation of Ben to those images on the screen; to do this, they must have created an endogenous representation of Ben, since they had no experience with his appearance. In Study 4, participants are given such an experience by being shown a candid photograph of Ben prior to reading about him. It may be that threat has an effect on the formation of a mental image of a face, but the memory of a face is robust enough to resist such influences.

Chapter 6: General Discussion

In a series of four studies, we examined how people form impressions of someone's physical appearance from the non-physical information they know about them. In Study 1, participants read a story featuring a woman who either maliciously murdered a child for her own financial gain or who risked her own life to try and save a drowning child. Without any physical information about the woman, participants who believed her to be a murderer imagined her as visibly less congenial and trustworthy and looking more like a person who could kill a small child. In Study 2, participants were given the same stories, this time with a measure that was more sensitive to racial variation in participants' impressions; would associations between behaviors and groups cue inferences about a character's race? The results suggest not: there was no perceivable difference between conditions in the race of participants' mental representations. Also, the physical manifestations of darker personality traits showed some evidence of replication from Study 1, but with smaller effect sizes and across less personality traits.

Study 3 aimed to further investigate the relationship between stereotyping and inferences of physical appearance by examining the role of motivation to stereotype. We found that when participants' group status is under threat, they use stereotype-consistent behavior more to inform their inferences about a character's physical appearance: not only were the physical manifestation of personality traits exacerbated by threat, but

participants under threat envisioned a character as more stereotypically Black than unthreatened participants.

Studies 1 through 3 examined different factors people use to infer physical appearance when they have no physical descriptions or prior exposure to what a person looks like. Study 4 extended this question to memory of physical appearance. Would group status threat bias our memory of physical appearance, as it did our inferences about it? The results of Study 4 show no effect of threat on the identification of a previously seen face. Together, the results of these four studies suggest that without knowledge of someone's physical appearance, information about their personality and behavior may be used to form impressions of what they look like.

In their paper on the cognitive aspects of physiognomy, Hassin and Trope (2000) suggest a bidirectional interaction between personality information and facial perceptions. That is, they suggest that the physical features of a face will alter the interpretation of personality information (termed 'reading from faces'), but also that personality information will alter the perception of faces ('reading into faces'). Seemingly, the concept of reading from faces has been more prolifically explored in the extant literature than its counterpart. This may be in part due to longstanding criticisms of the 'New Look' movement and its theories on motivated perception (Bruner, 1957). With the resurgence of motivated perception research, reading into faces has been revisited. Perceptions of facial attractiveness have been shown to be biased by relationship status and personal relationship with the rating target (Epley & Whitchurch, 2008; Cole, Trope, & Balci, 2016). Similarly, political affiliation has been shown to affect perceptions of

candidate skin tone (Caruso, Mead, & Balcetis, 2009) as well as affecting the memory of a candidate's face (Young, Ratner, & Fazio, 2014). The concept of reading into faces, however, is generally limited to stimuli which participants have been exposed to previously. What little work has been done on mental representation of stimuli without explicit exposure to a stimulus has focused on groups, such as race (i.e. Dotsch et al., 2008; Brown-Iannuzzi, Dotsch, Cooley, & Payne, 2017). In studies asking participants to identify images that look more stereotypic of a group (i.e. a race), participants could call to mind an exemplar of the group, or a stereotypical caricature of the group, as a point of comparison. No such comparison exists for an individual. The current research extends the theoretical literature of inferring physical characteristics from non-physical information by examining these effects at the level of an individual, and distinguishing between the effect of such information on reconstructive versus constructive representations of faces.

Although the above studies offer initial evidence for descriptions of personality and behavior influencing inferences of physical appearance, more research must be done to better understand this relationship. For example, there remain questions about the extent to which racial stereotypicality of mental representations can be affected by descriptions of behavior. The results of Study 2 show no effect of stereotypes on inferences of appearance. The design of Study 2, however, may not have been optimal to detect such effects. The association between Black individuals and crime is well documented. For the sake of continuity with Study 1, we chose to again use *And Then There Were None* as a stimulus. The character of interest either commits a crime or

doesn't, depending on condition; we assumed that this could activate the association of crime and race. It is possible, though, that the specific type of crime committed by Vera does is not associated with Black individuals. Certain crimes are more commonly associated with individuals of different races; for example, procuring is seen as a more stereotypically Black crime than embezzling (Osborne et al., 2013). Perhaps the murder of a child by a nanny is not considered a stereotypically Black crime. As such, the description of such a crime does not activate a race. It is possible that the same procedure using the story of an individual committing a drive-by shooting would evoke the racial difference in mental representation we expected.

A similar question is raised by the results of Study 3. A limitation of the measurements used is that stereotypicality was only examined as a comparison between groups. That is, although third-party raters see the classification image created by participants under threat as more stereotypically Black than the other image, we do not have ratings of the stereotypicality of each image in isolation. Neither classification image appears very stereotypically Black. Could group-status threat ever lead to highly stereotypical mental representations? Dotsch et al. (2008) showed that participants who had more out-group prejudice (as measured by a single-target Implicit Association Test) pictured an out-group member more negatively than those lower in prejudices. It is likely that similar individual differences could moderate the relationship between group-status threat the race of mental representations of individuals. We found no such moderation by

normative stereotype support¹³, but other factors may be better predictors; two factors that warrant consideration are prejudice towards Black individuals (as in the above research) and implicit normative evaluations of Black individuals (Yoshida, Peach, Zanna, & Spencer, 2012).

Another outstanding question is the potential difference between construction and reconstruction of physical appearance. The disparate effects of threat in Studies 3 and 4 have a variety of possible causes (discussed above). As of the current research, we cannot say whether this difference lies in the distinct processes of generating versus remembering an individual's appearance or if the methodological differences between studies are driving the results. Much of prior reverse correlation research assesses memory of appearance. Young et al. (2014), for example, asked participants to identify images that look more like Mitt Romney in a reverse correlation task. This study was run at the height of the 2008 presidential election, when Romney's visage was a constant presence in the media. It is assumed that on a given trial, participants compared the images on the screen to their memory of Romney's face. The results show an effect of partisanship on mental representations of Romney. This study, and others like it, shows that individual differences can have an effect on the memory of faces; this may suggest that the lack of an effect of threat in Study 4 is not due its reconstructive nature.

¹³ In Study 3, we collected the zip codes where participants had spent their childhoods, and identified the percentage of Trump voters in the 2016 election for that county. We used this as a proxy for normative stereotype support, and found it does not moderate the relationship between threat and stereotypicality of racial inference, $b = 1.62$, $t(89) = 1.46$, $p = 0.15$.

People's appearances influence the inferences we make about them and in turn, our interactions with them. Stereotypes are a classic example of this: an individual is identified as part of a group based on looks, and we assume behavioral characteristics about him. This process can also be subtler; face width-to-height ratio, a static, non-expressive facial feature, is related to inferences of endorsement of prejudiced beliefs (Hehman, Leitner, Deegan, & Gaertner, 2013). Our initial exposure to the behaviors of others is not always accompanied by physical information. We often hear about our friend's friends before ever meeting them in person; we correspond with potential employers via email prior to an in-person interview. Even when concrete knowledge of appearance is lacking, though, the effects of appearance persist. When a job applicant is assumed to be Black based on only their name, they receive 50% fewer offers for interviews than those applicants assumed to be White (Bertrand & Mullainathan, 2004). If the consequences of assuming one's appearance are no different than those of knowing one's appearances, it is important to understand how these assumptions are made. The current research offers new insight into some factors that can influence our assumptions of appearance.

Given the results of the above studies, how might we expect Alvy to picture Annie before they met? The onus would rest on the information their mutual friend shared. If he told Alvy that Annie was an aspiring lounge singer, perhaps Alvy would picture a svelte, poised, attractive woman. If Annie was described as a socially awkward girl from rural Wisconsin, who said things like 'la dee dah,' Alvy might imagine a mousier-looking girl. Alvy might infer a wholly different appearance from a description

of Annie depending on if he had won or lost the last tennis game with his friend. Without knowing what Annie looks like, the stories he hears from his friend may make all the difference in how he pictures her, and whether or not he chooses to meet her for a first date.

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Appendix A: Studies 1 and 2 Text

Character Biographies

(For the murderous condition)

VERA CLAYTHORNE: A schoolteacher and secretary. Previously she served as a governess for Peter, the 11-year-old son of the wealthy Hamilton family, who were spending the summer at their seaside estate in Cornwall. While with the Hamiltons, she fell in love with Peter's uncle, Hugo, who was second in line to inherit the family fortune after Peter. One day while spending the afternoon with Peter by the seaside, Vera challenged Peter to swim to a rock far out in the ocean. Vera knew that Peter was a weak child who would be unlikely to survive the swim in the strong surf and would be likely to drown and leaving his uncle Hugo to inherit the family fortune. In order to avoid suspicion, Vera pretended to swim after Peter in order to rescue him, but intentionally swam slowly to give him time to drown so that he was dead by the time she reached him.

(For the negligent condition)

VERA CLAYTHORNE: A schoolteacher and secretary. Previously she served as a governess for Peter, the 11-year-old son of the wealthy Hamilton family, who were spending the summer at their seaside estate in Cornwall. Peter constantly wanted to swim to a rock that he saw from the beach, far out in the ocean. Vera knew he wasn't strong enough to make the swim, so offered to play a game of bat and ball with him instead. While she went back to the house to get the ball, Peter snuck off to try swimming to the rock. When she returned to the beach, Vera saw him swimming, and raced in after him. She nearly drowned trying to save him, but did not arrive in time. Owen mistakenly thinks her a murderer, however, and invites her to the island along with the other unconvicted criminals.

