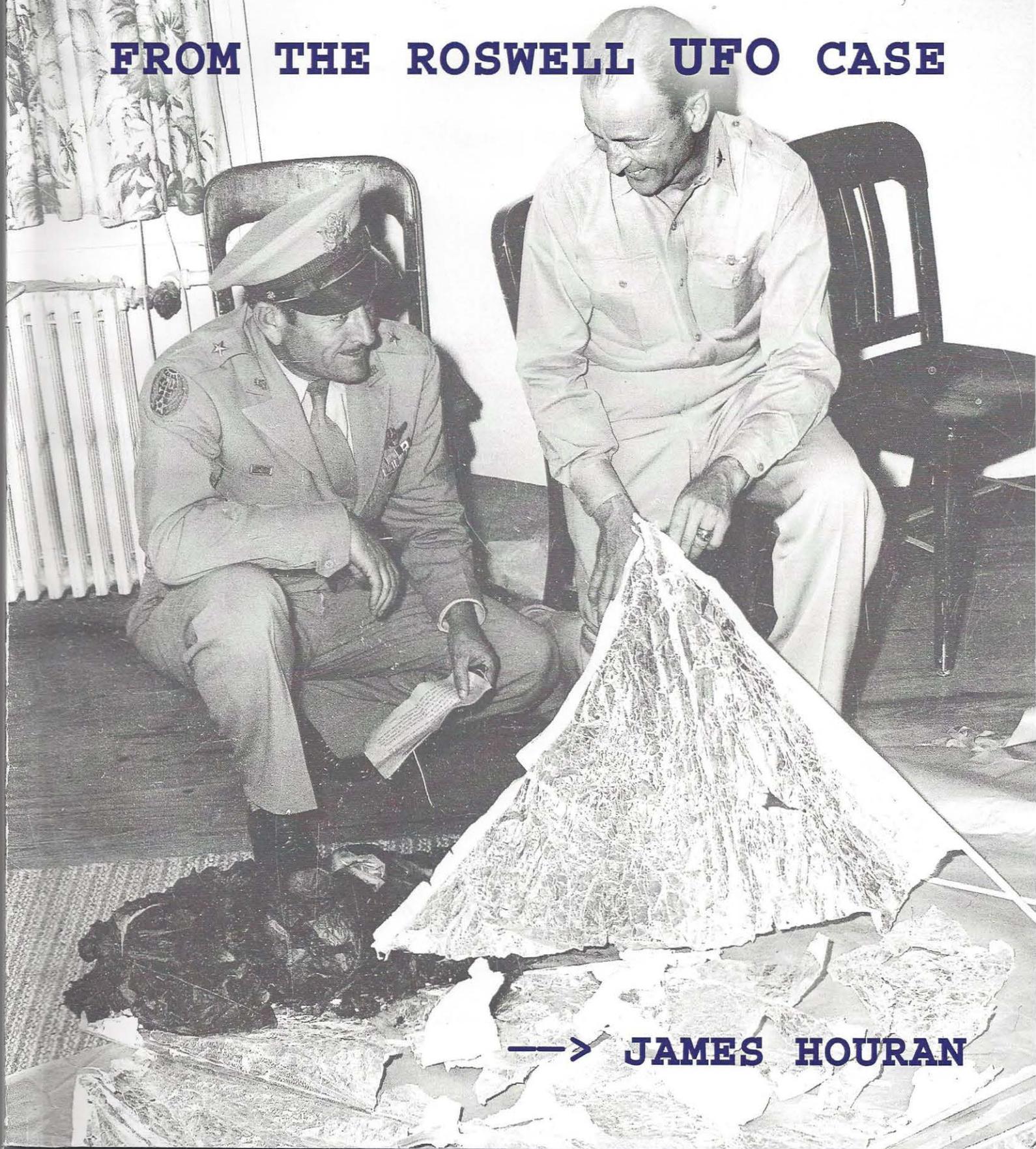


A SEARCH FOR MEANING IN THE RAMEY DOCUMENT

FROM THE ROSWELL UFO CASE



—> JAMES HOURAN

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James Houran



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Preface

What you are about to read is a report on the outcomes of a quietly conducted, nearly three year project into one of the most controversial aspects of the famed Roswell Incident of 1947 – the issue of the Ramey Document or memo. This “memo” is actually a fortuitous photograph of a document that circumstances suggest should tell us more about the Roswell case than what the field knows today. This assumes, of course, that the text of the document can be read accurately. This research was conducted virtually in complete insulation from other ufologists in order to bolster the internal validity of the research and not risk the media (or others) interfering with those participating in the work.

The Fund for UFO Research (FUFOR) graciously funded this study and report, and, to them, I offer my heartfelt appreciation. I also appreciate deeply the moral support and resources offered by Robert Swiatek and that from Mark Rodeghier and the Center for UFO Studies (CUFOS). These organizations know me from my work in anomalistic psychology (with an emphasis in parapsychological topics), which has included issues directly relevant to ufology. Roswell has been a fascinating topic area to me for about seven years now. My goals are consistent with many researchers – to move the case closer to resolution through the application of rigorous and high-quality methodologies to the good information and data we do have. The present work represents my latest attempt in this respect.

It is my hope that this report will interest both newcomers to the case and seasoned students and investigators. To assist those unfamiliar with the Roswell Incident, or the place of the Ramey document in it, I have organized the report into several major sections. The first section briefly reviews the circumstances and current attitudes that characterize the case. Next, readers will see a detailed discussion of the field’s interest in the Ramey document and the recognized research on it to date. That discussion also addresses some of the methodological problems inherent in any study of the document, as well as why some of our assumptions about the document are problematic.

Following that discussion, I have reproduced a psychological experiment conducted on the Ramey document by myself and noted researcher Kevin Randle. This experiment was published in the *Journal of Scientific Exploration (JSE)*. Accordingly, some of the text in this report is slightly amended or expanded parts of manuscripts that originally appeared in the *JSE* (see: Houran & Porter, 1998; Houran & Randle, 2002, 2003).

With this background and new commentary on the previous work done with the Ramey document, I next describe for readers a project that I submitted to FUFOR for funding. This project was basically a feasibility study of further research on the document using outside experts in the field of digital imaging and enhancement/ restoration. That exercise led to some unexpected but serendipitous collaborations and important outcomes. This new research, its outcomes, and critical discussions about the findings are all presented in detail. The report ends much like Houran and Randle (2002) closed their experimental work on the document – by discussing how the present results help move us forward on the subject of the Ramey document, and the Roswell case in general.

This report could well be the last chapter of my involvement in the Roswell case, but never do I claim that this report is the last word on the Ramey document. It is my sincere hope that my contribution here offers ideas and inspiration for future and more advanced work on the document. My contribution was not to replicate my past work or to do more of the same. Rather, it was to acknowledge the limitations of my skill set and to subsequently step aside so that true and outside experts could take over and help progress the issue to a new level.

The fact that outside experts in digital imaging were willing to examine the problem of the Ramey document and offer impartial conclusions are exciting and significant outcomes! And in addition to the financial backing from the FUFOR and the resources offered by the CUFOS, it is important to note that those outcomes are actually the apex of productive collaborations and exchanges of ideas I have had among several prominent researchers – all of whom I respect for their sincere efforts in addressing the problem of the Ramey Memo. This group includes Kevin Randle, Mark Rodeghier, Robert Swiatek, Stanton Friedman, and David Rudiak.

And finally, I must thank the field as a whole for allowing me the privilege and pleasure of helping to research a case that I feel is highly relevant to ufology on many levels. I do not know what the event or events near Roswell all those years ago were...but I passionately want that knowledge and I have yet to see a definitive answer that is evidence-based from either side of the fence.

— James Houran

June 1, 2005

Introduction

In early July of 1947 an airborne object crashed on a ranch in the New Mexico desert during a violent thunderstorm. It was discovered by a rancher, Mac Brazel, and the debris was described as being scattered over a large area and having unconventional properties. It was shown to local authorities who in turn contacted the Roswell Army Air Field. A military investigation ensued which prompted a press release reporting the crash and retrieval of a "flying disc." This press release was later essentially ceased, and further press coverage restricted. At a press conference in Fort Worth, Texas, higher Army officials explained that the intelligence officer and others at Roswell had misidentified the debris, which was, in fact, the remains of a downed balloon with a metallic radar reflector attached, and not a UFO. The events have become known as the "Roswell Incident" – one of the most controversial and enduring cases in ufology.

It would seem that nearly everyone in the general public has heard about some aspect of the Roswell Incident. A plethora of popular books has been published within the past few decades on this alleged UFO crash (Pflock, 2001; Randle, 2000; Randle & Schmitt, 1994; Friedman & Berliner, 1992; Randle & Schmitt, 1991; Berlitz & Moore, 1980), the military has offered at least two published explanations (McAndrew 1997; McAndrew & Weaver, 1994), a Showtime movie and *Unsolved Mysteries* program have focused on the case, a host of Internet websites have exploded onto the scene with an average of 184,000 pages of links retrieved from Google alone, and there was international media coverage of the recent 50th anniversary of the event. There was even a television series on the Warner-Brothers Network devoted to the survival of the Roswell "aliens." It is a UFO case that has reached such mythic proportions in our popular culture that some regard it as a contemporary but deep-seated urban legend.

Consistent with this notion, some investigators (e.g., Jeffrey, 1998; Pflock, 2001) propose that the evidence cited in support of an extraterrestrial aspect to Roswell is the equivalent of folklore and that the government's most recent explanations for the reported debris and existing witness reports firmly solve the case. However, other ufologists have published peer-reviewed criticisms of Jeffrey's arguments and the official explanations (e.g., Swords, 1998, Woods, 1998; Randle, 2000). As a result several investigators continue to pursue new discoveries that are hoped to shed some light on what crashed near Roswell, New Mexico. Contemporary efforts have ranged from attempting to corroborate anecdotal reports and conducting forensic analyses of witness testimony (Houran & Porter, 1998, 1999) to searching for objective evidence, such as finding crash material from archaeological surveys of the debris field (Sci-Fi Channel, 2004) and the more popular approach of trying to uncover official documents that discuss the event and the nature of the crash debris.

Unfortunately, there are very few known documents that relate directly to the Roswell case. First, there are newspaper reports published in July, 1947, but these are often filled with mistakes. For example, Walter Haut (who prepared the original press release announcing the military's recovery of a flying disc) is identified as Warren Haught in many of the stories (*New York Times*, July 9, p. 1). A telex was sent by the FBI office in Dallas that suggested, on one hand, that the object recovered was a balloon, but also stated, "that telephonic conversation between their office [Fort Worth Army Air Field intelligence] and Wright Field [later Wright-Patterson Air Force Base] had not borne out this belief" (Randle, 2000, p. 116; Davis, 1995, p. 14). Finally, in 1995, the Government Accounting Office (GAO) queried a number of government agencies including the FBI, the CIA, the NSA, and the Air Force concerning documentation. The GAO wrote, "Our search for government records concerning the Roswell crash yielded two records originating in 1947—a July 1947 history report by the combined 509th Bomb Group and RAAF [Roswell Army Air Field] and an FBI teletype message dated July 8, 1947. The 509th-RAAF report noted the recovery of a 'flying disc' that was later determined by military officials to be a radar-tracking balloon. The FBI message stated that the military had reported that an object resembling a high-altitude weather balloon with a radar reflector had been recovered near Roswell" (Davis, 1995, p. 2).

Readers are referred to *The Roswell Encyclopedia* (Randle, 2000) for an overview of the case, these known documents, and purportedly new evidence.

Background on the Ramey Document

One example of relatively recent empirical data that apparently conflicts with the military's official explanations is the "Ramey memo." During the photo session of the reported weather balloon brought to Fort Worth, Texas to the Fort Worth Army Air Field [later Carswell Air Force Base] from Roswell on July 8, 1947, a picture was taken of Brigadier General Roger M. Ramey crouched by some of the scattered debris from a Rawin radar target (Schmitt & Randle, 1991; Friedman & Berliner, 1992; Berlitz & Moore, 1980; Johnson, 1947). In that photograph, Ramey is holding a piece of paper that has slight discoloration, suggesting words or text that might be read with sufficient magnification. Although the paper is not facing the camera straight on, the angle of tilt is not that large; hence, words on the paper could conceivably be read (Randle & Schmitt, 1991). This possibility was regarded by investigators as a potentially significant lead in the case, given that few known documents relate to the Roswell incident.



Fig. 1. Brigadier General Roger M. Ramey (left), Commanding Officer of the Eighth Air Force, is photographed near the remains of a weather balloon and Rawin radar target on July 8, 1947. In his hand is a document on which some words seem to be visible. Sitting in the background is Colonel Thomas J. DuBose (right), the Chief of Staff of the Eighth Air Force. Courtesy Fort Worth-Star Telegram Photograph Collection, The University of Texas at Arlington Libraries.