(For both conditions)

PHILIP LOMBARD: A former mercenary, he is the only member of the party on Soldier Island to admit to his crime from the onset. While serving in South Africa, his regimen, made up mostly of local native tribesmen, became lost in the bush. He, along with two other officers, took all the food and supplies the regimen had and left, leaving the 21 tribesmen to die of starvation. He contends that self-preservation is a man's first duty, and that a civilized European life is worth more than that of an uncivilized native.

And Then There Were None

**Text denoted in this way refers to a portion of the text that changes between conditions.*

*The alternate text reproduced below**

The Study 2 excerpt is only Act 1 of the text below.

ACT ONE

SCENE: *The scene is the living room of the house on Indian Island. It is a very modern room, and luxuriously furnished. It is a bright sunlit evening.*

When Curtain rises, ROGERS and MRS. ROGERS are busy putting final touches to room.

VERA and LOMBARD *enter, seeing the house for the first time.*)

LOMBARD. (*Gazing round room; very interested*) So this is it!

VERA. How perfectly lovely!

ROGERS. Miss Claythorne!

VERA. You're—Rogers?

ROGERS. Yes. Good evening, Miss.

VERA. Good evening, Rogers. Will you bring up my luggage and Captain Lombard's?

ROGERS. Very good, Miss. VERA. (*To LOMBARD*) You've been here before?

LOMBARD. No—but I've heard a lot about the place.

VERA. From Mr. and Mrs. Owen?

LOMBARD. No, old Johnny Brewer, a pal of mine, built this house.

VERA. And here we are. Well, I ought to find Mrs. Owen. The others will be up in a minute.

LOMBARD. It would be very rude to leave me here all by myself.

VERA. Would it? Oh, well, I wonder where she is?

LOMBARD. She'll come along when she's ready...

VERA. This is exciting!

LOMBARD. What?

VERA. All this. The smell of the sea—the gulls—the beach and this lovely house. I am going to enjoy myself.

LOMBARD. I think you are. I think we both are. (*Holding up drink*) Here's to you—you're very lovely.

(*ROGERS enters*)

VERA. (*To ROGERS*) Where is Mrs. Owen?

ROGERS. Mr. and Mrs. Owen won't be down from London until tomorrow, Miss.
I thought you knew.

VERA. Tomorrow—but—

ROGERS. I've got a list here of the guests expected, Miss, if you would like to have it. The second boat load's just arriving.

VERA. Thank you. How awful—I say, you will be sweet and help me, won't you?

LOMBARD. I won't move from your side.

VERA. Thank you. It seems silly to have brought only us in the first boat and all the rest in the second.

LOMBARD. That, I'm afraid, was design, not accident.

VERA. Design? What do you mean?

LOMBARD. I suggested to the boatman that there was no need to wait for any more passengers. That and five shillings soon started up the engine.

VERA. (*Laughing*) Oh, you shouldn't have done that!

LOMBARD. Well, they're not a very exciting lot, are they?

VERA. I thought the young man was rather nice looking.

LOMBARD. Callow. Definitely callow. And very, very young.

VERA. I suppose you think a man in his thirties is more attractive.

LOMBARD. I don't think, my darling—I know.

(MARSTON)

MARSTON. Wizard place you've got here.

VERA. I'm Mrs. Owen's secretary. Mrs. Owen has been detained in London, I'm afraid, and won't be down until tomorrow.

MARSTON. Oh, too bad.

VERA. May I introduce Captain Lombard, Mr.—er—

MARSTON. Marston, Anthony Marston.

LOMBARD. Have a drink?

MARSTON. Oh, thank you.

LOMBARD. What will you have? Gin, whisky, sherry—?

MARSTON. Whisky, I think.

(BLORE *enters*.)

BLORE. (*Seizing VERA's hand and wringing it heartily*) Wonderful place you have here.

VERA. I'm Mrs. Owen's secretary. Mrs. Owen has been detained in London, I'm afraid, and won't be down until tomorrow.

BLORE. How are you?

LOMBARD. My name's Lombard. Have a drink, Mr.—

BLORE. Davis. Davis is the name.

LOMBARD. Mr. Davis—Mr. Marston!

BLORE. How are you, Mr. Marston? Pleased to meet you. Thanks, Mr. Lombard. I don't mind if I do. Bit of a stiff climb up here. But whew! What a view and what a height! Reminds me of South Africa, this place.

LOMBARD. Does it? What part?

BLORE. Oh—er—Natal, Durban, you know.

LOMBARD. Really? (*Hands him drink*)

BLORE. Well, here's to temperance. Do you—er—know South Africa?

LOMBARD. Me? No.

BLORE. That's where I come from. That's my Natal state—ha ha.

LOMBARD. Interesting country, I should think.

BLORE. Finest country in the world, sir. Gold, silver, diamonds, oranges, everything a man could want. Talk about a land flowing with beer and skittles.

(GENERAL MACKENZIE *arrives*)

MACKENZIE. Er—How do you do?

(VERA *rises*)

VERA. General MacKenzie, isn't it? I'm Mrs. Owen's secretary. Mrs. Owen has been detained in London, I'm afraid, and won't be down until tomorrow. Can I introduce Captain Lombard—Mr. Marston and Mr.—

BLORE. Davis, Davis is the name.

LOMBARD. Whisky and soda, sir?

MACKENZIE. Er—thanks. You in the service?

LOMBARD. Formerly in the King's African Rifles. Too tame for me in peacetime. I chucked it.

MACKENZIE. Pity.

(MISS EMILY BRENT *arrives*)

EMILY. (*Sharply to VERA*) Where is Mrs. Owen?

VERA. Miss Brent, isn't it? I'm Mrs. Owen's secretary. Mrs. Owen has been detained in London, I'm afraid.

EMILY. Indeed. Extraordinary. Did she miss the train?

VERA. I expect so. Won't you have something? May I introduce Captain Lombard—General MacKenzie—Mr. Marston. I think you all met on the boat. And Mr.—

BLORE. Davis, Davis is the name. May I take your case?

LOMBARD. Do let me give you a drink? A dry Martini? A glass of sherry? Whisky and soda?

EMILY. I never touch alcohol.

LOMBARD. You never touch alcohol!

EMILY. I suppose you know, young man, that you left us standing there on the wharf?

VERA. I'm afraid, Miss Brent, I was to blame for that. I wanted to—

EMILY. It seems to me most extraordinary that Mrs. Owen should not be here to receive her guests.

VERA. (*Smiling*) Perhaps she's the kind of person who just can't help missing trains.

BLORE. (*Laughs*) That's what I reckon she is.

EMILY. Not at all. Mrs. Owen isn't the least like that.

LOMBARD. (*Lightly*) Perhaps it was her husband's fault.

EMILY. (*Sharply*) She hasn't got a husband I should like to go to my room.

VERA. Of course. I'll take you there.

ROGERS. (*To VERA*) You'll find Mrs. Rogers upstairs, Miss. She will show you the room.

(*Exit VERA and EMILY and ROGERS. WARGRAVE enters*)

LOMBARD. I'm afraid our host and hostess haven't arrived, sir. My name's Lombard.

WARGRAVE. Mine's Wargrave. How do you do?

LOMBARD. How do you do? Have a drink, sir?

WARGRAVE. Yes, please. A whisky.

BLORE. (*to WARGRAVE*) How are you? Davis, Davis is the name. I say, wonderful place you've got here. Quite unique.

WARGRAVE. As you say—Quite unique.

BLORE. Your drink, sir.

MARSTON. (*To LOMBARD*) Old Badger Berkeley rolled up yet?

LOMBARD. Who did you say?

MARSTON. Badger Berkeley. He roped me in for this show. When's he coming?

LOMBARD. I don't think he is coming. Nobody of the name of Berkeley.

MARSTON. The dirty old double-crosser! He's let me down. Well, it's a pretty wizard island. Rather a wizard girl, that secretary. She ought to liven things up a bit. I say, old man, what about dressing for dinner if there's time?

LOMBARD. Let's go and explore.

MARSTON. Oh, wizard!

LOMBARD. Things are a bit at sixes and sevens with the Owens not turning up.

MARSTON. I say, wizard place for a holiday.

(*Exit MARSTON and LOMBARD*)

ROGERS. (*Enters Left 1 To WARGRAVE*) Can I have your keys, sir?

WARGRAVE. Is Lady Constance Culmington expected here, can you tell me?

ROGERS. Lady Constance Culmington? I don't think so, sir. Unless she's coming down with Mr. and Mrs. Owen.

WARGRAVE. Oh.

(*Enter ARMSTRONG*)

BLORE. (*To ARMSTRONG*) How are you? Davis. Davis is the name.

ARMSTRONG. Mine's Armstrong.

BLORE. Doctor Armstrong, I believe.

ARMSTRONG. Yes.

BLORE. Thought so. Never forget a face.

ARMSTRONG. Don't tell me I've forgotten one of my patients!

BLORE. No, no, nothing like that, but I once saw you in Court giving expert evidence.

ARMSTRONG. Oh, really? Are you interested in the Law?

BLORE. Well, you see, I'm from South Africa. Naturally, legal processes in this country are bound to interest a Colonial.

ARMSTRONG. Oh, yes, of course.

BLORE. Have a drink?

ARMSTRONG. No, thanks. I never touch it.

BLORE. Do you mind if I do? Mine's empty.

ARMSTRONG. Not a bit.

BLORE. I've been having a look round the island. It's a wonderful place, isn't it?

ARMSTRONG. Wonderfully restful. Wonderful for the nerves. I'm a nerve specialist, you know.

BLORE. Yes, I know that. Did you come down by train?

ARMSTRONG. No, I motored down. Dropped in on a patient on the way.

BLORE. Best part of two hundred miles, isn't it? How long did it take you?

ARMSTRONG. I didn't hurry. I never hurry. Bad for the nerves. Some mannerless young fellow nearly drove me into the ditch near Amesbury. Shot past me at about eighty miles an hour. Disgraceful bit of driving. I'd like to have had his number.

BLORE. Yes, and if only more people would take the numbers of these young road hogs.