Fig. 2. Close up of the memo section of the photograph of Brigadier General Roger M. Ramey. Courtesy Fort Worth-Star Telegram Photograph Collection, The University of Texas at Arlington Libraries.

In 1991, Don Schmitt sent a copy of that photograph to Dr. Richard Haines, a former NASA research scientist, asking if he could read anything on the paper. Haines, scanned the message with a microscope and reported that he could see vague words but could not make out any individual letters. In a few cases, he could identify a random letter but that was no help in understanding what might be printed on the paper. Haines (1991) thought that a better quality, or enlargement, of the letter area of the photograph, might reveal more of the message, but did not seem to think it would be of much real use. Representatives of the US government echoed Haines' basic assessment. According to Weaver and McAndrews (1994), "It was noted that in the two photos of Ramey he had a piece of paper in his hand. In one, it was folded over so that nothing could be seen. In the second, however, there appears to be text printed on the paper. In an attempt to read this text to determine if it could shed any further light on locating documents relating to this matter, the photo was sent to a national level organization for digitizing and subsequent photo interpretation and analysis... This organization reported on July 20, 1994, that even after digitizing, the photos were of insufficient quality to visualize... details sought for analysis" (p. 21).

That was where the matter rested until 1998 when J. Bond Johnson, who had taken six of the seven photographs in General Ramey's office (Randle, 2000), decided to investigate further. Johnson assembled a team to inspect the photographs that included Ron Regehr, a space and satellite engineer (Johnson, 1998). Using a large blow-up of the photograph, a computer, and a variety of software and camera equipment, Johnson's team reported to see more of the message that Ramey held. Their interpretation of the message was:

AS THE... 4 HRS THE VICTIMS OF THE... AT FORT WORTH, TEX...
 THE "CRASH" STORY... FOR 0984 ACKNOWLEDGES... EMERGENCY
 POWERS ARE NEEDED SITE TWO SW OF MAGDALENA, NMEX...
 SAFE TALK... FOR MEANING OF STORY AND MISSION... WEATHER
 BALLOONS SENT ON THE... AND LAND... rOVER CREWS...
 [SIGNED]... TEMPLE. (Johnson, 1998)

If what they found was accurate, and others could corroborate what they had seen, then it was a breakthrough on the Roswell case. Here was a document with an indisputable provenance. General Ramey was holding it in his hand, and copies of the photograph put out over soundphoto wire provided a time and a date for further authentication. According to a copy of the photograph that came from the Bettmann Photo Archives in New York City, J. Bond Johnson had taken the picture on July 8, 1947, and it had been transmitted at 11:59 P.M., or one minute before midnight (Randle 2000; Randle & Schmitt, 1994; Schmitt & Randle, 1991).

There were some major gaps in what Johnson's team could read, and some of the phrases they deciphered made little sense in the context of what else could be seen. However, the specific references to "victims," to "weather balloons," and to "Magdalena, New Mexico," were important clues. These words seemed to tie the message to the Roswell events, and suggested that some kind of a quick response was required by the military, either at the Eighth Air Force headquarters in Fort Worth, or by the 509th Bomb Group in Roswell. Others began to request copies of the pictures from the Special Collections in Texas. They brought their expertise to bear on the Ramey memo (Burleson, 2000; Carey, 2000; Randle, 2000). To the delight of many Roswell supporters, other investigators also reported seeing letters, words and images as suggested by Johnson and his team. The problem was that many of those doing the work were not seeing the same things as Johnson had claimed.

Neil Morris, a technician who works for the University of Manchester in England, and part of the Johnson "Roswell Photo Interpretation Team (RPIT)," began to work on the message as well. He made a significant methodological improvement that benefited all researchers, namely he broke down the message line by line so that it would be easy to follow his interpretation of the message. He used capital letters to represent the parts of the message of which he was sure, lower case letters to represent his best guess at some letters, an asterisk to denote a letter he could not decipher, and a dash where there was little more than a smudge on the message. Morris' interpretation was not an exact match for what Johnson had released, and in fact, it suggested new directions in the case. In the new version, while the words "victims" and "Fort Worth, Texas" remained, nearly everything else was different. One of the major points in the Johnson version was the wording that suggested, "Emergency Powers are needed Site Two SW of Magdalena, Nmex. (Morris, 1998)."

John Kirby, a researcher who is interested in the Roswell case, and who works for an established company in the computer field, also examined the message. Despite his expertise and equipment, he was unable to see much of anything in the document. He did agree that on the third line were the words, "At Fort Worth, Tex." The second line, which many consider the critical line, said, according to Kirby "are the remains of the material you commanded we fly." By changing the word "victims" to "remains," the nature of the entire message was altered (Kirby, 1999). In still a different version, David Rudiak, another careful researcher who is interested in the Roswell case, suggested only a little of what others had seen.

Those were not, of course, the only alternative interpretations that were offered. Russ Estes, using a 16 x 20 print made by the library at the University of Texas at Arlington, applied his expertise to the examination. Estes, a professional documentarian was able to use a professional quality \$50,000 video camera with a high-quality macro lens to capture the image. Then using his computer and a variety of technically complex and professional quality software programs, he examined the message in a myriad of ways, including with a jeweler's loupe, a magnifying glass and a microscope. Estes also scanned it at 9000 dpi so that it

created a file that was 1.7 gigabits in size and could be manipulated and enlarged even further (Estes, 1998). Despite these preparations, Estes reported that he could not reliably decipher any of the text in the Ramey memo. Pressed on the point, because others reported being able to decipher many words and phrases, Estes did say that he could make a "best guess" about the images on the message. After examining an 8 x 10 enlarged photograph of just the message area via the same techniques and equipment, Estes stated that he perceived the words "Fort Worth, Tex" with a limited amount of confidence. On the line below, where one group deciphered "Disk" and another group deciphered, "ELSE," Estes believed he saw, "ELA*." He added that this made no sense to him; just that was what the ambiguous smudges that everyone was attempting to make into words looked like to him (Estes, 1998). As for the signature block, he could see nothing that resembled either of the claims. At best, there might have been an "M" in the middle of the word, and the possibility of an "LE" at the end. That gave the nod to "Temple" but Estes (1998) said investigators were seeing the equivalent of "faces in the clouds."

Schmitt, working with Tom Carey from Pennsylvania and Don Burleson of Roswell, came up with their own interpretation of the message, at least, according to Burleson. Burleson, writing in the January 7, 2000 issue of *Vision*, a monthly magazine published by the Roswell Daily Record, noted, "A number of attempts have been made to read the Ramey letter. Quite frankly, most of these attempts are amateurish, and even some ufologists have concluded that there is nothing in the Ramey image that advances the case for the Roswell incident. They are MISTAKEN. (Burleson, 2000; Randle, 2000)."

Burleson stated that he had spent a year working on deciphering the letter. He claimed that he had the advantages of being the director of a computer lab and a background in cryptanalysis. According to him, "I'm quite used to reading things that I wasn't meant to read (Burleson, 2000)." Burleson wrote that he had been using several excellent computer image enhancement software packages, "including LUCIS, the most advanced software used today in such fields as microscopy (Burleson, 2000)." However, it is accepted that the Ramey memo is not an encrypted message, but a plain text message. Therefore, cryptanalysis seems to have little of real importance in trying to decipher what is printed on the paper.

Interestingly, the interpretation of the message, as given by Burleson, and credited to Schmitt and Carey, does not agree with what Carey now suggests. In a publicly posted e-mail dated March 29, 2000, Carey suggested first that the "take" on the Ramey memo is that of Carey and Schmitt and not "Burlson (sic) or anyone else... All of us continue to work on the memo as best we can, so there will no doubt be more to say in the future (Carey, 2000)." Given Carey's objection to what Burleson had written in the Roswell Daily Record, and given that Burleson seemed to believe that his interpretation was the only one to make sense while the others were "amateurish," what does this say about the credibility of these attempts to read the document held by Ramey? Estes' suggestion of "faces in the clouds" begins to carry some

credence, as those who seem to have a specific agenda are seeing in the memo exactly what they expect (Randle, 2000).

This opinion has been expressed by some of the others who are attempting to understand the Roswell case. Ufologist Stanton Friedman contacted Rob Belyea, the owner of ProLab, asking him to examine high resolution scans made of the negative. Friedman had actually paid someone in Fort Worth to hand carry the original negatives from the Special Collections to a computer lab to have these scans made. The results were then sent on to Friedman who supplied them to Belyea. Belyea said that he could not spend hours examining the message but that he could rule out or confirm the interpretations made by others by using his software to decide on character count and combinations of letters (Dull, 1998). It was not at all unlike the work being done by Russ Estes in California, though Estes was actually trying to read the message rather than just confirm other interpretations. While Friedman stood on the sidelines watching and not commenting on the research, Belyea did say specifically that he could *not* see "Magdalena" in the text as the Johnson team had suggested. Belyea did say, "They're pulling off all sorts of [readings], but they're making some of it up" (Dull, 1998). Interested readers are referred to Table 1 in Houran and Randle (2002, pp. 56-57) for a detailed summary and comparison of the various solutions that have been proposed for the Ramey document.

Estes pointed out, as did others, that the message was a teletype rather than something from a typewriter. Given that, the message would have had to be in all capital letters, and nearly everyone agreed, because the teletype machines of that era had no capability for lower case letters (Estes, 1998). That was an important point in trying to understand and to interpret what was on the paper held by Ramey. There is an additional problem, only partially addressed in the search of the message. This apparently was a military message sent from one military installation to another, which means there should have been some military jargon in it. The attempts at reading it have failed to account for any military jargon. The closest is Rudiak's attempt to place military unit designations into the message. He noted in one place where he thought 58 or 58th bomber squadron might have been indicated. He also located a second place where 54th SAID could indicate some kind of a military unit, although no one has yet located a unit with that designation (Rudiak, 2000). Rudiak also noted that what he thought as "5 PM" made no sense because the military would have used the twenty-four hour clock and it would have said, "1700 Hrs" rather than "5 PM" (Rudiak, 2000). That is a valid point.

This leads to another point that has not been covered adequately. In the vast majority of message traffic on teletypes from that era there are no punctuation marks. Instead, they were abbreviated as words (cf. Randle, 2000). For example, rather than use a comma, the term CMA was used. A period was PD. None of the interpretations account for these sorts of things, and that could be complicating the interpretations of the message. In none of the

various interpretations of the message has anyone suggested that some of the words might actually be the abbreviations for punctuation marks.

And there is an even more important point. Nearly everyone agrees that Roswell-related message traffic would have been classified, particularly if the event involved the crash of an extraterrestrial craft (Randle, 2000). Therefore, it is interesting that no one had suggested that classification markings are missing from the document. The placement of classification stamps is governed by Army regulation 380-5 [civilian classification regulations are in 5200.1] and requires that they are on *both the top and bottom* of each page and reflects the highest classification of the information in the document¹. That means that while some information might only be classified as “confidential,” or in fact be “unclassified,” the whole document is classified at the highest level of information contained therein. Consequently, whether Ramey received it, or transmitted it, there should be a classification stamp at the top and the bottom of the sheet. Messages are not allowed out of the communications center without the proper markings on them. If those marking are not present, it means that the document is not classified, and therefore, is not very important, at least in attempting to understand the Roswell case. Further, if this is Ramey’s draft of the message, to be transmitted, the classification markings should still be present². But, more importantly, that message would have been created on a regular typewriter and not a teletype machine. If this is the case, then there is no reason for it to be typed in all capital letters unless the message was a draft to be sent on a teletype. In this instance, it might be better to type it all in upper case in order to easier proofread the teletype message.

It is strange that Ramey, a general officer who had handled classified material long before this event, would be so cavalier in handling this message. Before crouching by the wrecked weather balloon and radar target in his office, had he held a classified message, he would have given it to his aide, he would have set it in his desk drawer, or he would have had it locked in the safe by his secretary. That is the proper way to handle classified material, and Ramey would not have likely made such an elementary mistake, especially with a camera and a reporter in his office. Thus, anyone supporting a “smoking gun” view of the Ramey document must consider the perplexing question of why General Roger Ramey was so irresponsible and careless in handling this document (and allowing it to be inadvertently seen and photographed), if it contained extremely sensitive intelligence material that he was actually trying to cover up at the planned press conference. To my way of thinking, Ramey’s behavior, which does not seem to be an act of disinformation (see: Westwood, 2002; Randle &

¹ These are current regulations, not what would have been in effect in 1947. The actual placement of classification markings would be the same (Randle, personal communication, 2005), but the regulation numbers might not be. Kevin Randle has volunteered to look these issues in more detail.

² Classified documents will always have markings on the top and bottom, and if they are not present, it is normally a reflection of the photocopying process rather than a hole in the regulations.

Houran, 2002), is extremely problematic, as Houran and Randle (2002) noted at length on page 53 of their paper.

Researchers like Rudiak and Randle have discussed previous examples of classified documents being compromised in front of reporters in the past, although most of those incidents are civilians who did not routinely deal with classified information. However, I have neither seen data that attests to the prevalence of such carelessness (baseline rates) nor evidence that Ramey had a precedent for such carelessness or incompetence. It could be argued that Ramey did not expect the photograph to reveal anything at all, or that the press of other business or the necessity of stopping the flying disk rumors created a situation in which he just made a mistake, but these speculations do not effectively satisfy the paradox in my estimation. Swords (1998) once wrote,

To accept...that this was balloon technology, we are being asked to seriously consider that two quite intelligent people (Jesse Marcel, Sr. and Roswell Base Commander Butch Blanchard) were so uninformed and/or undisciplined and lacking in practical perspective, that they not only could not recognize balloon and radar technology but thought that it was so weird that it was from a flying saucer. I find this line of thought challenging enough that I think it deserves a better defense...to make it even remotely entertainable" (pp.122-123).

Swords' assessment is simple and compelling; although Pflock (2001) has outlined reasons why researchers might indeed entertain this seemingly ridiculous line of thought. Likewise, I feel that investigators who agree that such a level of incompetence was not likely must also logically apply the same consideration to General Roger Ramey. And, I do not think it is too harsh to state that such carelessness on the part of Ramey would be the equivalent of incompetence. In my view, characterizing Ramey in this way allows for the possibility that Marcel and Blanchard were grossly naïve or undisciplined and that the Roswell case is "much ado about nothing."

There is another complication with the Ramey memo. Johnson, according to some, claims that he himself handed the message to Ramey (Balthaser, 2001). That confuses the source of the document that Ramey is holding, e.g., did Johnson bring it into the office with him? Johnson said that he had received, from his boss at the Fort Worth *Star-Telegram*, an Associated Press wire story about the debris coming from Roswell (Balthaser, 2001). This would mean that the memo being held could relate to the Roswell Incident, that it would be a document from a civilian source, but that it would contain nothing to establish the reality of a UFO crash. Of course, it must be understood that Johnson has altered this new statement slightly (Balthaser, 2001). We also note that Johnson's retelling of the events in General Ramey's office has undergone considerable evolution from his first interviews conducted in 1989 (Randle, 2000; Schmitt & Randle, 1991; Shandera & Moore, 1990).

Finally, it should be mentioned that Randle (2005, personal communication) recently discovered the existence of a document called a "MESSAGEFORM." Printy (2003/2004) also discussed this same form in the context of the Ramey document and interested readers should see this reference for a reproduction. It was the form used to type on the traffic that would be sent out of the 8th Air Force. It required that everything be typed in all caps. Regular punctuation is used on the form, but that does not answer the question about incoming message traffic. Randle has so far found no messages that had come into the 8th Air Force.

Based on this discovery, it appears that the document Ramey is holding is not one that he created to send out, because it was not on the Messageform. Additionally, given that his message would be retyped on a Messageform, Randle (2005, personal communication) does not believe this is a draft since it would probably be in upper case. Unfortunately, this new line of research does not clarify matters. For example, assuming that Ramey was careless in handling the document in front of reporters also allows the possibility that Ramey was careless in not using a Messageform for the message. This scenario seems reasonable only if Ramey was presented with a hectic, unprecedented situation involving a real UFO crash that required the need for rapid communication with higher headquarters about a rapidly evolving series of events. Thus, Randle and Printy's parallel discovery makes it unlikely (but not impossible) that the document in Ramey's hand was an outbound message.

Given this, the main import of this new information is:

- We now know that a special form (called a Messageform) was used to prepare messages for outgoing traffic from the 8th Air Force in 1947.
- We know what this special form looks like.
- The Ramey document does not match this Messageform.
- The document is probably not outgoing message traffic.

Rodeghier (personal communication, 2005) noted several caveats with these conclusions. First, while unlikely, the document could be a typed draft message that is going to be put on a Messageform. Second, the belief that the Ramey document is not outgoing traffic still does not tell us anything about its content. It could be an inbound message or it could be something handed to Ramey by one of the press. Additionally, the document, either incoming or outgoing traffic, should have a classification mark on the top and bottom if it was an official message. Of course, this may not have been the case if the document was a draft. The bottom line is that discovery of a Messageform is not truly definitive, i.e., it does not compel us to change our minds about anything. But, it can be strongly argued that the use of a Messageform by the 8th Air Force makes it *unlikely* (although not impossible) that Ramey is holding a message he is going to or has sent.

To summarize the entire background of the Ramey document, there is currently no consensus on either the source or content of the message. One researcher, a champion of the Roswell case, said that it had to be assumed that the message had something to do with the Roswell case because Ramey is holding it while Johnson is taking his picture (Carey, 1998). There really is no reason now to make that assumption. The message could be about almost anything, could be from almost anywhere, and the words and images being seen might be a reflection of what the researcher wanted to see rather than what is actually there.

The Houran-Randle (2002) Experiment

I have been interested in researching variables that guide people's interpretation of ambiguous stimuli (e.g., Houran, 1997, 2000; Houran & Williams, 1998; Lange & Houran, 1998, 1999b). The Ramey memo is inherently ambiguous, because it is encased in a metaphorical "bottle," i.e., there are filters that limit analysis and consensual understanding of the document. No one can deny that biases and errors have crept into previous studies of the memo; otherwise analysis and interpretation of the document would be a straightforward task with a clear consensus of its contents. However, as we have discussed above, even hardened researchers of the memo do not fully agree on its contents. Therefore, the present study was designed to estimate the degree of bias that suggestion and expectation have played in previous interpretations of the memo. Such findings would be helpful for determining whether more refined analyses of the memo are needed, as well as what type of research design for deciphering the memo would promote maximum reliability, objectivity, and meaningfulness.

Towards this end, Kevin Randle and I conducted three related studies (Houran & Randle, 2002) in which we asked self-selected participants to decipher the Ramey memo (see Figure 1) under one of three possible suggestion conditions: one condition involved telling participants about the famous Roswell Incident of 1947 and then suggesting that the memo might provide information about a government cover-up (Study I); a second condition involved telling participants that the memo provided information about the testing of the atomic bomb (Study II); and a third condition that involved no suggestions to the participants (i.e., volunteers were "blind" with respect to expectations about the possible content of the document: Study III). We expected that the each suggestion condition would elicit significant differences in the participants' interpretations. However, we were also interested to see whether there was any agreement on the identity of words in the same location in the document, irrespective of suggestion condition. We made no predictions about this aspect of the study.

For the reader's benefit, the specifics of this study are reproduced here.

Materials and Procedure

Participants

The lead author enlisted the help of two research assistants to compile a test pool composed of ideally 300 people for a study that generally aimed to “determine how much information people could read on an old photograph of a document.” Only 176 people were recruited ($M_{age} = 37.4$, $SD = 9.8$, range = 18-68 yrs., 93 men, 83 women), and we randomly assigned these participants into one of the three suggestion conditions. There were no statistically significant differences in age among the three groups. The protocol for the three experimental conditions is outlined below.

Study I: a convenience sample of 59 participants who were asked to “carefully study and try to read the contents of a photograph of a military memo that could contain information about the crash, retrieval, and subsequent cover-up of an extraterrestrial craft near Roswell, New Mexico in July of 1947.”

Study II: a convenience sample of 58 participants who were asked to “carefully study and try to read the contents of a photograph of a military memo that could contain information about the secret testing of the atomic bomb.

Study III: a convenience sample of 59 participants who were asked to “carefully study and try to read the contents of a photograph of a document.”

Ramey Memo: Raw Data

Participants viewed an 8" x 10" enlarged print of the message part of the Ramey memo (from the collection of Kevin D. Randle) obtained from the Fort Worth Star-Telegram Photograph Collection (University of Texas at Arlington Libraries), and the contents of Stanton Friedman's CD-ROM data. To the best of our knowledge, Friedman's scans are the best available raw data³. This CD contains four state-of-the-art scans of the memo portion of the photograph where the text is visible. Specifically, participants viewed four high-resolution images: (1) a negative of the memo portion of the Fort Worth Star-Telegram photograph, (2) an 8x10 enlargement of the memo area made by University of Texas at Arlington for

³ When Friedman's scans were made from the original negative, Friedman complained about dirt and debris that had collected over the years due to the handling of the negatives. It has been claimed that Friedman's scans are not the best available data, but rather scans made last year by the International UFO Museum and Research Center (IUFOMRC) in Roswell, NM. This scan has reportedly been made available to several investigators, such as Burlison and Carey. However, we do not know of any empirical studies that validate this claim. More about these scans will be discussed in a later section.

Stanton Friedman, (3) a 20-year old 8x10 (memo portion) before the original negative had been handled so much, and (4) an 11x14 (memo portion) made earlier in 1998.

The Deciphering Task

Each participant was briefed about the purpose of the study in accordance with their respective suggestion condition, and then was seated individually in a quiet room. There the participant viewed an 8" x 10" enlarged print of the message part of the Ramey memo (from the collection of Kevin D. Randle) obtained from the Fort Worth Star-Telegram Photograph Collection (University of Texas at Arlington Libraries), as well as Friedman's CD-ROM computer displays of the message. We provided participants with a magnifying glass to aid them in viewing the material. A research assistant blind to our goals and hypotheses was available in the test room to assist participants in manipulating the images from the CD-ROM. Participants viewed the CD-ROM images on a 17-inch computer monitor at 800 by 600 screen resolution. Participants were instructed to write down line by line what they perceived (either individual characters or full words) in the 10-line block of text on a score sheet, thereby replicating the system pioneered by earlier researchers (see Houran & Randle, 2002, Table 1, pp. 56-57). No time limit to complete the deciphering task was imposed on the participants. Our research assistants immediately aggregated the responses into a computerized database.

Self-Report Measures

After the deciphering task, the research assistant requested that the participant complete a short questionnaire. Included were two instruments. First was Lange and Houran's (1999a) Rasch version of the AT-20 (MacDonald, 1970) measure of tolerance of ambiguity. This is a 20-item "yes/no" scale in which high scores reflect greater tolerance of ambiguity. Sample questions are "A problem has little attraction to me if I don't think it has a solution," and "Vague and impressionistic pictures really have little appeal for me." Even though tolerance of ambiguity may be conceptualized as a perceptual-personality variable on a continuum, we dichotomized scores (either low or high tolerance of ambiguity) based on the Rasch mean given by Lange and Houran (1999a). We dichotomized scores because both low and high levels of tolerance of ambiguity can lead to magical thinking and a belief in extraordinary phenomena (Houran & Williams, 1998; Lange & Houran, 1998, 1999b). Second, participants completed a study-specific (i.e., specially constructed) index of prior exposure/ knowledge of the Roswell case and the Ramey memo (see Houran & Randle, 2002, Appendix). The lead author constructed the items for this scale based on face validity.

De-Briefing of Participants

After the deciphering task was completed, each participant was informed of the full purpose of the study. This involved a detailed explanation of the photographic data, the context of the photographs, and an overview of the current debate about its contents. In addition, we provided participants with a photocopy of the entry on the "Ramey Message" from Randle's (2000, pp. 293-306) *The Roswell Encyclopedia*.

Results

Group Differences

The Ramey memo is very difficult to read even under the best conditions and with the most sophisticated technology. Therefore, it is not surprising that our participants who examined the document relatively briefly and without great motivation were unable to decipher many words. Still, the findings generally supported our expectations and they also revealed surprises. Table 1 gives the Spearman rank-order correlations between the variables measured in this study. Participants' ages and degree of knowledge (belief, alleged experience, and exposure to UFO information) significantly influenced the number of words deciphered, irrespective of the suggestion condition. The suggestion condition also affected the number of words deciphered ($F(2, 173) = 63.08, p < .001$). A Tukey post-hoc analysis (.05) revealed that subjects in the Pro-Roswell ($M = 4.6, SD = 1.89$) and Atomic Bomb Suggestion ($M = 4.8, SD = 1.93$) conditions deciphered a similar number of words in the document, and that both of these conditions elicited significantly more words than in the blind control condition ($M = 1.6, SD = 1.32$).

Table 1. Spearman rank-order correlations between measures in the study

	1.	2.	3.	4.	5.	6.
1. Age	—					
2. Gender ^a		—				
3. Tolerance of ambiguity ^b	.27*	.14*	—			
4. Intolerance of ambiguity ^c	-.10*	-.18*	—	—		
5. UFO-Roswell scale	.08	-.12*	.03	.05	—	
6. Number of words deciphered	.11*	.15	.66**	.78**	.35*	—

^a Men scored as 1, women as 2.