ARMSTRONG. Yes. You must excuse me. I must have a word with Mr. Owen. (*He bustles out*)

BLORE. Oh, but—Mr. Owen isn't coming down—

(*ROGERS enters.*)

ROGERS. You rang, sir?

BLORE. Yes. What time's supper?

ROGERS. Dinner is at eight o'clock, sir.

BLORE. Got a good place, here.

ROGERS. Yes, thank you, sir.

BLORE. Been here long?

ROGERS. Just under a week, sir.

BLORE. So I don't suppose you know much about this crowd that's here?

ROGERS. No, sir.

BLORE. All old friends of the family?

ROGERS. I really couldn't say, sir.

BLORE. Oh, well. (*Exit BLORE*)

(*Enter MRS. ROGERS*)

MRS. ROGERS. Oh, there you are, Rogers. You ought to clear these dirty glasses. You're always leaving the dirty work to me. Here I am with a four-course dinner on my hands and no one to help me. You might come and give me a hand with the dishing up.

ROGERS. Now, now, stop your nagging. You get back to the kitchen or your dinner will be spoilt.

MRS. ROGERS. It'll be spoilt anyway, I expect. Everybody's going to be late. Wasted on them, anyway. Thank goodness I didn't make a soufflé.
(*Enter VERA*) Oh, dinner won't be a minute, Miss. Just a question of dishing up. (MRS. ROGERS *exits*)
VERA. Is everything all right, Rogers? Can you manage between the two of you?
ROGERS. Yes, thank you, Miss. The Missus talks a lot, but she gets it done. (*Exits*)
(EMILY *enters*)

VERA. What a lovely evening!
EMILY. Yes, indeed. The weather seems very settled.
VERA. How plainly one can hear the sea.
EMILY. A pleasant sound.
VERA. Hardly a breath of wind—and deliciously warm. Not like England at all.
EMILY. I should have thought you might feel a little uncomfortable in that dress.
VERA. Oh, no.
EMILY. Ahem. It's rather tight, isn't it?
VERA. Oh, I don't think so.
EMILY. You'll excuse me, my dear, but you're a young girl and you've got your living to earn—
VERA. Yes?
EMILY. A well-bred woman doesn't like her secretary to appear flashy. It looks, you know, as though you were trying to attract the attention of the opposite sex.
VERA. And would you say I do attract them?
EMILY. That's beside the point. A girl who deliberately sets out to get the attention of men won't be likely to keep her job long.
VERA. Ha! Surely that depends on who she's working for?
EMILY. Really, Miss Claythorne!
VERA. Aren't you being a little unkind?
EMILY. Young people nowadays behave in the most disgusting fashion.
VERA. Disgusting?
EMILY. Yes. Low-backed evening dresses. Lying half naked on beaches. All this so-called sunbathing. An excuse for immodest conduct, nothing more. Familiarity! Christian names—drinking cocktails! And look at the young men nowadays. Decadent! Look at that young Marston. What good is he? And that Captain Lombard!
VERA. What do you object to in Captain Lombard? I should say he was a man who'd led a very varied and interesting life.

EMILY. The man's an adventurer. All this younger generation is no good—no good at all.

VERA. You don't like youth—I see.

EMILY. What do you mean?

VERA. I was just remarking that you don't like young people.

EMILY. And is there any reason why I should, pray?

VERA. Oh, no, but it seems to me that you must miss an awful lot.

EMILY. You're very impertinent.

VERA. I'm sorry, but that's just what I think.

EMILY. The world will never improve until we stamp out immodesty.

(Enter ARMSTRONG and LOMBARD)

LOMBARD. What about the old boy—

ARMSTRONG. He looks rather like a tortoise, don't you think so?

LOMBARD. All judges look like tortoises. They have that venomous way of darting their heads in and out. Mr. Justice Wargrave is no exception.

ARMSTRONG. I hadn't realized he was a judge.

LOMBARD. Oh, yes. He's probably been responsible for sending more innocent people to their death than anyone in England. *(WARGRAVE enters)* Hullo, you.

(To VERA) Do you two know each other? Mr. Armstrong—Miss Claythorne. Armstrong and I have just decided that the old boy—

VERA. Yes, I heard you and so did he, I think.

(MARSTON enters with BLORE.)

MARSTON. Absolutely wizard car—a super-charged Sports Mulatti Carlotta. You don't see many of them on the road. I can get over a hundred out of her.

BLORE. Did you come from London?

MARSTON. Yes, two hundred and eight miles and I did it in a bit over four hours. Too many cars on the road, though, to keep it up. Touched ninety going over Salisbury Plain. Not too bad, eh?

ARMSTRONG. I think you passed me on the road.

MARSTON. Oh, yes?

ARMSTRONG. You nearly drove me into the ditch.

MARSTON. Did I? Sorry.

ARMSTRONG. If I'd seen your number, I'd have reported you.

MARSTON. But you were footling along in the middle of the road.

ARMSTRONG. Footling? Me footling?

BLORE. Oh, well, what about a drink?

MARSTON. Good idea. Will you have one, Miss Claythorne?

VERA. No, thank you.

LOMBARD. (*To VERA*) Good evening, Mrs. Owen.

VERA. Why Mrs. Owen?

LOMBARD. You'd make the most attractive wife for any wealthy businessman.

VERA. Do you always flirt so outrageously?

LOMBARD. Always.

VERA. Oh! Well, now we know.

(*Notices 10 figurines on the mantle*) Look! Aren't they sweet? Those ten little china Indians. Oh, and there's the old nursery rhyme.

LOMBARD. What are you talking about? What figures? What nursery rhyme?

VERA. (*She points at the figures and rhyme—reading*) "Ten little Indian boys
going out to dine
One choked his little self and then there were nine—"
"Nine little Indian boys sat up very late.
One overslept himself and then there were eight."

BLORE.

"Eight little Indian boys travelling in Devon.

One got left behind and then there were seven—"

VOICE. Ladies and gentlemen, silence, please! *EVERYBODY stops talking and stares round at each other, at the walls.*) You are charged with these indictments: that you did respectively and at diverse times commit the following: Edward Armstrong, that you did cause the death of Louisa Mary Clees. William Henry Blore, that you brought about the death of James Stephen Landor. Emily Caroline Brent, that you were responsible for the death of Beatrice Taylor. Vera Elizabeth Claythorne, that you killed Peter Ogilvie Hamilton. Philip Lombard, that you were guilty of the deaths of twenty-one men, members of an East African tribe. John Gordon MacKenzie, that you sent your wife's lover, Arthur Richmond, to his death. Anthony James Marston, that you were guilty of the murder of John and Lucy Combes. Thomas Rogers and Ethel Rogers, that you brought about the death of Jennifer Brady. Lawrence John Wargrave, that you were guilty of the murder of Edward Seton. Prisoners at the bar, have you anything to say in your defense?

(*There is a momentary paralyzed silence. Then there is a scream from the other room. LOMBARD springs across the room to it. The door opens to show MRS.*

ROGERS *in a fallen heap*. MARSTON *springs across to LOMBARD*. *They pick up MRS. ROGERS and carry her in to Right sofa. ARMSTRONG comes to her.*)

ARMSTRONG. It's nothing much. She's fainted, that's all. She'll be round in a minute. Get some brandy—

BLORE. Rogers, get some brandy.

(ROGERS *goes out*)

VERA. Who was that speaking? It sounded—

MACKENZIE. What's going on here? What kind of practical joke was that?

LOMBARD. Where the devil did that voice come from? (LOMBARD *goes into study*)
Here we are.

VOICE. You are charged with these indictments—

VERA. Turn it off! Turn it off! It's horrible!

(LOMBARD *switches it off*. MRS. ROGERS *groans*.)

ARMSTRONG. A disgraceful and heartless practical joke.

WARGRAVE. So you think it's a joke, do you?

ARMSTRONG. What else could it be?

WARGRAVE. At the moment I'm not prepared to give an opinion.

(ROGERS *enters*)

MARSTON. Who the devil turned it on, though? And set it going?

WARGRAVE. We must enquire into that. (*He looks at ROGERS.*)

(LOMBARD *enters with record*; MRS. ROGERS *begins to move and twist.*)

MRS. ROGERS. Oh, dear me! Oh, dear me!

ROGERS. Allow me, sir. If I speak to her—Ethel—Ethel—it's all right. All right, do you hear? Pull yourself together.

(MRS. ROGERS *begins to gasp and moan. She tries to pull herself up.*)

ARMSTRONG. You'll be all right now, Mrs. Rogers. Just a nasty turn.

MRS. ROGERS. Did I faint, sir?

ARMSTRONG. Yes.

MRS. ROGERS. It was the voice—the awful voice—like a judgement—

(MRS. ROGERS's eyelids flutter. She seems about to collapse again.)

ARMSTRONG. Where's the brandy? Drink this, Mrs. Rogers.

MRS. ROGERS. *She sits up again.*) I'm all right now. I just—gave me a turn.

ROGERS. Of course it did. Gave me a turn too. Wicked lies it was! I'd like to know—

WARGRAVE. Who was it put that record on the gramophone? Was it you, Rogers?

ROGERS. I was just obeying orders, sir, that's all.

WARGRAVE. Whose orders?

ROGERS. Mr. Owen's.

WARGRAVE. Let me get this quite clear. Mr. Owen's orders were—what exactly?

ROGERS. I was to put on a record on the gramophone in the study. I'd find the records in the drawer in there. I was to start with that one, sir. I thought it was just to give you all some music.

WARGRAVE. A very remarkable story.

ROGERS. It's the truth, sir. Before Heaven, it's the truth. I didn't know what it was—not for a moment. It had a name on it. I thought it was just a piece of music.

(LOMBARD examines record.)

WARGRAVE. Is there a title?

LOMBARD. A title? Yes, sir. It's entitled "Swan Song."