^b Score ≥ 30 , ^c Score ≤ 20 , * $p < .05$, ** $p < .01$

Participants in the Pro-Roswell Condition spent an average of 20 minutes trying to decipher the contents of the document. Table 2 shows that participants primed to notice Roswell-related terms indeed tended to interpret some words in accordance with earlier interpretations of the same words in the same positions by ufologists (e.g., “remains,” “weather balloons,” “land:” see Table 2, column 1). Likewise, participants in the Atomic Bomb Condition spent an average of 16 minutes trying to decipher the contents of the document. This change in context was accompanied by new interpretations of certain words. Now, we see that participants perceived content that was congruent with the atomic bomb scenario (e.g., “flash,” “glasses,” “atomic”). Participants in the Blind Condition spent an average of 14 minutes trying to decipher the contents of the document. Only a few interpretations were noted, and the content of these efforts did not strongly reflect any particular scenario such as we found in the previous conditions.

Table 2. Deciphered words exclusive (no bold type) and common (bold type) to the three suggestion conditions

Pro-UFO Condition ($n = 59$)	Atomic Bomb Condition ($n = 58$)	Blind Condition ($n = 59$)
Remains	Fort Worth TX ($\underline{n} = 17$)	Fort Worth TX ($\underline{n} = 11$)
Fundamental	Glasses	Flew
Fort Worth TX ($\underline{n} = 24$)	Morning	Story ($\underline{n} = 7$)
Crash	Flash	Balloons ($\underline{n} = 2$)
UFO	Atomic	(various punctuation) ($\underline{n} = 59$)
Story ($\underline{n} = 43$)	Laboratory	
Weather balloons ($\underline{n} = 20$)	Meaning	
Land ($\underline{n} = 41$)	Story ($\underline{n} = 11$)	
(various punctuation) ($\underline{n} = 59$)	Weather balloons ($\underline{n} = 5$)	
	Land ($\underline{n} = 6$)	
	(various punctuation) ($\underline{n} = 58$)	

Notes: Even though “Fort Worth” and “weather balloons” naturally coincide, each term counted as two words.

One referee requested that we list how many participants in each condition deciphered each word. We contacted our primary research assistant for these numbers, as we only immediately had the computerized data for analysis. We unfortunately learned that the assistant disposed of the actual score sheets thinking they were useless after he prepared his notes on the words common to the three conditions and compiled the computerized database. As a result, we only have detailed data on the deciphered words common across the three suggestion conditions.

Group Similarities

Even without sophisticated analytic software, the participants across the three conditions found parts of the document legible. Moreover, despite the statistically significant effects of cognitive style and suggestion, participants across the three groups did show consensus on several words in *identical locations* and in the same locations in the document that previous investigators also had agreed upon: "Fort Worth TX ($n = 52$)," "story ($n = 61$)," and "weather balloons ($n = 27$)." Another word of relative agreement "land" ($n = 47$) was noticed in identical locations in the document by the two primary suggestion conditions, perhaps because these people were more motivated or discriminating in their interpretations than those in the blind condition. Lastly, all participants across the suggestion conditions perceived various punctuation marks within the document.

Discussion

The surprisingly high agreement between these participants and previous investigators on specific words in identical locations in the Ramey memo suggests that some of the document is indeed legible, even without computer enhancement. However, the meaning or context of those words remains ambiguous because the degree of interpretation of the document is strongly influenced by suggestion effects and the interpretant's cognitive style. We are inclined to believe that such effects have also tainted the previous studies on the memo using sophisticated software because there appears to be weak inter-rater reliability among these earlier analysts. In fact, ufologists may be among the least effective people to be trying to decipher the document. This opinion stems from the finding that those in the Pro-UFO condition spent more time examining the images and subsequently perceived the second highest number of words (though this number was not significantly higher than the number of words perceived by those in the Atomic Bomb condition). A UFO story of a crash and cover-up is inherently intriguing to many, and so the research participants may have worked harder at deciphering the text than those in the other two conditions. Likewise, since those in the Atomic Bomb condition deciphered more words than the Blind condition, a similar case effect could, as secret atomic bomb testing is certainly more interesting than a "photograph of an old document." Accordingly, it seems reasonable to pursue research on the document only if certain methodological criteria are set. We offer some thoughts about such a protocol based on discussions with the Illinois State Archives and David Rudiak (a well-known investigator of the document, personal communication, January 10, 2001).

First, to be methodologically consistent we recommend that standardized computer enhancement be used on the best raw data that we have using comparable software programs. Analysis should be conducted by at least three independent and blind laboratories that specialize in the area of reading and transcribing archival documents. The laboratories could be provided all available scans of the document in order to determine whether the scans from

Friedman or the International UFO Museum and Research Center (IUFOMRC) are the best. With this triangulation approach, we can reasonably estimate the inter-rater reliability (and hence validity) of the resulting interpretations (i.e., do the laboratories show statistically significant agreement on specific words in precise locations in the text). It is possible at this point to calculate an intra-class correlation (Bartko, 1966) on the most current solutions published thus far, but we feel this would be inappropriate since the majority of the previous investigators did not follow a standardized analytic protocol and were not blind to the context and thus possible content of the document.

Second, we must be cautious in interpreting any statistically significant outcomes of a blind, triangulation study. Prior to having independent laboratories decipher the message, we might also request them to perform preliminary analyses on the structure of the document. This might reveal some insights into what kind of document it is, even if the same laboratories cannot decipher the content of the document. David Rudiak (personal communication, Jan. 10, 2001) proposed some lucid guidelines in this respect:

- A. Determine the letter spacing and position through alignment of columns of clearly visible text and extrapolating to poorly visible letter positions.
- B. Determine length of words, assuming no typographical errors and misspellings, and adhere to those word counts.
- C. Assuming initially that the message is written in proper English instead of some type of cryptic military (or other) shorthand or jargon, the sentences should obey rules of English grammar and obey rules of syntax and semantics. In short, the message should make sense and be consistent in content instead of sounding disjointed. Although, if the memo is, in fact, a military message, then assumptions about the military shorthand and jargon could complicate and possibly invalidate the conclusions being drawn.

We, nonetheless, have some concerns about Rudiak's other suggested guidelines based on his own analyses of the document:

- A. Rudiak stated that he has found jargon words, acronymns and abbreviations, and unexpected punctuation in the document and that these have been stumbling blocks. In short, he claims that the document contains unusual words or word usage. *Indeed, our subjects also interpreted some marks to be formal punctuation. Thus, it would seem that we are not dealing with a military memo. We suggest, however, that we make no assumptions about the context or content of this document until empirical analyses using the triangulation are performed.*
- B. For poorly formed words, Rudiak often selects likely letters and then does a computer search of the English language using search engines for possible fits. Possible fits should again make sense both grammatically and within the historical context in which the message was written. *This is a reasonable approach, but it is not clear under what context the document was written. Our analyses showed that when you*

change the context, letters and words on the document also change. Furthermore, only four words remained in our study after controlling for context and these were ambiguous in terms of what meaning they conveyed. That is, they are consistent with both a Pro and Con view of Roswell, and they in fact could be interpreted as having nothing to do with the case. Working backwards from a context to fill in words as suggested here by Rudiak could lead to the error of finding or interpreting words in the document that are not actually there.

- C. Rudiak believes that background knowledge of the Roswell case is very valuable for making guesses and piecing the message together. For example, Rudiak has a large number of 1947 newspaper articles dealing with the military's "post-Roswell debunking campaign" where they held weather balloon demonstrations and claimed that all saucer reports could probably be explained by people seeing weather balloons and radar targets. He suggests that the last line of the Ramey message is about adding these demonstrations to firm up the weather balloon press release they were about to release. Rudiak gives another example: Newspapers mentioned the involvement of General Vandenberg. When Rudiak looked at where the address header should be, he noticed one word that clearly started with "VA." His guess was that this was the beginning of "Vandenberg." When Rudiak enhanced the image, he indeed perceived it to be "Vandenberg." The message, he claimed, was addressed to Vandenberg, not Ramey. This was truly Ramey's message in all senses of the word. *It appears, in the photograph that the paper is folded over. If true, the header is not readily visible and this is the point in which the RPIT has suggested "a telephone logo" which they have interpreted to mean that this is a typed version of a telephone message handed to Ramey. Likewise, previous studies using computer enhancement have yielded conflicting solutions to the message, and this might be due to the fact that different investigators have differing levels of knowledge about the Roswell case. Indeed, our results revealed that amount of exposure to UFO and Roswell information positively correlated with the number of words "deciphered" from the document. The issue of what words are or are not present is an empirical one that independent and blind laboratories can readily estimate. If certain words, names, abbreviations, acronyms, etc. are present (whatever they are), then independent studies under no priming or context effects should validate their presence.*
- D. Rudiak assumes some consistency of style and content. For example, the word "disk" apparently in the document appears to be in quotes on the fifth line of the message. It turned out, according to Rudiak, some other words were also placed in quotes, indicating unusual word usage. Rudiak concluded that this was part of Ramey's style. And as in any well-written message, Rudiak presupposes that succeeding sentences will generally have something to do with what preceded them. *This is a reasonable suggestion, however, the meaning of unusual word usage will still remain ambiguous unless the general context of the entire sentence or message is known. Thus, attempting to extract a general context of the document from seemingly, but unverified, unusual word usage can again lead to errors in interpretation.*

David Rudiak and other investigators must be commended for their creative and tireless studies of the Ramey document. However, all of the previous approaches seem extremely

vulnerable to significant errors in interpretation. Nevertheless, the previous studies of the Ramey memo and the present results suggest that parts of the document might be readable and perhaps even ultimately interpretable. What is needed at this stage is outside corroboration from triangulated, blind analyses conducted by well-qualified laboratories and a set of stringent guidelines (such as proposed by Rudiak) to evaluate the findings. We speculate that any positive findings from a blind, triangulated study will only interest hardened researchers of the case. Many people will likely not regard statistical analysis of a computer-enhanced photograph of the document as hard evidence of a UFO crash and retrieval. In short, there is no substitute for having the original or a good verifiable copy of the document.

In our opinion, the main value in pursuing research on this document is (1) to provide additional data to refine current hypotheses for the Roswell debris and (2) to possibly provide a boost of morale in the field of ufology. Of course, more advanced and systematic triangulated studies of the document could reveal content that bears favorably on a conventional explanation for the crash debris. The field should be prepared for such a verdict as well, and treat the findings with the same respect as they would if the findings were pro-extraterrestrial craft. One referee made an excellent suggestion that relates to our proposed protocol. In particular, obtain an identical camera to that used to photograph the Ramey memo, use several military messages from that era, photograph them from various distances at various angles, and then see whether the text can be deciphered to any extent. The benefit of this experiment using known text is that it could (1) demonstrate that the text could, in principle, be deciphered or not, and (2) be used as a control of the methods used by the independent laboratories to decipher the Ramey memo itself. A call for funding of a large-scale investigation of the document seems justified.

Despite the significant expense involved, the type of study we have outlined would have long-lasting consequence on the Roswell case and it might also have a healing effect for the field. The lead author (Houran, 2001) recently criticized researchers of the Roswell case for ransacking the available data and not working together to bring cohesion and rationality to the case. Yet, working on the problem of the Ramey memo has been a quite different experience. Reliable investigators, while not always in agreement, willingly shared data and research findings, discussed methodologies, and engaged in constructive debates. This was not the state of affairs when the lead author previously commented on the status of the Roswell case (Houran, 2001). Irrespective of the outcome of a large-scale investigation, working collectively and systematically on the Ramey memo may bring the researchers (and organizations) even closer together. It is our feeling that only through a concerted effort among qualified investigators and responsible discussion of the available information in peer-reviewed forums like the *Journal of Scientific Exploration* can we bring some firm resolution to the mystery of what crashed near Roswell, New Mexico in July of 1947.

Criticisms, Clarifications, and a New Direction

On the *Virtually Strange Network: UFO Updates* Internet list there was considerable debate about our experiment (Houran & Randle, 2002) with the Ramey document. One of the points raised in that debate concerned was legitimate, and an Erratum (Houran & Randle, 2003) was subsequently published in the *JSE*. Specifically, Rudiak correctly noted that the standard deviations (*SDs*) listed on page 58 of our published article appeared too small, and that they were strangely the same across the three suggestion conditions. Indeed, these notations and coefficients were typographical errors missed in proof. We apologized for this error and thanked Rudiak for spotting it. The correct *SDs*, as well as the ANOVA results, were accurately reported in the Erratum as substantiated by copies of the SPSS output sheets provided to the *JSE* Editor.

Space restrictions in *JSE* prevented a discussion of all detailed criticisms from that debate, so these are addressed here.