MACKENZIE. The whole thing is preposterous—preposterous! Slinging accusations about like this. Something must be done about it. This fellow Owen, whoever he is—

EMILY. That's just it. Who is he?

WARGRAVE. That is exactly what we must go into very carefully. I should suggest that you get your wife to bed, Rogers. Then come back here.

ROGERS. Yes, sir.

ARMSTRONG. I'll give you a hand.

VERA. Will she be all right, Doctor?

ARMSTRONG. Yes, quite all right.

(ARMSTRONG and ROGERS help MRS. ROGERS up and take her out)

MARSTON. Don't know about you, but I feel I need another drink.

WARGRAVE. I agree.

MARSTON. I'll get them.

MACKENZIE. Preposterous—that's what it is—preposterous.

MARSTON. Whisky for you, Sir Lawrence?

EMILY. I should like a glass of water, please.

VERA. Yes, I'll get it. I'll have a little whisky too.

(ARMSTRONG *enters*)

ARMSTRONG. She'll be all right. I've given her a sedative.

BLORE. Now then, Doctor, you'll want a drink after all this.

ARMSTRONG. No, thank you. I never touch it.

BLORE. Oh, so you said. You have this one, General?

WARGRAVE. Now then, Rogers, we must get to the bottom of this. Tell us what you know about Mr. Owen.

ROGERS. He owns this place, sir.

WARGRAVE. I am aware of that fact. What I want you to tell me is what you yourself know about the man.

ROGERS. I can't say, sir. You see, I've never seen him.

MACKENZIE. What d'you mean, you've never seen him?

ROGERS. We've only been here just under a week, sir, my wife and I. We were engaged by letter through a registry office. The Regina, in Plymouth.

WARGRAVE. Go on with your story.

ROGERS. We arrived here like the letter said, on the 4th. Everything was in order, plenty of food in stock and everything very nice. Just needed dusting and that.

WARGRAVE. What next?

ROGERS. Nothing, sir. That is, we got orders to prepare the room for a house party—eight. Then yesterday, by the morning post, I received another letter saying Mr. and Mrs. Owen might be detained and, if so, we was to do the best we could, and it gave the instructions about dinner and putting on the gramophone record.

MARSTON. Got some fancy Christian names, haven't they? Ulick Norman and Una Nancy Owen. Quite a mouthful.

WARGRAVE. I am obliged to you, Mr. Marston. You have drawn my attention to a curious and suggestive point. Just now we had a somewhat disturbing experience. An apparently disembodied voice spoke to us all by name, uttering certain definite accusations against us. We will deal with those accusations presently. At the moment I am interested in a minor point. Amongst the names received was that of William Henry Blore. But as far as we know, there is no one named Blore amongst us. The name of Davis was not mentioned. What have you to say about that, Mr. Davis?

BLORE. Cat's out of the bag, it seems. I suppose I'd better admit my name isn't Davis.

WARGRAVE. You are William Henry Blore?

BLORE. That's right.

(*ALL turn towards BLORE.*)

BLORE. You gentlemen have got me wrong. I'm an ex-CID man.

LOMBARD. Oh, a copper!

BLORE. I've got my credentials and I can prove it. I run a detective agency in Plymouth. I was put on to this job.

WARGRAVE. By whom?

BLORE. Why, Mr. Owen. Sent a very nice money order for expenses, and said I was to join the house party, posing as a guest. He also sent a list of all your names and said I was to keep an eye on you all.

WARGRAVE. Any reason given?

BLORE. Said Mrs. Owen had got some valuable jewels. Mrs. Owen, my foot! I don't believe there's any such person.

WARGRAVE. Your conclusions are, I think, justified. Ulick Norman Owen. Una Nancy Owen. Each time, that is to say, U.N. Owen. Or, by a slight stretch of fancy, Unknown.

VERA. But it's fantastic! Mad!

WARGRAVE. Oh, yes, I've no doubt in my own mind that we have been invited here by a madman—probably a dangerous homicidal lunatic.

ROGERS. Oh, my gawd!

WARGRAVE. Whoever it is who has enticed us here, that person has taken the trouble to find out a great deal about us. A very great deal. And out of his knowledge concerning us, he has made certain definite accusations.

BLORE. It's all very well to make accusations.

MACKENZIE. A pack of damn lies! Slander!

VERA. It's iniquitous! Wicked!

ROGERS. A lie—a wicked lie—we never did, neither of us—

MARSTON. Don't know what the damned fool was getting at—

WARGRAVE. (*Raises a hand for silence*) I wish to say this. Our unknown friend accuses me of the murder of one Edward Seton. I remember Seton perfectly well. He came up before me for trial in June 1930. He was charged with the murder of an elderly woman. He was very ably defended and made a good impression on the jury in the witness box. Nevertheless, on the evidence he was certainly guilty. I summed up accordingly and the jury brought in a verdict of Guilty. In passing sentence of death, I fully concurred with this verdict. The man was duly executed. I wish to say before you all that my conscience is perfectly clear on the matter. I did my duty and nothing more. I passed sentence on a rightly convicted murderer.

MACKENZIE. Fellow's a madman. Absolute madman. Got a bee in his bonnet. Got hold of the wrong end of the stick all round. Best really to leave this sort of thing unanswered. However, feel I ought to say—no truth—no truth whatever in what he said about—er—young Arthur Richmond. Richmond was one of my officers. I sent him on reconnaissance in 1917. He was killed. Also like to say—resent very much—slur on my wife. Been dead a long time. Best woman in the world. Absolutely—Caesar's wife.

MARSTON. I've just been thinking—John and Lucy Combes. Must have been a couple of kids I ran over near Cambridge. Beastly bad luck.

WARGRAVE. For them or for you?

MARSTON. Well, I was thinking—for me—but, of course, you're right, sir. It was damned bad luck for them too. Of course, it was pure accident. They rushed out of some cottage or other. I had my license suspended for a year. Beastly nuisance.

ARMSTRONG. This speeding's all wrong—all wrong. Young men like you are a danger to the community.

MARSTON. Well, I couldn't help it. Just an accident.

ROGERS. Might I say a word, sir?

LOMBARD. Go ahead, Rogers.

ROGERS. There was a mention, sir, of me and Mrs. Rogers, and of Miss Jennifer Brady. There isn't a word of truth in it. We were with Miss Brady when she died. She was always in poor health, sir, always from the time we came to her. There was a storm, sir, the night she died. The telephone was out of order. We couldn't get the doctor to her. I went for him, sir, on foot. But he

got there too late. We'd done everything possible for her, sir. Devoted to her, we were. Anyone will tell you the same. There was never a word said against us. Never a word.

BLORE. Came into a nice little something at her death, I suppose. Didn't you?

ROGERS. Miss Brady left us a legacy in recognition of our faithful service. And why not, I'd like to know?

LOMBARD. What about yourself, Mr. Blore?

BLORE. What about me?

LOMBARD. Your name was on the list

BLORE. I know, I know. Landor, you mean? That was the London & Commercial Bank robbery.

WARGRAVE. I remember the name, though it didn't come before me. Landor was convicted on your evidence. You were the police officer in charge of the case.

BLORE. I was.

WARGRAVE. Landor got penal servitude for life and died in Dartmoor a year later. He was a delicate man.

BLORE. He was a crook. It was him put the night watchman out. The case was clear from the start.

WARGRAVE. You were complimented, I think, on your able handling of the case.

BLORE. I got my promotion. I was only doing my duty.

LOMBARD. What about you, Doctor?

ARMSTRONG. I'm at a loss to understand the matter. The name meant nothing to me—what was it? Close? Close? I really don't remember having a patient of that name—or its being connected with a death in any way. The thing's a complete mystery to me. Of course, it's a long time ago. It might possibly be one of my operation cases in hospital. They come too late, so many of these people. Then, when the patient dies, it's always the surgeon's fault.

LOMBARD. And then it's better to take up nerve cases and give up surgery. Some, of course, give up drink.

ARMSTRONG. I protest. You've no right to insinuate such things. I never touch alcohol.

LOMBARD. My dear fellow, I never suggested you did. Anyway, Mr. Unknown is the only one who knows all the facts.

WARGRAVE. Miss Claythorne?

*VERA. I was nursery governess to Peter Hamilton. We were in Cornwall for the summer. He was forbidden to swim out far. One day, when my attention

was distracted, he started off—as soon as I saw what happened I swam after him. I couldn't get there in time— *(She trails off. The scene shifts, VERA is now standing with PETER on a beach, looking out towards the water, all others are offstage)*

PETER. Miss Claythorne, why can't I swim out to the rock? I can make it. I know I can!

VERA. I know you can, Peter, really I know.

PETER. Can I go then?

VERA. Well, Peter, your mother gets so nervous about you. I'll tell you what. Tomorrow you can swim out to the rock. I'll distract your mother's attention. And then, when she looks for you, there you'll be standing on the rock waving to her. What a surprise it will be!

PETER. Oh wonderful, Miss Claythorne! How happy she'll be!

VERA. Yes she will. Now back to the house for lunch you go! *(PETER runs off stage. VERA, to herself)* And Hugo and I will live happily ever after. But what if something goes wrong? Peter could be rescued in time... If the worst should happen, if Peter survives, he'll tell them "Miss Claythorne said I could!" But he tells stories so often, I'll say he is lying. "How could you tell such a wicked lie, Peter? Of course I never said any such thing." But all this doesn't matter; nothing will go wrong. I'll pretend to swim out after him, but I'll arrive too late. No one will ever suspect...*

WARGRAVE. *(The scene shifts again, back to the living room)* Was there an inquest? Miss Claythorne?

VERA. Yes? *(coming to from her daydream)* Yes, I was exonerated by the Coroner. His mother didn't blame me, either.

WARGRAVE. Thank you. Miss Brent?

EMILY. I have nothing to say.

WARGRAVE. Nothing?

EMILY. Nothing.

WARGRAVE. You reserve your defense?

EMILY. There is no question of defense. I have always acted according to the dictates of my conscience.

LOMBARD. What a law-abiding lot we seem to be! Myself excepted—

WARGRAVE. We are waiting for your story, Captain Lombard.

LOMBARD. I haven't got a story.

WARGRAVE. What do you mean?

LOMBARD. I'm sorry to disappoint all of you. It's just that I plead guilty. It's perfectly true. I left those natives alone in the bush. Matter of self-preservation.

MACKENZIE. You abandoned your men?

LOMBARD. Not quite the act of an upright gentleman, I'm afraid. But after all, self-preservation's a man's first duty. And natives don't mind dying, you know. They don't feel about it as Europeans do—

WARGRAVE. Our enquiry rests there. Now, Rogers, who else is there on this island besides ourselves and you and your wife?

ROGERS. Nobody, sir. Nobody at all.

WARGRAVE. You're sure of that?

ROGERS. Quite sure, sir.

WARGRAVE. Thank you. (*To EVERYBODY*) I am not yet clear as to the purpose of our unknown host in getting us to assemble here. But in my opinion he's not sane in the accepted sense of the word. He may be dangerous. In my opinion, it would be well for us to leave this place as soon as possible. I suggest that we leave tonight.

ROGERS. I beg your pardon, sir, but there's no boat on the island.

WARGRAVE. No boat at all?

ROGERS. No, sir.

Fred Narracott, he comes over every morning, sir. He can take us back to the mainland.

MARSTON. A bit unsporting, what? Ought to ferret out the mystery before we go. Whole thing's like a detective story. Positively thrilling.

(*Raises his glass*) Here's to it. (*Drinks it off at a gulp, appears to choke, gasps, has a violent convulsion and slips on to sofa.*)

ARMSTRONG. (*Runs over to him, bends down, feels pulse, raises eyelid*) My God, he's dead!

(*ARMSTRONG sniffs lips, then sniffs glass. Nods.*)

MACKENZIE. Dead? D'you mean the fellow just choked and—died?

ARMSTRONG. You can call it choking if you like. He died of asphyxiation, right enough.

MACKENZIE. Never knew a man could die like that—just a choking fit.

EMILY. In the middle of life we are in death.

ARMSTRONG. A man doesn't die of a mere choking fit, General MacKenzie.
Marston's death isn't what we call a natural death.

VERA. Was there something in the whisky?

ARMSTRONG. Yes. By the smell of it, cyanide. Probably Potassium Cyanide. Acts pretty well instantaneously.

LOMBARD. Then he must have put the stuff in the glass himself.

BLORE. Suicide, eh? That's a rum go.

VERA. You'd never think he'd commit suicide. He was so alive. He was enjoying himself.

EMILY. Oh! Look—here's one of the little Indians off the mantelpiece—broken.

ACT TWO

Scene I

The same. The following morning.

The windows are open and the room has been tidied. It is a fine morning. There are only eight Indians on the mantelpiece. Suitcases are piled up on the balcony. ALL are waiting for the boat to arrive.

(ARMSTRONG and BLORE come in.)

ARMSTRONG. We've been up to the top. No sign of that boat yet.

VERA. It's very early still.

BLORE. Oh, I know. Still, the fellow brings the milk and the bread and all that. I should have thought he'd have got here before this.

WARGRAVE. How's the weather looking?

BLORE. The wind has freshened a bit. Rather a mackerel sky. Old boy in the train yesterday said we were due for dirty weather. Shouldn't wonder if he wasn't right—

ARMSTRONG. I wish that boat would come. The sooner we get off this island the better. It's absurd not keeping a boat on the island.

BLORE. No proper harbour. If the wind comes to blow from the south-east, a boat would get dashed to pieces against the rocks.

EMILY. But a boat would always be able to make us from the mainland?

BLORE. No, Miss Brent—that's just what it wouldn't.

EMILY. Do you mean we should be cut off from the land?

BLORE. Yes. But you needn't worry. The sea's only a bit choppy.

EMILY. I think the pleasures of living on an island are rather overrated.

ARMSTRONG. I wonder if that boat's coming. Annoying the way the house is built slap up against the cliff. You can't see the mainland until you've climbed to the top. (*To BLORE*) Shall we go up there again?

BLORE. It's no good, Doctor. A watched pot never boils. There wasn't a sign of a boat putting out when we were up there just now.

ARMSTRONG. Where's Rogers? He ought to be about.

BLORE. If you ask me, Master Rogers was pretty badly rattled last night.

ARMSTRONG. I know. Ghastly—the whole thing.

BLORE. I'd take an even bet that he and his wife did do that old lady in.

WARGRAVE. You really think so?

BLORE. Well, I never saw a man more scared. Guilty as hell, I should say.

ARMSTRONG. Fantastic—the whole thing—fantastic.

BLORE. I say, suppose he's hopped it?

ARMSTRONG. Who, Rogers? But there isn't any way he could. There's no boat on the island. You've just said so.

BLORE. Yes, but I've been thinking. We've only Rogers's word for that. Suppose there is one and he's nipped off in the first thing.

MACKENZIE. Oh! No. He wouldn't be allowed to leave the island.

BLORE. I wish Narracott would come. (*Turns up to window.*)

MACKENZIE. Who is Narracott?

BLORE. The bloke who brought us over yesterday afternoon.

MACKENZIE. Was it only yesterday?

BLORE. (*Comes down Centre. Determinedly cheerful*) Yes, I feel like that, too. Batty gramophone records—suicides—it's about all a man can stand. I shan't be sorry to see the back of Indian Island, I give you my word.

ARMSTRONG. (*Of MACKENZIE.*) I don't like the look of him.

BLORE. I reckon young Marston's suicide must have been a pretty bad shock to him. He looks years older.

ARMSTRONG. Where is that poor young fellow now?

BLORE. In the study—put him there myself.

VERA. Doctor Armstrong, I suppose it was suicide?

ARMSTRONG. What else could it be?

VERA. I don't know. But suicide—(*She shakes her head.*)

BLORE. You know I had a pretty funny feeling in the night. This Mr. Unknown Owen, suppose he's on the island. Rogers mayn't know. Or he may have told him to say so. Pretty nasty thought, isn't it?

ARMSTRONG. But would it have been possible for anyone to tamper with Marston's drink without our seeing him?

BLORE. Well, it was standing up there. Anyone could have slipped a dollop of cyanide in if they'd wanted to.

ARMSTRONG. But that—

ROGERS. (*Comes running to ARMSTRONG.*) Oh, there you are, sir. I've been all over the place looking for you. Could you come up and have a look at my wife, sir?

ARMSTRONG. Yes, of course. Is she feeling under the weather still?

ROGERS. She's—she's—

(*They go out Left 1.*)

VERA. I wish the boat would come. I hate this place.

WARGRAVE. Yes. I think the sooner we can get in touch with the police the better.

VERA. The police?

WARGRAVE. The police have to be notified in a case of suicide, you know, Miss Claythorne.

VERA. Oh, yes—of course.

BLORE. What's going on here? No sign of any breakfast.

LOMBARD. (*Comes in*) Good morning.

BLORE. Good morning, Captain Lombard.

LOMBARD. Good morning. Seem to have overslept myself. Boat here yet?

BLORE. No.

LOMBARD. Bit late, isn't it?

BLORE. Yes.

You must have good nerves to sleep like that.

LOMBARD. Nothing makes me lose my sleep.

BLORE. Didn't dream of African natives, by any chance, did you?

LOMBARD. No. Did you dream of convicts on Dartmoor?

BLORE. Look here, I don't think that's funny, Captain Lombard.

LOMBARD. Well, you started it, you know. I'm hungry. What about breakfast?

BLORE. The whole domestic staff seems to have gone on strike.

LOMBARD. Oh, well, we can always forage for ourselves.

VERA. (*Examining Indian figures*) Hullo, that's strange.

LOMBARD. What is?

VERA. You remember we found one of these little fellows smashed last night?

LOMBARD. Yes—That ought to leave nine.

VERA. That ought to leave nine. I'm certain there were ten of them here when we arrived.

LOMBARD. Well?

VERA. There are only eight.

LOMBARD. So there are. (*ARMSTRONG enters*) Hullo, Armstrong, what's the matter?

ARMSTRONG. Mrs. Rogers is dead.

BLORE and VERA. No! How?

ARMSTRONG. Died in her sleep. Rogers thought she was still under the influence of the sleeping draught I gave her and came down without disturbing her. He lit the kitchen fire and did this room. Then, as she hadn't appeared, he went up, was alarmed by the look of her and went hunting for me. She's been dead about five hours, I should say.

BLORE. What was it? Heart?

ARMSTRONG. Impossible to say. It may have been.

BLORE. After all, she had a pretty bad shock last night.

ARMSTRONG. Yes.

WARGRAVE. She might have been poisoned, I suppose, Doctor?

ARMSTRONG. It is perfectly possible.

WARGRAVE. With the same stuff as young Marston?

ARMSTRONG. No, not cyanide. It would have to have been some narcotic or hypnotic. One of the barbiturates, or chloral. Something like that.

BLORE. You gave her some sleeping powders last night, didn't you?

ARMSTRONG. Yes, I gave her a mild dose of Luminal.

BLORE. Didn't give her too much, did you?

ARMSTRONG. Certainly not. What do you mean?

BLORE. All right—no offense, no offense. I just thought that perhaps if she'd had a weak heart—

ARMSTRONG. The amount I gave her could not have hurt anyone.

LOMBARD. Then what exactly did happen?

ARMSTRONG. Impossible to say without an autopsy.

VERA. She was a very nervous-looking creature. She had a bad fright last night. Perhaps it was heart failure.

ARMSTRONG. Her heart certainly failed to beat—but what caused it to fail?

EMILY. Conscience.

ARMSTRONG. What exactly do you mean by that, Miss Brent?