Table 3 gives the raw data for the number of words subjects reported across the three suggestion conditions in our study, along with the corresponding *SDs* and *SEs*. This Table addresses two other main criticisms of our study made by various contributors to the *UFO Updates* list. First, some argued that our paper should have been rejected because we have no raw data supporting our main conclusions. That claim is a misrepresentation. It is true that one referee of our original submission suggested it would be helpful to know how many subjects in each condition reported each word. We agreed with this suggestion, as it was part of our original design to obtain this information, but unfortunately our research assistant (who was used because neither of us was blind to the hypotheses and thus we wanted to avoid experimenter effects) only tabulated such data for the words that were common across the suggestion condition. After this was accomplished the original scoring sheets were discarded. Apparently it was not made clear to the assistant experimenter that we needed tabulations for all words reported by the subjects.

Table 3. Statistics (mean, standard deviation, and standard error) on the number of words perceived in the Ramey document by subjects across the three suggestion conditions of Houran and Randle (2002)

Suggestion Condition	Number of Words Deciphered by Subjects	Collective Number of Words Exclusive to each Suggestion Condition (collective number of words common across the conditions)	<i>M</i>	<i>SD</i>	<i>SE</i>
Pro-Roswell (<i>n</i> = 59)	0 words = 3 people 1 words = 1 person 2 words = 5 people 3 words = 6 people 4 words = 5 people 5 words = 23 people 6 words = 12 people 8 words = 3 people 9 words = 1 person Total words = 269	141 (128)	4.6	1.89	.25
Testing of Atomic Bomb (<i>n</i> = 58)	0 words = 3 people 2 words = 3 people 3 words = 10 people 4 words = 6 people 5 words = 11 people 6 words = 16 people 7 words = 6 people 8 words = 3 people Total words = 277	238 (39)	4.8	1.93	.25
Blind (control) (<i>n</i> = 59)	0 words = 19 people 1 words = 8 people 2 words = 16 people 3 words = 12 people 4 words = 4 people Total words = 92	72 (20)	1.6	1.32	.17

This is an unfortunate limitation of our data that we duly acknowledged in the original paper. However, the assistant experimenter did transcribe relevant raw data into a computerized database immediately following each subject's experimental trial, as we clearly stated on page 59 of our paper. Thus, we do have relevant raw data to support our main conclusions. What we do not have is any raw data that show the distributions of *specific words unique to each of the suggestion conditions*.

Second, this latter fact has motivated some critics to argue that we cannot state with any certainty whether or not expectancy effects had any meaningful outcome on our results.

Actually, we can use the data we do have to infer significant priming effects. In particular, the Pro-Roswell and Atomic Bomb suggestion conditions overlapped on seven words, i.e., Fort, Worth, TX, story, weather, balloons, and land (see Houran & Randle, 2002, p. 59, Table 3). Let us now examine how many people in the Atomic Bomb condition perceived more than seven words, as this will provide an estimate of how many subjects *at minimum* perceived words that were *uniquely congruent* to the Atomic Bomb suggestion condition (and hence reflect priming). Table 3 shows that three individuals (or < 1%) in the Atomic Bomb condition perceived > 7 words. That statistic does not seem to be of any practical concern, but of course, this estimate is extremely conservative as we do not know conclusively if only these three subjects saw content unique to the Atomic Bomb suggestion condition. This is an instance where the original score sheets on the deciphering tasks would have been useful.

Still, Table 3 shows the ratio of words *collectively unique* to each suggestion condition. This number in column three of Table 3 was easily calculated from the total number of words per each suggestion condition minus the numbers of words in each condition that were common relative to the other suggestion conditions (see: Houran & Randle, 2002, Table 3, p. 59). Expressed as a mathematical equation it would read: "total words – collective number in common = collective number of exclusive words for each condition." The important point is that, in each case, the number of words *unique* to each suggestion condition is consistently more than the number of words *common* across the suggestion conditions. This outcome does not appear to be the result of merely three subjects, but it is consistent with the idea that expectancy/priming effects influenced the interpretations of many subjects.

It should be noted that Table 3 also corrects another error in our original paper. Specifically, we stated on page 60 that subjects in the Pro-Roswell suggestion condition perceived the greatest number of words in the document. While this group did spend the most time trying to decipher the text, subjects in the Atomic Bomb suggestion condition in fact reported slightly (but not significantly) more words than the other two groups. However, this correction does not change our conclusions and speculations that stemmed from the noticeable differences among the groups in terms of the number of words reported.

Moreover, we know something about the subjects who perceived the most words across each of the suggestion conditions. Namely, the number of words deciphered showed significant positive correlations (all p 's $\leq .05$) with age ($\rho = .11$), tolerance of ambiguity ($\rho = .66$), intolerance of ambiguity ($\rho = .78$), and "prior knowledge about the Roswell case and the topic of the Ramey document" ($\rho = .35$) [see: Houran & Randle, 2002, p. 58, Table 2]. In other words, people who deciphered the most words endorsed a cognitive style conducive for seeing patterns (real and/or imagined) in ambiguous stimuli and scored higher on an index of prior knowledge of the Roswell case.

It seems reasonable that older individuals have had more opportunity to learn about the case from various popular sources, which would explain the small but significant positive

correlation between age and the number of words deciphered. The variable of “prior knowledge about the Roswell case and the topic of the Ramey document” was an important predictor of the number of words deciphered by subjects (as evidenced by the statistically significant correlation between the rank orderings of the two variables). Houran and Randle speculated that this effect would be greater for ufologists, since they would naturally exhibit greater prior knowledge of the Roswell case than individuals from the general population.

The arguments of critics can also be turned around, and it can be asked why all of the participants in our study did not perceive the same key content in the Ramey document if context effects were *not* significant variables for at least some? As further discussed in the Houran and Randle paper, it is also instructive to note that previous investigators do not wholly agree on the content of the Ramey document and have even been known to alter their own solutions over time (cf. Houran & Randle, 2002, Table 1, pp. 56-57). These facts are quite curious if key text of the Ramey document is as unambiguous as some investigators insist. Consequently, Houran and Randle seem justified in their conclusions that (1) some of the document is legible and perhaps even interpretable with continued study, but that (2) priming and expectancy effects are significant confounds in trying to decipher the Ramey document, therefore (3) future studies should adopt a methodologically superior strategy by controlling for these potential confounds via experimentally-blind experts in image analysis who are hired to independently validate previous solutions to the document.

Some contributors to the *UFO Updates* list have repeatedly criticized this last conclusion. This is surprising given that proper control (blind) procedures are the standard in medical and social science research (Barber, 1985; Babbie, 1989; Sheldrake, 1998) where the goal is to reduce the tendency for participants in studies to prejudge results—in this case what the Ramey document purportedly says based on an observer’s knowledge of the case. That is, bias and expectancy effects can be minimized and more objective results obtained when investigators do not lead “witnesses” (International Association of Chiefs of Police, 1989).

From a methodological perspective, therefore, I remain firm in the proposal that the use of *experimentally-blind* analysts is the best approach for validating key text in the Ramey document that previous investigators claim is visible to anyone. Stated alternatively, how would the major investigators of the Ramey document react to skeptic groups who claim their own analyses show nothing of substance in the text, or worse, that it cannot be read at all? It is speculated that these investigators would attempt to discredit such findings on the basis that those doing the analyses were *a priori* biased. For example, during its research on the Roswell UFO crash, the Air Force reported, “It was also noted that in the two photos of Ramey he had a piece of paper in his hand. In one it was folded over so nothing could be seen. In the second, however, there appears to be text printed on the paper. In an attempt to read this text to determine if it could shed any light on locating documents relating to this matter, the photo was sent to a national-level organization for digitizing and subsequent photo

interpretation... This organization reported on July 20, 1994, that even after digitizing, the photos were of insufficient quality to visualize... the details sought for analysis" (McAndrew, 1995, p. 29). This statement contradicts the conclusions promoted by several of Houran and Randle's critics on the *UFO Updates* list. Which verdict is correct: the one advocated by arguably Pro-Roswell investigators or the one advocated by arguably Con-Roswell investigators?

This is why I feel the field should move the problem of the Ramey document to neutral analysts that cannot be accused of having vested interests in the outcome of the research. Indeed, in my opinion, it would be most persuasive if independent and experimentally-blind researchers who are professionals in the field of image analysis can validate the conclusions reached by previous investigators of the Ramey document (for a summary of those conclusions, see Houran & Randle, 2002, Table 1, pp. 56-57). Replicating the results of previous investigators under such rigorous test conditions can only benefit the field and the Roswell case.

This section answered the major challenges to our study, as I understood them. Houran and Randle's results should not be taken to mean that previous studies of the Ramey document have no merit. Rather, the fact that subjects across the suggestion conditions perceived similar words that previous investigators identified implies that the document is *not* completely ambiguous and hence susceptible to influence from context effects. We have not observed our critics acknowledging, much less emphasizing, that we plainly identified and discussed this as a major conclusion of the paper. In fact, we began our Discussion section by stating that, "The surprisingly high agreement between our participants and previous investigators on specific words in identical locations in the Ramey memo suggests that some of the document is indeed legible" (p. 60). We further noted that, "...the previous studies of the Ramey memo and the present results suggest that parts of the document might be readable and perhaps even ultimately interpretable" (pp. 62-63). Thus, our study expresses hope that future work will resolve the empirical issue of the Ramey document.

Some critics argued that, since many subjects perceived the same content across suggestion conditions, this is actually evidence that expectancy effects did not significantly influence our subjects. Moreover, it was suggested that when the subjects were given the proper context (i.e., the message relates to the Roswell case), our subjects actually identified more "correct" words based on previous solutions by various investigators. This alternative interpretation of our findings seems reasonable, but unfortunately, there is no definitive standard of the Ramey text to know conclusively whether specific words perceived by our subjects and previous investigators were "correct words," i.e., words that are actually in the text. Thus, no one at present can conclusively calculate the true inter-rater reliability of previous efforts by investigators or the performance of our subjects concerning the number of "correct" words

that were identified. This fact bolsters the case for an independent and objective assessment and validation of the data we do have on the Ramey document.

Independent Triangulated Analysis: What Would it Take to Complete?

Internet newsgroups and specialized periodicals on the UFO phenomenon arguably focus too strongly on debates concerning the reliability and validity of reported witnesses to the Roswell Incident. These debates have been generally non-productive – even counterproductive – because some researchers appear to have vested interests in the stories of certain individuals.

From an evidential standpoint, independent and empirical corroboration of witness testimony and a new approach is needed if we to move the case forward. Reliance solely on subjective testimony arguably has tainted this case to the point that it may now be infeasible to expect that we can safely assume any of the witnesses are meaningful in a *forensic* sense. The recent exposures of witnesses that were previously respected bolsters this conclusion (for a discussion see e.g., Pflock, 2001; Randle & Rodeghier, 2002). At best, witness accounts may assist in refining theories for the crash debris and for providing insights and leads for empirical research. Accordingly, a focus on empirical research is strongly needed at this point if any resolution to this case is realistically expected. Despite the fact that the case is over fifty years old, one avenue for empirical research stood out – the issue of the so-called “Ramey Memo” or document. It was this opportunity that motivated me to apply for FUFOR funding to determine what it would take to organize and conduct a study involving an independent and triangulated analysis of the Ramey document.

The rationale for such an effort was premised on the Houran and Randle (2002) study, which concluded that the Ramey Memo was legible in places and that continued analysis of the document is warranted if certain methodological criteria were established. First, given that Houran and Randle (2002) demonstrated that advance knowledge and expectation of content significantly influences the way the memo is deciphered, it was proposed that analysis of the document should be conducted by three, well-established laboratories that have no vested interest in the results and whose analysts have no knowledge of the supposed content of the document. Second, the project should be kept confidential from the press and ufologists. This step was to further insulate the laboratories from priming and other forms of context effects. Accordingly, the proposed project aimed to develop a detailed research protocol, including identifying appropriate laboratories, establishing a reasonable research schedule, and a corresponding budget to complete such a study.

In summary, the goals of the project were to:

1. Determine whether the available scans of the Ramey Memo can be successfully manipulated in accordance with state-of-the-art and standardized computerized methodology.
2. Develop a detailed and standardized research protocol for an independent and triangulated assessment of the Ramey Memo.
3. Identify three qualified laboratories that can analyze the Ramey Memo via a state-of-the-art and standardized computerized methodology.
4. Develop a detailed budget to complete the independent and triangulated study of the Ramey Memo.

For the reader's information, Table 4 identifies basic image analysis methods and their applications. Laboratories to be selected for this project must necessarily be regarded as experts in these methods.

Table 4. Three levels—low, intermediate, and high—of basic image analysis methods and their applications. This classification scheme is approximate, as one method can apply to different tasks levels.

Type	Techniques and Applications	Reference
Image Processing (low-level analysis)	<i>Transformations</i> : filtering, feature extraction, enhancement, compression	Gonzalez & Woods (1992)
	<i>Maximum entropy method (MEM)</i> : de-convolution, super resolution, reconstruction	Skilling (1989)
	<i>Projection onto convex sets (POCS)</i> : reconstruction, de-convolution, filter design	Stark & Yang (1998)
Feature Extraction (intermediate-level analysis)	<i>Fractals</i> : compression, object matching	Jacquin (1992), Popescu & Yan (1997)
	<i>Thresholding</i> : object extraction from background	Yang & Yan (2000)
	<i>Edge detection</i> : boundary detection	Gonzalez & Woods (1992)
	<i>Thinning</i> : skeletonization	Gonzalez & Woods (1992), Chang & Yan (1999)
	<i>Morphological operations</i> : noise removal, object extraction	Gonzalez & Woods (1992)
	<i>Snakes</i> : boundary detection, object tracking	Zhu & Yan (1997)
	<i>Self-organizing maps (SOMs)</i> : segmentation, clustering	Chi, Yan, & Pham (1996)
	<i>Fuzzy c-means algorithms (FCMs)</i> : clustering	Chi, Yan, & Pham (1996)
	<i>Morphing</i> : animation through shape deformation	Gomes et al. (1999)
	Object Recognition and Matching (high-level analysis)	<i>Bayes theory</i> : classification
<i>Neural net classifiers</i> : object recognition, segmentation		Schurmann (1996)
<i>Fuzzy classifiers</i> : object recognition, rule-based systems		Chi, Yan, & Pham (1996)
<i>Hidden Markov models (HMMs)</i> : speech and handwriting recognition		O'Gorman & Kasturi (1995)
<i>Graph matching</i> : structural matching		Gonzalez & Woods (1992)
<i>Hough transform</i> : known shape detection		Gonzalez & Woods (1992)
<i>Shape from shading</i> : finding 3D shapes from 2D images		
<i>Relaxation labeling</i> : object matching		Klette, Schluns, & Koschan (1998)

The research proposal went through peer-review, which helped bring into focus the desired outcomes of any future analyses conducted by three independent laboratories. Below are two salient issues that were addressed through the peer-review process.

Issue One: Protocol Considerations

The reviewer suggested that the laboratories selected needed to be *a priori* informed that they are analyzing a UFO-related document. This issue is valid. However, it was always intended that information about the nature of the document be released to the laboratories in a controlled manner. In particular, my recent research (Houran & Randle, 2002) cautioned that interpretations of the Ramey document follow from priming effects. In fact, Sheldrake (1998) recently criticized some hard science disciplines for not adopting blind analytic procedures, which enhance the validity of scientific findings. As a result, it is imperative that the image analysts should have *no* advance knowledge of what they are attempting to analyze. If this methodological point is compromised, the results will be compromised. However, I am in full agreement that for political reasons the laboratories should be informed about the nature of the task. My solution to this apparent dilemma is to propose that only the *administration* of the respective laboratories be informed confidentially about the particulars of this study, while the actual *analysts* remain blind to this information.

Following this issue is the specific question of what the laboratories are going to be asked to do, and whether Optical Character Recognition (OCR) technology will be used. Comprehensive research identified several qualified laboratories for the imaging tasks in Table 4. It was expected that these laboratories would therefore have the expertise to simultaneously (1) provide an evaluation of the STRUCTURE of the document (e.g., the type of lettering, marks, and spacing that is present) that can reveal clues as to what kind of document Ramey is holding, and subsequently (2) attempt to decipher the CONTENT of the document (e.g., specific letters and entire sentences and paragraphs if applicable). As argued by David Rudiak in the Houran and Randle (2002) article, these two tasks arguably reinforce one another—that is, insights from the study of the structure of the document might lead to insights into the study of the content of the document, and vice versa.

Issue Two: Data Considerations

Making new scans might be profitable if the quality of the negatives has not substantially decreased since the efforts of either the IUFOMRC or Friedman. Again, there is a serious question that making new scans—even with more advanced techniques—would yield data that is any better than what is currently in existence. However, the idea of approaching the University of Texas at Arlington for permission to make new scans in order to conduct a definitive study of the Ramey document has promise. That is, the question of which raw data is better to use is an empirical one, and thus it is recommended that the labs be supplied with

all available raw data. However, it is recommended that the University of Texas at Arlington not be approached until a firm protocol is developed; perhaps with the addition of firm commitments to participate from the respective laboratories. It is my opinion that the chances of securing the cooperation of the University of Texas at Arlington will be better if researchers are armed with a professional presentation that outlines in detail the study's design and identifies what laboratories will be consulted.

There is no general support for the suggestion that the IUFOMRC's scans of the Ramey document are higher in quality than the scans facilitated by Stanton Friedman. This point was made by Houran and Randle (2002). However, to have the most complete raw data for possible analysis, the goal was to supply laboratories with both the digital scans from Friedman and the IUFOMRC. Both I and the FUFOR requested copies of the digital scans from the IUFOMRC for use in this research. However, it was disappointing that this request was denied without explanation.

Summary

Again, the purpose of the project was to identify suitable laboratories and provide them with information that would not taint the actual analysts but which would allow the laboratory administrations to decide if this was a project they would accept and what costs would be involved.

Phase I refers to the initial contact I made with qualified laboratories. These laboratories were selected based on a set of criteria recommended by a research acquaintance of mine that has considerable experience in digital imaging and analysis. The criteria were:

- Laboratories with established and respected analysts in the field of digital imaging and analysis (cf. Table 4).
- Laboratories with a precedent of collaborating on private research projects.
- Laboratories that would likely not be deterred by a controversial research topic.

Phase II refers to subsequent communications. In Phase II, background material and copies of Friedman's digital scans (see previous description of these scans) would be sent for preliminary evaluation by the laboratories. The background material consisted only of a photocopy of the Houran and Randle (2002) experiment. Using this approach, the administrations of the respective laboratories could get a sense of the raw data involved and subsequently prepare estimates as to the time and funding required to complete image analyses.

The following section shows what the Phase I and II e-mail communications looked like, as well as the outcomes from these communications to each of the laboratories contacted.

Phase I Outcomes

Initial Contact (e-mail)

I am a researcher in the field of anomalistic psychology at the SIU School of Medicine who studies factors that influence how people interpret ambiguous stimuli. I have been asked to study a historical and controversial photograph made from an old negative that shows a man holding a piece of paper. There are clearly words visible on this paper, but the structure of this message and its contents remain a matter of debate in some academic circles.

I would like to know if your research division would be available for hire to try to decipher the text of this message. The negatives of this photograph have been digitally scanned, so I was hoping either OCR or other advanced analysis (or any specialized algorithm) could be applied to these scans in order to resolve some or all of the text on this document.

I have no expertise in computer enhancement, digital imaging, or subsequent text analysis from digital images. However, your research establishes you as an expert in this area. I would be happy to send you a scan of the document via regular on CD, so you may evaluate whether you would accept the job, as well as estimate the costs involved. Thank you for your time and consideration. I look forward to hearing from you.

Subsequent Contact (where applicable) (e-mail)

Thank you for your reply. Let me say upfront that this would be a controversial research project, but one I believe your group would enjoy. I probably need to send you some basic background material on the rationale for this project, as well as exactly what I am looking for in terms of an end product. Ideally, I would like an interpretation of the actual text (or as much of it that you can reliably decipher). However, I would also like to know about the structure of the document itself, e.g., does this seem to be a memo versus a simple typed document. I am also able to send you a scan of what I have at present for your evaluation. The University of Texas at Arlington holds the original negatives, and I believe they would permit additional scans to be made if prestigious labs would be the ones working on this project.

In terms of budget, that is somewhat negotiable. This would be a one-time project, although I understand it could take one or two years to complete. Thus, I would need an estimate for how much time and expense you would feel would be involved to produce the final product...which ideally again is an interpretation of as much of the text as is reliably possible, and perhaps commentary on the physical structure of this document. The material I will send should this all very clear.

My own work on this issue suggests that the way people have interpreted the text depends on their expectations as to its content. Thus, this is one reason why I am seeking an impartial source that has the expertise to conduct a truly professional job at deciphering it. Given this, it would be ideal if you did not share the background material I will send with others until after the analyses have been completed (assuming you accept this research project). Rather, I want the actual analysts to be "blind" to the reported context of this document. Is that possible?

Lastly, it is foreseeable that this project might gain some (positive) media attention for your group. It would be my recommendation that this project be fully documented by a professional film crew with the intention of producing a TV documentary about the process of solving this mystery. Of course, this is not necessary should your group wish to avoid any media exposure. My background material will make this all clear.

I will send the packet of material and a CD copy of the scanned images shortly. Thank you for your time and consideration. I hope we can work together on this project.

I. Kodak Research and Development

Rochester, New York

(<http://www.kodak.com/US/en/corp/researchDevelopment/index.shtml>)

First contact with this laboratory resulted in a null result.

We received your email regarding your research project on ambiguous stimuli and appreciate the opportunity to comment. Regrettably, we're not able to assist you with this question. Due to limited resources, Kodak no longer offers custom responses for research, studies, or other projects. Such information at times, can involve that which, as a matter of policy, Kodak does not release.

However, we encourage you to direct your search to other experts on this subject, other colleges or universities, or the World Wide Web in order to obtain sources for this type of research. Although we are unable to assist you, we wish you well with this project (Feb 12, 2003).

II. Roger Easton, Ph.D.

Rochester Institute of Technology Center for Imaging Science

This laboratory was contacted in mid December, 2002. First contact with this laboratory resulted in a null result; specifically, no reply was ever received. Copies of the initial message were then sent two more times at spaced intervals over the time frame of about one month. No responses were ever received to these duplicate inquiries.

III. Robert Rolleston, Ph.D.
Xerox Solutions and Services Technology Center
Imaging Research, Ideas, and Solutions Laboratory

This laboratory was contacted in mid December, 2002 and they replied the same day. I was put in touch promptly with the Manager of the lab, Rob Rolleston. He was receptive to discussing the project and then requested additional information on the raw data available for analysis and the scope of the project in order to prepare an estimation of the costs involved. His queries were answered with the subsequent email message and background material and copies of the scans were mailed to him. Rolleston contacted me several weeks later:

Yes I have received your documents. I have not yet been able to look at them closely as I wish, and there are a couple of other activities due this month. I think the key to this will be the quality of the original scans which might be obtained. Am I correct in doing a quick read [of the material sent] that the original negatives (?) were indeed last scanned in 1994 or 1998? I can assume this was high quality equipment used to do the scanning? Any idea of the resolution, and what was actually scanned (negative or printed photograph)? (Jan 27, 2003).

These questions were answered, and it was emphasized that obtaining new scans of the original negatives might be possible using whatever method he deemed best. Rolleston contacted me again in nearly mid-Feb:

In part of the material you sent me, there is mention of using a "large blow-up of the photograph, a computer, and a variety of software and camera equipment" (Houran & Randle, 1998, pp. 45-66). Indeed, I believe this process will provide the most amount of information. It is unlikely any additional scans will provide more data. Actually, I am quite impressed at the depth of analysis that was done.

Our work on image reconstruction and restoration has been done mainly on physically degraded original media. For these we have used image capture techniques which depend upon non-visible wavelengths. The photographic negative you reference does not seem to be of this class of document.

If you like, I can mention this to some colleagues at the Rochester Institute of Technology. This institution has both photographic and image processing expertise. They may be able to provide some additional hope of further assessment. Sorry I could not be of more help. I thank you for you contacting us and your patience. Please let me know now if you would like me to return your materials or if you would like me to provide an introduction to a researcher at the Rochester Institute of Technology (Feb 11, 2003).

To me, this was a curious and extremely disappointing outcome to the materials I had provided. In particular, it was curious to me that Rolleston considered the Houran and Randle (2002) study as a viable method to extract the most information from the text, and it was disappointing that he felt that addressing the problem of the Ramey document to any extent was somehow beyond the expertise of the Xerox Lab. My sense was that he personally felt the issues involved were compelling, but that he wanted to back off from the study after seeing just how controversial the Ramey document was.

However, this avenue did produce one concrete and positive outcome, namely a personal introduction to the Rochester Institute of Technology Center for Imaging Science, which was the laboratory that did not respond to my three initial inquiries. What made me conclude that Rolleston was personally compelled by this problem was his efficiency in making that introduction. The same day I received that null result, Rolleston also informed me:

I have spoken with Dr. Roger Easton at the Rochester Institute of Technology Center for Imaging Science. Roger has agreed to take a look at the material you sent me. I will deliver this to Roger on Wednesday, Feb 12. You can then look for any follow-up from him. I have informed Roger that there is sensitivity to the material, and he respects that (Feb 11, 2003).

Despite several attempts to contact Easton, no follow-up was obtained. This avenue, though seemingly obstructed, is not necessarily closed. Attempts to follow-up continue to this day, and any results from this possible opportunity will be reported to the FUFOR in due course.