EMILY. You all heard—She was accused, together with her husband, of having deliberately murdered her former employer—an old lady.

BLORE. And you believe that's true, Miss Brent?

EMILY. Certainly. You all saw her last night. She broke down completely and fainted. The shock of having her wickedness brought home to her was too much for her. She literally died of fear.

ARMSTRONG. (*Doubtfully*) It is a possible theory. One cannot adopt it without more exact knowledge of her state of health. If there was a latent cardiac weakness—

EMILY. Call it, if you prefer, An Act of God.

BLORE. Oh, no, Miss Brent.

EMILY. You regard it as impossible that a sinner should be struck down by the wrath of God? I do not.

WARGRAVE. My dear lady, in my experience of ill doing, Providence leaves the work of conviction and chastisement to us mortals—and the process is often fraught with difficulties. There are no short cuts.

BLORE. Let's be practical. What did the woman have to eat and drink last night after she went to bed?

ARMSTRONG. Nothing.

BLORE. Nothing at all? Not a cup of tea? Or a glass of water? I'll bet you she had a cup of tea. That sort always does.

ARMSTRONG. Rogers assures me she had nothing whatever.

BLORE. He might say so.

LOMBARD. So that's your idea?

BLORE. Well, why not? You all heard that accusation last night. What if it's true? Miss Brent thinks it is, for one. Rogers and his missus did the old lady in. They're feeling quite safe and happy about it—

—they know there's no immediate danger to them. Then, last night, some lunatic goes and spills the beans. What happens? It's the woman who cracks. Goes to pieces. Did you see him hanging round her when she was coming to? Not all husbandly solicitude? Not on your sweet life. He was like a cat on hot bricks. And that's the position. They've done a murder and got away with it. But if it's all going to be raked up again now, it's the woman will give the show away. She hadn't got the nerve to brazen it out. She's a living danger to her husband, that's what she is, and him—he's all

right. He'll go on lying till the cows come home, but he can't be sure of her. So what does he do? He drops a nice little dollop of something into a nice cup of tea, and when she's had it, he washes up the cup and saucer and tells the doctor she ain't had nothing.

VERA. Oh, no. That's impossible. A man wouldn't do that—not to his wife.

BLORE. You'd be surprised, Miss Claythorne, what some husbands would do.

ROGERS. (*Enters. To VERA*) Excuse me, Miss. I'm getting on with breakfast. I'm not much of a hand as a cook, I'm afraid. It's lunch that's worrying me. Would cold tongue and gelatine be satisfactory? And I could manage some fried potatoes. And then there's tinned fruit and cheese and biscuits.

VERA. That will be fine, Rogers.

BLORE. Lunch? Lunch? We shan't be here for lunch! And when the hell's that boat coming?

ROGERS. You'll pardon me, sir, but the boat won't be coming.

BLORE. What?

ROGERS. Fred Narracott's always here before eight. Is there anything else you require, Miss?

VERA. No, thank you, Rogers.

(ROGERS *goes out*)

BLORE. And it's not Rogers! His wife lying dead upstairs and there he's cooking breakfast and calmly talking about lunch! Now he says the boat won't be coming. How the 'ell does he know?

VERA. Oh, don't you see? He's dazed. He's just carrying on automatically as a good servant would. It's—it's pathetic, really.

BLORE. He's pulling a fast one, if you ask me.

WARGRAVE. The really significant thing is the failure of the boat to arrive. It means that we are being deliberately cut off from help.

LOMBARD. Why do you think Narracott hasn't turned up?

WARGRAVE. I think the ubiquitous Mr. Owen has given orders.

VERA. But can't we do something?

LOMBARD. Oh, yes, we can do something. We can find the funny gentleman who's staged this little joke, Mr. Unknown Owen. I'll bet anything you like he's somewhere on the island, and the sooner we get hold of him the better. Because, in my opinion, he's mad as a hatter. And as dangerous as a rattlesnake.

WARGRAVE. Hardly a very good simile, Captain Lombard. The rattlesnake at least gives warning of its approach.

LOMBARD. Warning? My God, yes! (*Indicating nursery rhyme*) That's our warning. (*Reading*)

"Ten little Indian boys—"

There were ten of us on the island to start, weren't there?

"Ten little Indian boys going out to dine;

One went and choked himself—"

Marston choked himself, didn't he? And then—

"Nine little Indians sat up very late.

One overslept himself"—overslept himself—

The last part fits Mrs. Rogers rather well, doesn't it?

VERA. You don't think—Do you mean that he wants to kill us all?

LOMBARD. Yes, I think he does.

VERA. And each one fits with the rhyme!

ARMSTRONG. No, no, it's impossible. It's coincidence. It must be coincidence.

LOMBARD. Only eight little Indian boys here. I suppose that's coincidence too.

What do you think, Blore?

BLORE. I don't like it.

ARMSTRONG. But there's nobody on the island.

BLORE. I'm not so sure of that.

ARMSTRONG. This is terrible.

MACKENZIE. None of us will ever leave this island.

LOMBARD. Don't you agree with me, Sir Lawrence?

WARGRAVE. Up to a point—yes.

LOMBARD. Then the sooner we get to work the better. Come on, Armstrong. Come on, Blore. We'll make short work of it.

BLORE. I'm ready. Nobody's got a revolver, by any chance? I suppose that's too much to hope for.

LOMBARD. I've got one. (*Takes it out of pocket.*)

BLORE. Always carry that about with you?

LOMBARD. Usually. I've been in some tight places, you know.

BLORE. Oh. Well, you've probably never been in a tighter place than you are today. If there's a homicidal maniac hiding on this island, he's probably got a whole arsenal on him—and he'll use it.

ARMSTRONG. You may be wrong there, Blore. Many homicidal maniacs are very quiet, unassuming people.

WARGRAVE. Delightful fellows!

ARMSTRONG. You'd never guess there was anything wrong with them.

BLORE. If Mr. Owen turns out to be one of that kind, we'll leave him to you, Doctor. Now then, let's make a start. I suggest Captain Lombard searches the house while we do the island.

LOMBARD. Right. House ought to be easy. No sliding panels or secret doors.

BLORE. Mind he doesn't get you before you get him!

LOMBARD. Don't worry. But you two had better stick together—Remember—
“One got left behind.”

BLORE. Come on, Armstrong.

(They exit.)

VERA. *(To up Left)* Don't you think he's right? If someone is hiding on the island, they'll be bound to find him. It's practically bare rock.

WARGRAVE. I think this problem needs brains to solve it. Rather than brawn.

VERA. Where are you going?

WARGRAVE. I'm going to sit in the sun—and think, my dear young lady. *(Goes out to the balcony.)*

VERA. *(To MACKENZIE)* I'm glad Captain Lombard has got a revolver.

MACKENZIE. They're all wasting time—wasting time.

VERA. Do you think so?

MACKENZIE. Yes, it's much better to sit quietly—and wait.

VERA. Wait for what?

MACKENZIE. For the end, of course... I wish you'd known my wife. She was so pretty. So gay—

VERA. Was she?

MACKENZIE. I loved her very much. Of course, I was a lot older than she was. She was only twenty-seven, you know. Arthur Richmond was twenty-six. He was my lieutenant. Lesley liked him. They used to talk of music and plays together, and she teased him and made fun of him. I was pleased. I thought she took a motherly interest in the boy. Damn fool, wasn't I? No fool like an old fool. Exactly like a book the way I found out. When I was out in France. She wrote to both of us, and she put the letters in the wrong envelope. So I knew about the affair.

VERA. Oh, no.

MACKENZIE. It's all right, my dear. It's a long time ago. But you see I loved her very much—and believed in her. I didn't say anything to him—I let it gather inside—a slow, murderous rage—Damned young hypocrite—I'd liked the boy—trusted him. I sent him to his death—

VERA. Oh—

MACKENZIE. It was quite easy. Mistakes were being made all the time. All anyone could say was that I'd lost my nerve a bit, made a blunder, sacrificed one of my best men. Yes, it was quite easy—

VERA. Oh, don't.

MACKENZIE. Yes, I suppose in a way—it was murder. Curious, murder—and I've always been such a law-abiding man. It didn't feel like that at the time. "Serves him damn well right!" that's what I thought. But after— Well, you know, don't you?

VERA. What do you mean?

MACKENZIE. You don't seem to understand—I thought you would. I thought you'd be glad, too, that the end was coming—

VERA. I—

MACKENZIE. We're all going to die, you know.

VERA. I—I don't know.

MACKENZIE. You're very young—you haven't got to that yet. The relief! The blessed relief when you know that you've done with it all, that you haven't got to carry the burden any longer.

VERA. General—

MACKENZIE. Don't talk to me that way. You don't understand. I want to sit here and wait. (*Goes out to balcony.*)

VERA. (*To herself*) I'm frightened—Oh! I'm frightened—
(*LOMBARD comes in.*)

LOMBARD. All correct. No secret passage—one corpse.

VERA. Don't!

LOMBARD. I say, you do look low. How about a drink to steady your nerves?

VERA. A drink! Two corpses in the house at nine o'clock in the morning and all you say is "Have a drink!" Ten people accused of murder—that's all right—just have a drink. Everything's fine so long as you have a drink.

LOMBARD. All right. All right.—Stay thirsty.

VERA. Oh, you—you're nothing but a waster—an adventurer—you make me tired.

LOMBARD. I say, you are worked up. What's the matter, my sweet?

VERA. I'm not your sweet.

LOMBARD. I'm sorry. I rather thought you were.

VERA. Well, you can think again.

LOMBARD. Come now—you know you don't really feel like that. We've got something in common, you and I. Rogues and murderers can't fall out.

VERA. Rogues and murderers—!

LOMBARD. Okay. You don't like the company of rogues and murderers—and you won't have a drink. I'll go and finish searching—(*Exits.*)

(*EMILY enters.*)

EMILY. (*Sees VERA's face*) Is anything the matter?

VERA. I'm worried about the General. He really is ill, I think.

EMILY. His sin has found him out.

VERA. Oh, don't.

EMILY. One must face facts.

VERA. Can any of us afford to throw stones?

EMILY. Even if his wife was no better than she should be—and she must have been a depraved woman—he had no right to take judgement into his own hands.

VERA. What about—Beatrice Taylor?

EMILY. Who?

VERA. That was the name, wasn't it?

EMILY. You are referring to that absurd accusation about myself?

VERA. Yes.

EMILY. Now that we are alone, I have no objection to telling you the facts of the case—Indeed, I should like you to hear them. It was not a fit subject to discuss before gentlemen—so naturally I refused to say anything last night. That girl, Beatrice Taylor, was in my service. I was very much deceived in her. She had nice manners and was clean and willing. I was very pleased with her. Of course, all that was sheerest hypocrisy. She was a loose girl with no morals. Disgusting! It was some time before I found out that she was what they call “in trouble.” It was a great shock to me. Her parents were decent folks, too, who had brought her up strictly. I'm glad to say they didn't condone her behaviour.

VERA. What happened?

EMILY. Naturally, I refused to keep her an hour under my roof. No one shall ever say I condoned immorality.

VERA. Did she drown herself?

EMILY. Yes.

VERA. How old was she?

EMILY. Seventeen.

VERA. Only seventeen.

EMILY. Quite old enough to know how to behave. I told her what a low depraved thing she was. I told her that she was beyond the pale and that no decent person would take her into their house. I told her that her child would be

the child of sin and would be branded all its life—and that the man would naturally not dream of marrying her. I told her that I felt soiled by ever having had her under my roof—

VERA. You told a girl of seventeen all that?

EMILY. Yes, I'm glad to say I broke her down utterly.

VERA. Poor little devil.

EMILY. I've no patience with this indulgence towards sin.

VERA. And then, I suppose, you turned her out of the house?

EMILY. Of course.

VERA. And she didn't dare go home—What did you feel like when you found she'd drowned herself?

EMILY. Feel like?

VERA. Yes. Didn't you blame yourself?

EMILY. Certainly not. I had nothing with which to reproach myself.

VERA. I believe—I believe you really feel like that. That makes it even more horrible.

ROGERS. (*Enters*) Do you know where the gentlemen are, Miss? Breakfast is ready.

VERA. Sir Lawrence Wargrave is sitting out there in the sun. Doctor Armstrong and Mr. Blore are searching the island. I shouldn't bother about them.

(ARMSTRONG and BLORE *come in.*)

VERA. What luck did you have?

ARMSTRONG. There's no cover on the island. No caves. No one could hide anywhere.

BLORE. That's right. (*LOMBARD enters*) What about the house, Lombard?

LOMBARD. No one. I'll stake my life there's no one in the house but ourselves. I've been over it from attic to cellar.

(ROGERS *and* WARGRAVE *enter*)

ROGERS. Breakfast is getting cold.

LOMBARD. Breakfast! Come on, Blore, you've been yelping for breakfast ever since you got up. Let's eat, drink and be merry, for tomorrow we die. Or who knows, perhaps even today!

EMILY. You ought to be ashamed of such levity, Captain Lombard.

LOMBARD. Come on, General, can't have this. (*Calls*) Breakfast, I say, sir—(*Goes out on balcony to MACKENZIE.*) Good God! One got left behind—There's a knife in MacKenzie's back.

ARMSTRONG. He's dead—he's dead.

BLORE. But he can't be—Who could have done it? There's only us on the island.

WARGRAVE. Exactly, my dear sir. Don't you realize that this clever and cunning criminal is always comfortably one stage ahead of us? That he knows exactly what we are going to do next, and makes his plans accordingly? There's only one place, you know, where a successful murderer could hide and have a reasonable chance of getting away with it.

BLORE. One place—where?

WARGRAVE. Here in this room—Mr. Owen is one of us!

Scene II

There is a storm; the room is much darker—the windows closed and beating rain and wind.

WARGRAVE *comes in, followed by* BLORE.

BLORE. Sir Lawrence?

WARGRAVE. Well, Mr. Blore?

BLORE. I wanted to get you alone. You were right in what you said this morning. This damned murderer is one of us.

(*VERA and EMILY enter*)

VERA. We've made some coffee. Brr—it's cold in here.

BLORE. You'd hardly believe it when you think what a beautiful day it was this morning.

VERA. Are Captain Lombard and Rogers still out?

BLORE. Yes. No boat will put out in this—and it couldn't land, anyway.

VERA. (*To WARGRAVE*) You were right to insist on our going to lunch—and drinking some brandy with it. I feel better.

WARGRAVE. The Court always adjourns for lunch.

VERA. All the same, it's a nightmare. It seems as though it can't be true. What—what are we going to do about it?

WARGRAVE. We must hold an informal Court of Enquiry. We may at least be able to eliminate some innocent people.

BLORE. You haven't got a hunch of any kind, have you, Miss Claythorne?

WARGRAVE. If Miss Claythorne suspects one of us three, that is rather an awkward question.

VERA. I'm sure it isn't any of you. If you ask me who I suspected, I'd say Doctor Armstrong.

BLORE. Armstrong.

VERA. Yes. Because, don't you see, he's had far and away the best chance to kill Mrs. Rogers. Terribly easy for him, as a doctor, to give her an overdose of sleeping stuff.

BLORE. That's true. But someone else gave her brandy, remember.

WARGRAVE. Her husband had a good opportunity of administering a drug.

BLORE. It isn't Rogers. He wouldn't have the brains to fix all this stunt—nor the money. Besides, you can see he's scared stiff.

(ROGERS *and* LOMBARD *enter*.)

LOMBARD. My God, it's something like a storm.

EMILY. Oh, it's only you—

VERA. Who did you think it was? Beatrice Taylor?

LOMBARD. Not a hope of rescue until this dies down. Is that coffee? Good.

(*To* VERA) I'm taking to coffee now, you see.

VERA. Such restraint in the face of danger is nothing short of heroic.

WARGRAVE. I do not, of course, profess to be a weather prophet. But I should say that it is very unlikely that a boat could reach us, even if it knew of our plight, under twenty-four hours. Even if the wind drops, the sea has still to go down.

BLORE. Is anyone a swimmer? Would it be possible to swim to the mainland?

VERA. It's over a mile—and in this sea you'd be dashed on the rocks and drowned.

EMILY. Drowned—drowned—in the pond—(*Drops knitting*.)

WARGRAVE. I beg your pardon, Miss Brent. (*He picks it up for her*.)

BLORE. Guess she's taking an after-dinner nap.

VERA. It's terribly cold in here.

ROGERS. I could light the fire if you like, Miss?

VERA. That would be a good idea.

LOMBARD. Very sound scheme, Rogers.

ROGERS. I'll get some sticks and a few knobs of coal and get a nice fire going.
(*Goes out*.)

VERA. I wonder if he would like some hot coffee. He's very wet. (*Runs out after him*)

LOMBARD. What's become of Armstrong?

WARGRAVE. He went to his room to rest.

LOMBARD. Somebody's probably batted him one by now!

WARGRAVE. I expect he had the good sense to bolt his door.

BLORE. It won't be so easy now that we're all on our guard.

WARGRAVE. I advise you, Mr. Blore, not to be too confident. I should like shortly to propose certain measures of safety, which I think we should all adopt.

LOMBARD. Against whom?

WARGRAVE. Against each other. We are all in grave danger. Of the ten people who came to this island, three are definitely cleared. There are seven of us left—seven little Indian boys.

LOMBARD. One of whom is a bogus little Indian boy.

WARGRAVE. Exactly.

BLORE. Well, in spite of what Miss Claythorne said just now, I'd say that you, Sir Lawrence, and Doctor Armstrong are above suspicion. He's a well-known doctor, and you're known all over England.

WARGRAVE. Mr. Blore, that proves nothing at all. Judges have gone mad before now. So have doctors. So have policemen.

LOMBARD. Hear, hear. (*VERA enters*) Well, does he want some coffee?

VERA. He'd rather make himself a nice cup of tea! What about Doctor Armstrong? Do you think we ought to take him up a cup?

WARGRAVE. I will take it up if you like.

LOMBARD. I'll take it. I want to change.

VERA. Yes, you ought to. You'll catch cold.

WARGRAVE. I think Doctor Armstrong might prefer to see me. He might not admit you, Captain Lombard. He might be afraid of your revolver.

BLORE. Ah, that revolver. I want a word with you about that—

VERA. (*To LOMBARD*) Do go and change.

LOMBARD. (*to BLORE*) What were you going to say?

BLORE. I'd like to know why you brought a revolver down here on what's supposed to be a little social visit.

LOMBARD. You would, would you? Well, I've led a rather adventurous life. I've got into the habit of taking a revolver about with me. I've been in a bit of a jam once or twice. It's a pleasant feeling to have a gun handy. Don't you agree?

(*Enter ARMSTRONG*)

BLORE. We don't carry them. Now then, I want the truth about this gun—

LOMBARD. What a damned suspicious fellow you are, Blore!

BLORE. I know a fishy story when I hear one.

ARMSTRONG. If it's about that revolver, I'd like to hear what you've got to say.

LOMBARD. Oh, well, I got a letter, asking me to come here as the guest of Mr. and Mrs. Owen—It would be worth my while. The writer said that he had heard I'd got a reputation for being a good man in a tight place. There might be some danger, but I'd be all right if I kept my eyes open.

BLORE. I'd never have fallen for that.

LOMBARD. Well, I did. I was bored. It was an intriguing proposition, you must admit.

BLORE. Too vague for my liking.

LOMBARD. That was the whole charm. It aroused my curiosity.

BLORE. Curiosity killed the cat.

LOMBARD. Yes, quite.