IV. Charles A. Bouman, Ph.D.
School of Electrical and Computer Engineering
Department of Biomedical Engineering
Purdue University

This laboratory was contacted in mid December, 2002. No reply was received until after a second inquiry was sent. On Feb 13, 2003, Bouman indicated interest in receiving materials. Background material and copies of the digital scans were sent, but no follow-up was ever received. Several inquiries have since been made to no effect. This avenue, though seemingly obstructed, is not necessarily closed. Attempts to follow-up continue to this day, and correspondence was very recently received:

I do recall getting your stuff in the mail, but I have to confess that I never did anything with it. To tell you the honest truth, I'm not sure where it is anymore. Maybe we could talk sometime. I apologize for never getting back to you (Jun 8, 2005).

This avenue will be explored and any results from this possible opportunity will be reported to FUFOR in due course.

V. Nikolaos P. Galatsanos, Ph.D.
Computer Science Department
University of Ioannina, Greece

This laboratory was contacted in mid February, 2003. A positive reply was received the same day. The subsequent correspondence was sent that detailed the project in more depth, and Galatsanos agreed to receive the digital scans for analysis minus any background material on the Ramey document. This omission was necessary since Galatsanos would be conducting the analyses himself. Approximately two and half weeks later Galatsanos contacted me:

I just received your images. The problem from an image processing point of view is VERY challenging and interesting since the images you gave us are both blurred and corrupted with film grain noise. Since the blur is unknown this the "wholly (*sic*) grail" of the image restoration problem. We will try our best and let you know what we can do. A few questions:

- 1) The text is handwritten capitals in English?
- 2) These images were obtained by directly scanning the film? No other processing has taken place in between? (March 6, 2003).

These queries were answered, but a response was never received from Galatsanos. Several queries have since been sent over the years, and a reply to a recent one was finally received. To my surprise, Galatsanos did not prepare an estimate of costs for completing the research but rather went ahead and conducted preliminary analyses of the images on a *pro bono* basis:

At that time I tried a couple of blind deconvolution algorithms with limited success. I recall that the images were quite bad and that they were not scanned well or there was some other problem with them (cannot remember exactly) (June 8, 2005).

Further clarification revealed that there was some success in being able to apply these algorithms to the digital images but that the restored images were not significantly improved in terms of their quality.

VI. Hong Yan, Ph.D.
Department of Computer Engineering and Information Technology
City University of Hong Kong

This laboratory was contacted in mid December, 2002. Readers may recognize this individual and his laboratory from the multiple citations in Table 4. A positive response was received approximately two to three weeks later. The subsequent correspondence was sent that detailed the project in more depth, and Yan agreed to receive the background material and digital scans for analysis. Although he would not be the primary analyst, he stated he would

supervise two of his postgraduate students (Xiangchao Gan and Alan Wee-Chung Liew) on this project – citing that it would be an excellent exercise for their training and education.

Their final report was submitted in only a few months. It is reproduced below in its entirety. Their research was conducted on a *pro bono* basis.

VII. Andre Marion, Ph.D.
Institut d'Optique Theorique et Appliqué
Centre Universitaire d'Orsay, France

This laboratory was contacted in early February, 2003 on the specific advice of Mark Rodeghier who noted a study by Marion on the Shroud of Turin (Marion, 1988) that showcased analytic techniques and imaging expertise that seemed highly relevant to the aims of this study. A positive response was received shortly thereafter. The subsequent correspondence was sent that detailed the project in more depth, and Marion agreed to receive the digital scans for analysis minus any background material on the Ramey document. This omission was necessary since Marion would be conducting the analyses partly himself.

The analyses were completed on March 27, 2003 and a report on the methodology and findings was completed April 24, 2003. This report is reproduced below in its entirety. His research was conducted on a *pro bono* basis.

Phase II: Two Important Breaks

The project to identify suitable laboratories for analyzing the Ramey document and to obtain estimates of the costs involved for a possible future endeavor resulted in several closed doors. However, there were two outstanding outcomes of this project: *pro bono* analyses on the digital images by two world- respected authorities outside the United States. The final reports from these authorities are reproduced below. While no commentary follows Andre Marion's straightforward analyses, there are two independent commentaries regarding the efforts of Hong Yan's team. Commentaries were specifically sought from two ufologists who were knowledgeable of the myriad of contextual and analytical issues surrounding the Ramey document. These commentators were Mark Rodeghier, Ph.D. (CUFOS) and Bruce Maccabee, Ph.D. Their feedback immediately follows the report from Yan's team.

It should be noted that Yan's team attempted several different approaches – arguably investing more time and effort in resolving the Ramey images than did Marion's laboratory. This is completely understandable, and does not belittle the Marion results, considering that Yan regarded the Ramey problem as a valuable training exercise for his students (under his direct supervision). Thus, these circumstances likely explain the greater detail of Yan's report. The reports from both Yan and Marion included “restored images” that are also reproduced in

this manuscript. Note that the resolution of these reproduced images is necessarily of lower quality than the data received from these analysts. However, these restored images are included for illustrative purposes and for the sake of completeness. Copies of the original restored images have been deposited with FUFOR and CUFOS. Interested researchers may contact these organizations for further detail.

Andre Marion Analysis

Below is Marion's final report to me about his analysis and conclusions. Again, this correspondence and report are reproduced verbatim from his original materials.

In response to your last email (28 March 2003), I can give you some details about the principal steps of the techniques we have used to process the images of the "Ramey memo" and to obtain the files that I sent to you (p3tr1, p3tr2, p3tr5, p3trcol and p4col).

I. PREPROCESSING

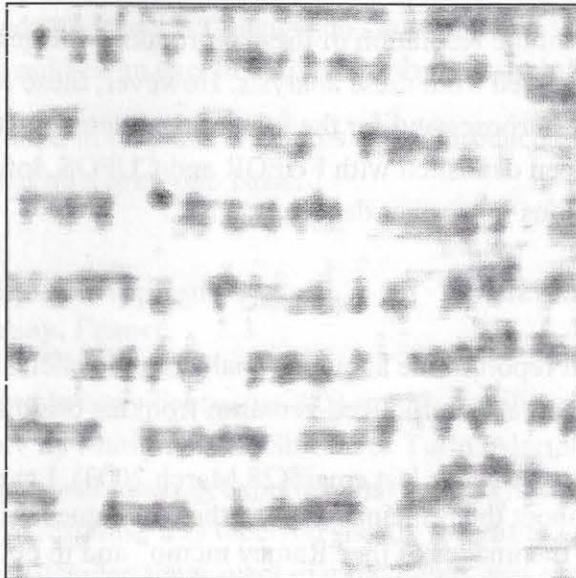
- 1) Selection of a region of interest (512 x 512 pixels) in the original files. For that operation we have used only the four images with the lowest noise.
- 2) Computation of the arithmetic mean of these 4 images in order to increase the signal to noise ratio.
- 3) Conversion of the precedent result, which is a coloured RVB image (named image A in the following) into a grey scale (named image B in the following).

II. FILTERING PROCESS OF IMAGE B

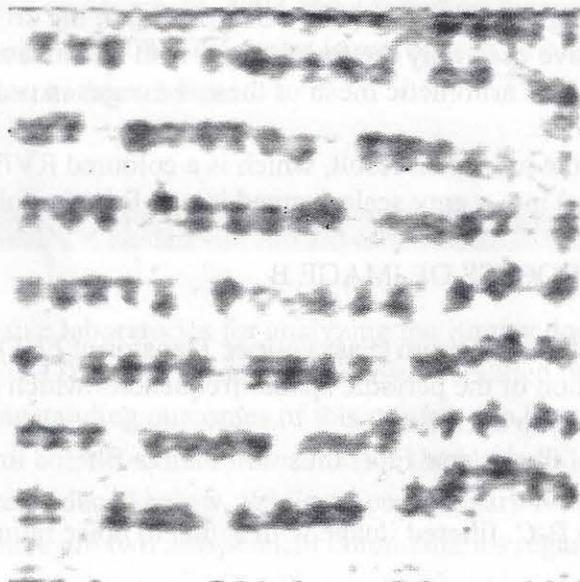
- 1) Computation of the spectrum (Fast Fourier Transform: FFT) of B.
- 2) Strong attenuation of the periodic spatial frequencies which correspond to the text (lines and letters) to decipher.
- 3) Computation of the inverse FFT: thus we obtain a filtered image C where the text is visually eliminated.
- 4) Difference $D = B - C$: filtered image with signal to noise ratio strongly improved.

III. POSTPROCESSING OF IMAGE D

By using various non linear look-up tables, we have enhanced the characters and reduced the background noise: images p3tr1 (a), p3tr2 (b), p3tr5 (c):



(a)



(b)

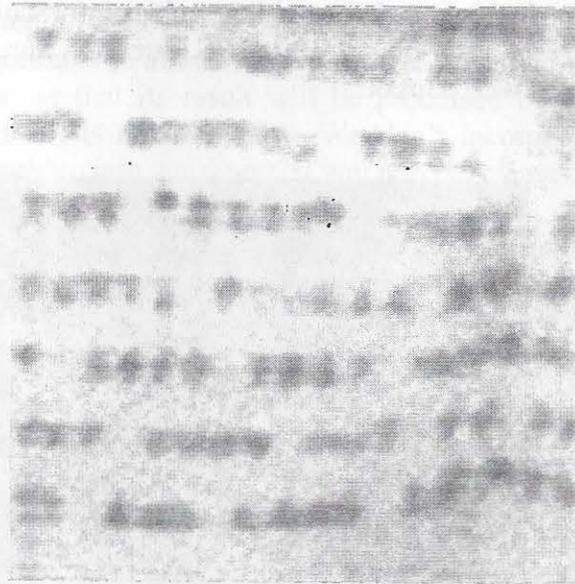
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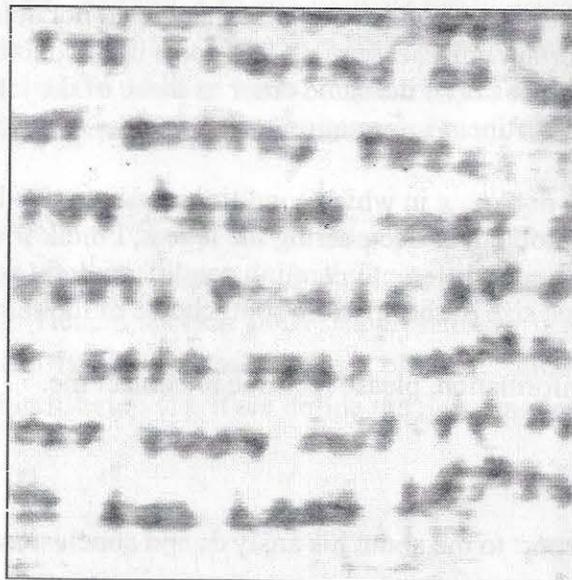
It should be noted that Yan's team attempted several different approaches in making inquiries with effort in resolving the Ramsey inquiry that Mr. Yan's secretary. This was a highly remarkable and bold move on the part of Yan, who had previously been regarded as a highly obedient and loyal subordinate. This move is undoubtedly a key factor in the greater success of Yan's team. The reports from both Yan and Mr. Yan's secretary are reproduced in



(c)

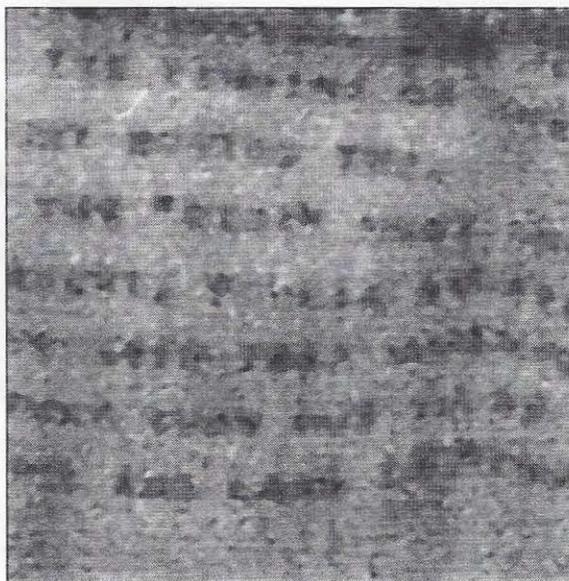
IV. Coloured Manipulations

- 1) The image p3trcol (d) is simply a coloured combination of p3tr1, p3tr2 and p3tr5:



(d)

- 2) To obtain image p4col (e), we have used the colour information of image A in several transformations, especially from RVB to HIS (intensity, hue, saturation) and the result has been combined with p3trcol:



(e)

The most important difficulty which explains that we do not obtain better results is the presence of an important noise, essentially the noise of the photographic film. The spatial frequencies of this noise are of the same order as those of the letters, so that it is very difficult to extract a pertinent information.

Furthermore, we do not know in which conditions the negative has been scanned. In order to solve better this problem of deciphering the letters, I think it would be necessary to make several scans under different operating conditions: light source illuminating the film, coloured filters, size of the aperture spot, choice of the sampling interval, etc.