VERA. Oh, do go and change, please!

LOMBARD. I'm going my sweet, I'm going. The maternal instinct I think it's called.

VERA. Don't be ridiculous—

(LOMBARD *exits*)

BLORE. That's a tall story. If it's true, why didn't he tell it to us last night?

ARMSTRONG. He might have thought that this was exactly the emergency for which he had been prepared.

VERA. Perhaps it is.

ARMSTRONG. I hardly think so. It was just Mr. Owen's little bit of cheese to get him into the trap with the rest of us. He must have known him enough to rely on his curiosity.

BLORE. If it's true, he's a wrong one, that man. I wouldn't trust him a yard.

VERA. Are you such a good judge of truth?

(WARGRAVE *enters*)

ARMSTRONG. (*With a sudden outburst*) We must get out of here—we must, before it is too late.

WARGRAVE. The one thing we must not do is to give way to nerves.

ARMSTRONG. I'm sorry. (*Tries to smile*) Rather a case of "Physician, heal thyself." But I've been overworked lately and run down.

WARGRAVE. Sleeping badly?

ARMSTRONG. Yes. I keep dreaming—Hospital—operations—A knife at my throat—

WARGRAVE. Real nightmares.

ARMSTRONG. Yes. Do you ever dream you're in Court—sentencing a man to death?

WARGRAVE. Are you by any chance referring to a man called Edward Seton? I can assure you I should not lose any sleep over the death of Edward Seton. A particularly brutal and cold-blooded murderer.

BLORE. Brr! Cold in here, isn't it?

VERA. I wish Rogers would hurry up.

BLORE. Yes, where is Rogers? He's been a long time.

VERA. He said he'd got to get some sticks.

BLORE. Sticks? Sticks? My God, sticks!

ARMSTRONG. My God! (*Rises, looking at mantelpiece.*)

BLORE. Is another one gone? Are there only six?

ARMSTRONG. There are only five.

VERA. Five?

WARGRAVE. Rogers and Lombard?

VERA. Oh, no, not Philip!

(*LOMBARD enters 1; meets BLORE rushing out*)

LOMBARD. Where the hell is Blore off to like a madman?

VERA. Oh, Philip, I—

WARGRAVE. Have you seen Rogers?

LOMBARD. No, why should I?

ARMSTRONG. Two more Indians have gone.

LOMBARD. Two?

VERA. I thought it was you—

(*BLORE enters*)

ARMSTRONG. Well, what is it?

BLORE. Rogers... In the—scullery.

VERA. Is he—?

BLORE. Oh, yes, he's dead all right—

VERA. How?

BLORE. With an axe. Somebody must have come up behind him whilst he was bent over the wood box.

VERA. "One chopped himself in half—then there were six."

LOMBARD. What next, boys? Bees? Do they keep bees on the island? Well, that's the next verse, isn't it?

"Six little Indian boys playing with a hive;
A bumble bee stung one, and then there were five."

ARMSTRONG. My God! He's right. There are only five.

LOMBARD. A bumble bee stung one—*We all look pretty spry, nothing wrong with any of us. (His glance rests on EMILY) My God, you don't think—(He goes slowly over to her, bends down, touches her. He then picks up a hypodermic syringe, and turns to face the others)* A hypodermic syringe.

WARGRAVE. The modern bee sting.

VERA. While she was sitting there—one of us—

WARGRAVE. One of us.

ARMSTRONG. Which of us?

Alternate text for Negligent Condition

PETER. Miss Claythorne, why can't I swim out to the rock? I can make it. I know I can!

VERA. I know you can, Peter, really I know.

PETER. Can I go then?

VERA. Well, Peter, your mother gets so nervous about you.

PETER. Please, Miss Claythorne, I'll be fine

VERA. I'll tell you what. How about we play a game of bat and ball instead? We'll have some fun, you and I. Wait here, I'll go get the ball. *(VERA exits.*

PETER looks after you, waiting to see that she's gone. He takes off his shoes and glasses, and runs off. A splash is heard. VERA enters.)

VERA. Peter? Peter? No, no, no! *(She drops the bat and ball and runs off after Peter.*

Appendix B: Study 1 Personality Battery

Vera/Lombard...

- Is talkative
- Tends to find fault with others
- Does a thorough job
- Is depressed, blue
- Is original, comes up with new ideas
- Is reserved
- Is helpful and unselfish with others
- Can be somewhat careless
- Is relaxed, handles stress well
- Is curious about many different things
- Is full of energy
- Starts quarrels with others
- Is a reliable worker
- Can be tense
- Is ingenious, a deep thinker
- Generates a lot of enthusiasm
- Has a forgiving nature
- Tends to be disorganized
- Worries a lot
- Has an active imagination
- Tends to be quiet
- Is generally trusting
- Tends to be lazy
- Is emotionally stable, not easily upset
- Is inventive
- Has an assertive personality
- Can be cold and aloof
- Perseveres until the task is finished
- Can be moody
- Values artistic, aesthetic experiences
- Is sometimes shy, inhibited
- Is considerate and kind to almost everyone

- Does things efficiently
- Remains calm in tense situations
- Prefers work that is routine
- Is outgoing, sociable
- Is sometimes rude to others
- Makes plans and follows through with them
- Gets nervous easily
- Likes to reflect, play with ideas
- Has few artistic interests
- Likes to cooperate with others
- Is easily distracted
- Is sophisticated in art, music, or literature
- How competent is Vera/Lombard?
- How confident is Vera/Lombard?
- How intelligent is Vera/Lombard?
- How capable is Vera/Lombard?
- How skillful is Vera/Lombard?
- How tolerant is Vera/Lombard?
- How warm is Vera/Lombard?
- How good natured is Vera/Lombard?
- How sincere is Vera/Lombard?
- How friendly is Vera/Lombard?
- How well intentioned is Vera/Lombard?
- How trustworthy is Vera/Lombard?
- How fair is Vera/Lombard?
- How principled is Vera/Lombard?
- How responsible is Vera/Lombard?
- How just is Vera/Lombard?
- How honest is Vera/Lombard?
- If Vera/Lombard was given too much change at a restaurant, how likely is it that s/he would keep it?
- If Vera/Lombard found a wallet on the street, how likely is s/he to keep the money?
- If Vera/Lombard was unprepared for an exam, how likely is s/he to cheat?
- How likely is Vera/Lombard to take part in running a money making con?
- How likely is Vera/Lombard to cheat on her/his partner?
- How likely is Vera/Lombard to stop and help someone who is lost?
- How likely is Vera/Lombard to lie to her/his employer to avoid getting into trouble?

Appendix C: Study 3 Materials

Threat and Non-Threat Prompts

(For threat condition)

In a Generation, Racial Minorities May Be the U.S. Majority

New U.S. Census Bureau data suggest that America will become a “majority-minority” nation much faster than once predicted. The nation's racial minority population is steadily rising, advancing an unmistakable trend that could make minorities the new American majority by midcentury. The data show a declining number of White adults and growing under-18 populations of Blacks, Hispanics, Asians, and other minorities. Demographers calculate that by 2042, Americans who identify themselves as Hispanic, Black, Asian, American Indian, Native Hawaiian, or Pacific Islander will together outnumber non-Hispanic Whites. The main reasons for the accelerating change are rapid immigration growth and significantly higher birthrates among racial and ethnic minorities. As White baby boomers age past their childbearing years, younger Black and Hispanic parents are having children – and driving U.S. population growth. For example, there are now roughly 9 births for every 1 death among racial minorities, compared to a roughly one-to-one ratio for Whites. The latest figures are predicated on current and historical trends, which can be thrown awry by several variables, including prospective overhauls of public policy.

(For non-threat condition)

U.S. Census Bureau Reports Residents Now Move at a Higher Rate

New U.S. Census Bureau data suggest that the rate of geographical mobility, or the number of individuals who have moved within the past year, is increasing. The national mover rate increased from 11.9 percent in 2008 (the lowest rate since the U.S. Census Bureau began tracking the data) to 12.5 percent in 2009. According to the new data, 37.1 million people changed residences in the U.S. within the past year. 84.5 percent of all movers stayed within the same state. Renters were more than five times more likely to move than homeowners. The estimates also reveal that many of the nation’s fastest-growing cities are suburbs. Specifically, principal cities within metropolitan areas experienced a net loss of 2.1 million movers, while the suburbs had a net gain of 2.4 million movers. For those who moved to a different county or state, the reasons for moving varied considerably by the length of their move. The latest figures are predicated on current and historical trends, which can be thrown awry by several variables, including prospective overhauls of public policy.

Appendix D: Study 4 Materials

A Day in the Life of an Employee

Ben is an employee at a large fast food chain. He lives near the strip mall where the restaurant is, and while he often walks to work, today he decided to drive. When he arrived at the strip mall, he saw the parking lot was already very crowded. He noticed a car pulling out, but unfortunately someone was already waiting for the spot. Ben looked at his watch and saw he was running late for work, so he sped into the spot before the other person could take it. He managed to make it to his morning shift just in time.

When his lunch break came, Ben texted a few of his friends to meet up for lunch. They headed to the local pizza place, where they discussed an upcoming party a coworker was throwing. When lunch was finished, Ben split off from his friends to head back to work. As he walked, he noticed a food truck parked a block down the street. As the customer paid for his food, Ben saw a bill fall from his pocket. When Ben reached the food truck, he picked up the bill, a five, and saw the man down the road. Deciding he didn't want to run down the street to catch up with the man, he pocketed the five dollars instead.

Ben arrived back at work just as he was supposed to punch back in, but decided to take an extra fifteen minutes break to have a cigarette. After finishing, he went back into work. In the afternoons, before he leaves for the day, he is in charge of checking the cash in the register to make sure it matched the day's sales. Today, he found that the register was \$7 short, meaning that he must have miscalculated the change he gave to a customer. He made a note of it in the daily report, and then headed to his car to go home.