If you need more information, please feel free to contact me.

Hong Yan Analysis

Below is Yan's final report to me about his analysis and conclusions. Again, this correspondence and report are reproduced verbatim from his original materials.

As you recommend, we have finished some other experiments. We found that the disablement to recognize the letter in the image is mainly due to the lens defocusing. The noise caused by film grain is generally regarded as the speckle noise. That is the reason that why homomorphic filtering is applied. The

processing to it should be looked as the preprocessing in our routine. We test wavelet-based algorithms to alleviate it. However, we found the improvement is trivial. Considering that its result will be processed by the procedure of deblurring, extra exert is not necessary. We don't incorporate the result of wavelet-based algorithm into our report. If you need it, please contact me.

In our new report, we explained the reason that why we use Gaussian shape PDF. I think it is a right direction. One of our new ideas is to use joint time-frequency analysis to deblur. But there are many works needs to be done.

A Report on the Image Restoration Problem

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In general, an image can encounter two kinds of degradations. One is the spatial degradation, caused by atmospheric turbulence, relative motion between sensors and objects, incorrect exposures, and so on. The other is point degradation which is often modeled as additive random noise.

In most cases, we use a linear operator A to approximate the blurring, and we can model the degradation of an image as $\mathbf{b} = A\mathbf{x} + \Delta\mathbf{b}$, where $\mathbf{b}, \mathbf{x}, \Delta\mathbf{b} \in R^L$ represent the observed degraded image, the original image, and the additive noise, respectively. Traditionally, the point-spread function (PSF) of a spatially degrading system is assumed exactly known.

1. Preprocessing

In the current image, the speckle noise is very obvious and needs to be alleviated to facilitate the subsequent deblurring. Hence, speckle noise suppression is performed first. It is well known that speckle noise is multiplicative. One effective method for speckle noise suppression is homomorphic filtering [1]. If we define the noise model as

$$v(x, y) = u(x, y) s(x, y)$$

Then, by

$$\log v(x, y) = \log u(x, y) + \log s(x, y)$$

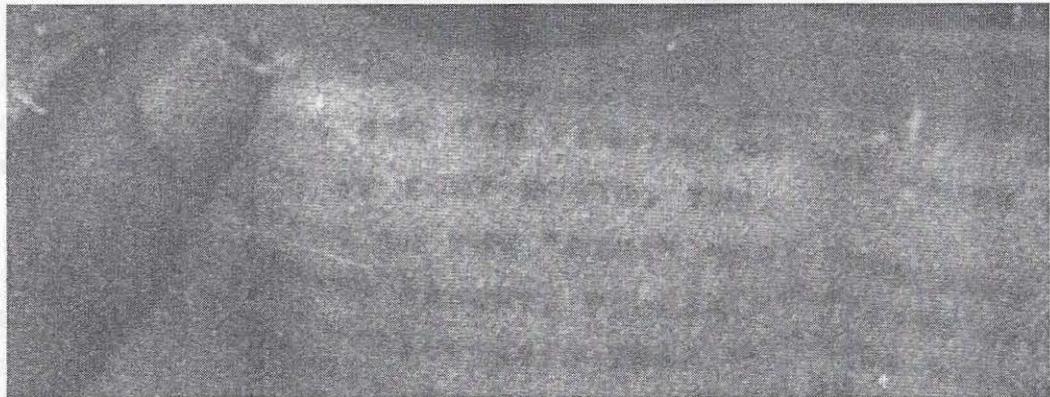
we transform the multiplicative noise into additive noise observation.

Let $\eta(x,y) = \log s(x,y)$ and assume that $\eta(x,y)$ is a stationary white noise, whose spectral density function is given by

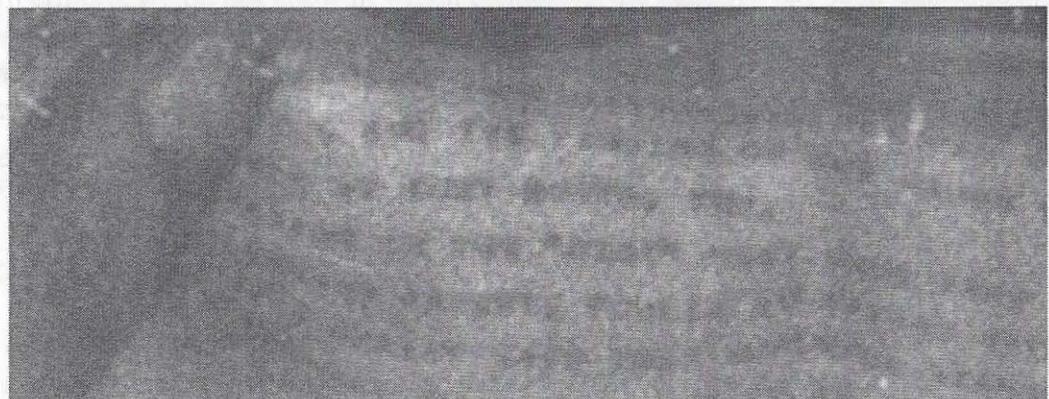
$$S_{\eta}(\xi_1, \xi_2) = \frac{\pi^2}{6}$$

Now, $\log u(x,y)$ can be easily estimated from $\log v(x,y)$ using wiener filtering or low-pass filtering. The resulting image is given in Fig.1b. It is obvious that the noise caused by the film grain is greatly depressed.

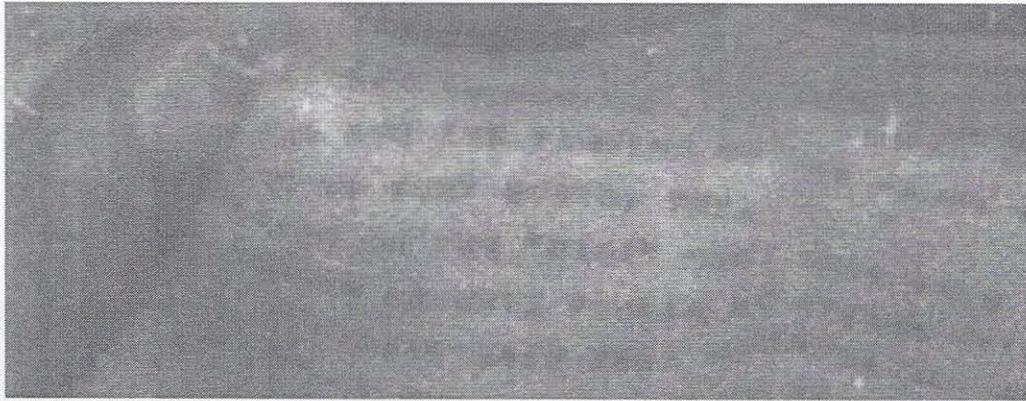
Besides the homomorphic filtering, there are many other methods to suppress the speckle noise. Among them, one of the most powerful methods is the wavelet-based algorithm. We also tested the target image using wavelet method. However, the result is not noticeably superior to the result of homomorphic filtering in Fig 1c.



(a)



(b)



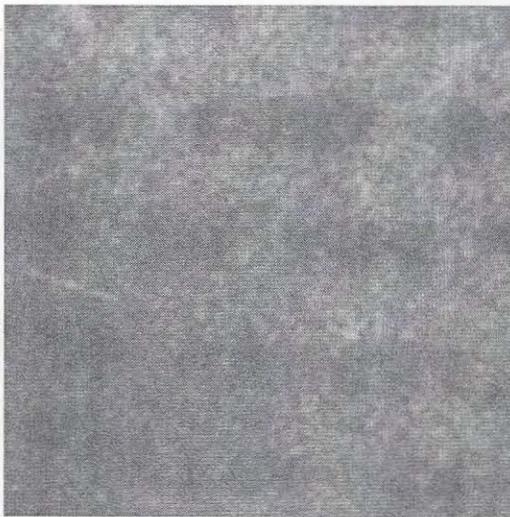
(c)

Fig.1. (a) Original image, (b) the result image processed by homomorphic filtering, (c) the result image processed by wavelet-based threshold method.

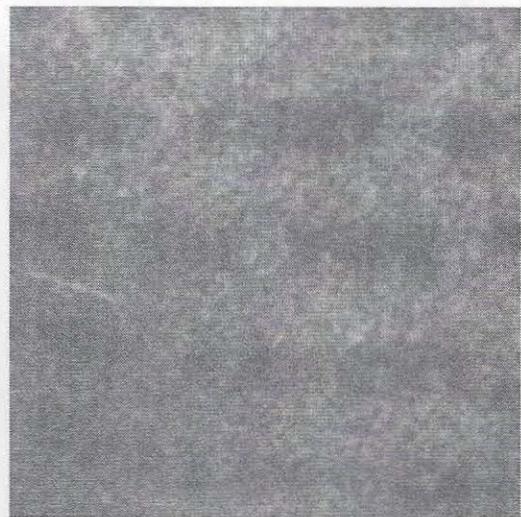
2. Deblurring

2.1 Deblurring using blind restoration method.

In this problem, the exact Point Spread Function (PSF) is unknown. One of the possible methods is to use blind restoration method, such as the blind Lucy-Richardson method [2] [3]. Unfortunately, we found that it failed to give a satisfactory result. In Fig.2, we provide the result of our experiments.



(a)



(b)

Fig. 2. (a) The target image, (b) The image processed by blind R-L restoration

2.2 Estimating the PSF parameters.

Since the blind method fails to work satisfactorily, the next step we took is to estimate the PSF. A defocus lens system with a circular aperture (2D rectangular) has

$$h(x, y) = \begin{cases} 0 & \sqrt{x^2 + y^2} > r \\ 1 & \sqrt{x^2 + y^2} < r \end{cases}$$

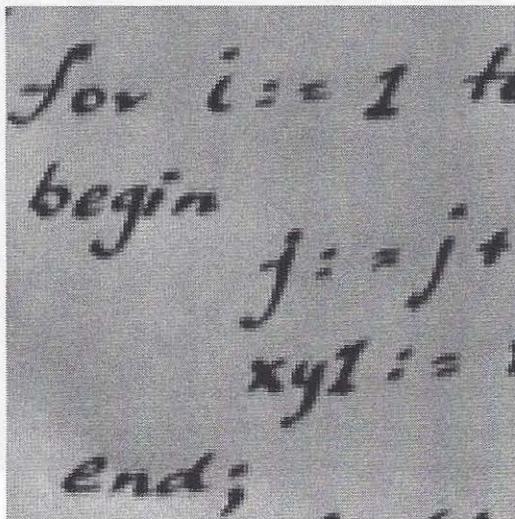
$$H(u, v) = rJ_1(2\pi r\sqrt{u^2 + v^2})/\sqrt{u^2 + v^2} \quad (1)$$

where J_1 is the Bessel function of the first kind. In the deconvolution problem, equation (1) is the ideal defocus function.

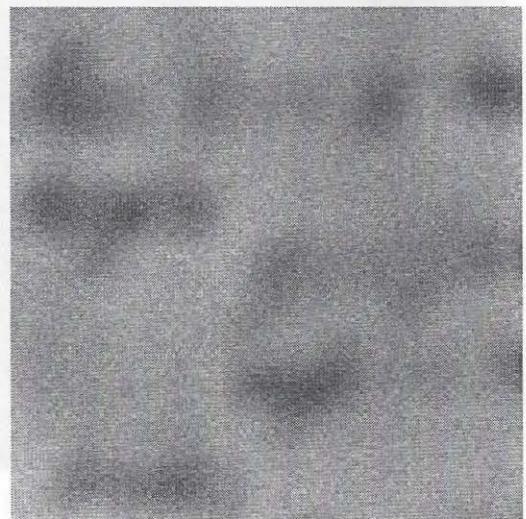
However, due to its noise amplification, the 2D Gaussian function is widely used instead. Here we use the Gaussian blurring kernel. That is,

$$PSF(i, j) = c \exp\left\{-\frac{i^2 + j^2}{2\sigma^2}\right\}, \quad \text{for } i, j = 0, 1, 2, \dots, N-1$$

where N is the support size of the PSF and c is a normalizing constant. We select a handwriting image as the test image. Then we use the PSF function to blur the test image and compare the visual degradation effect in the test image with the one in the target image. We found that the degradation in the target image can be simulated by using large σ^2 and small N . Our experimental result is given in Fig.3. The parameters used are as follows: $\sigma^2 = 23$, $N = 15$.



(a)



(b)

Fig. 3. (a) The test image, (b) The image blurred using the estimated PSF

2.3 Restoration using the estimated PSF.

We used the estimated PSF to restore the target image. We tried the Regularized least squares method [4], Lucy-Richardson method [2] [3], and the maximum entropy method [5]. We also tried a very powerful restoration method called Pixon [6] [7]. Unfortunately, all the results are very poor (see Fig. 4).

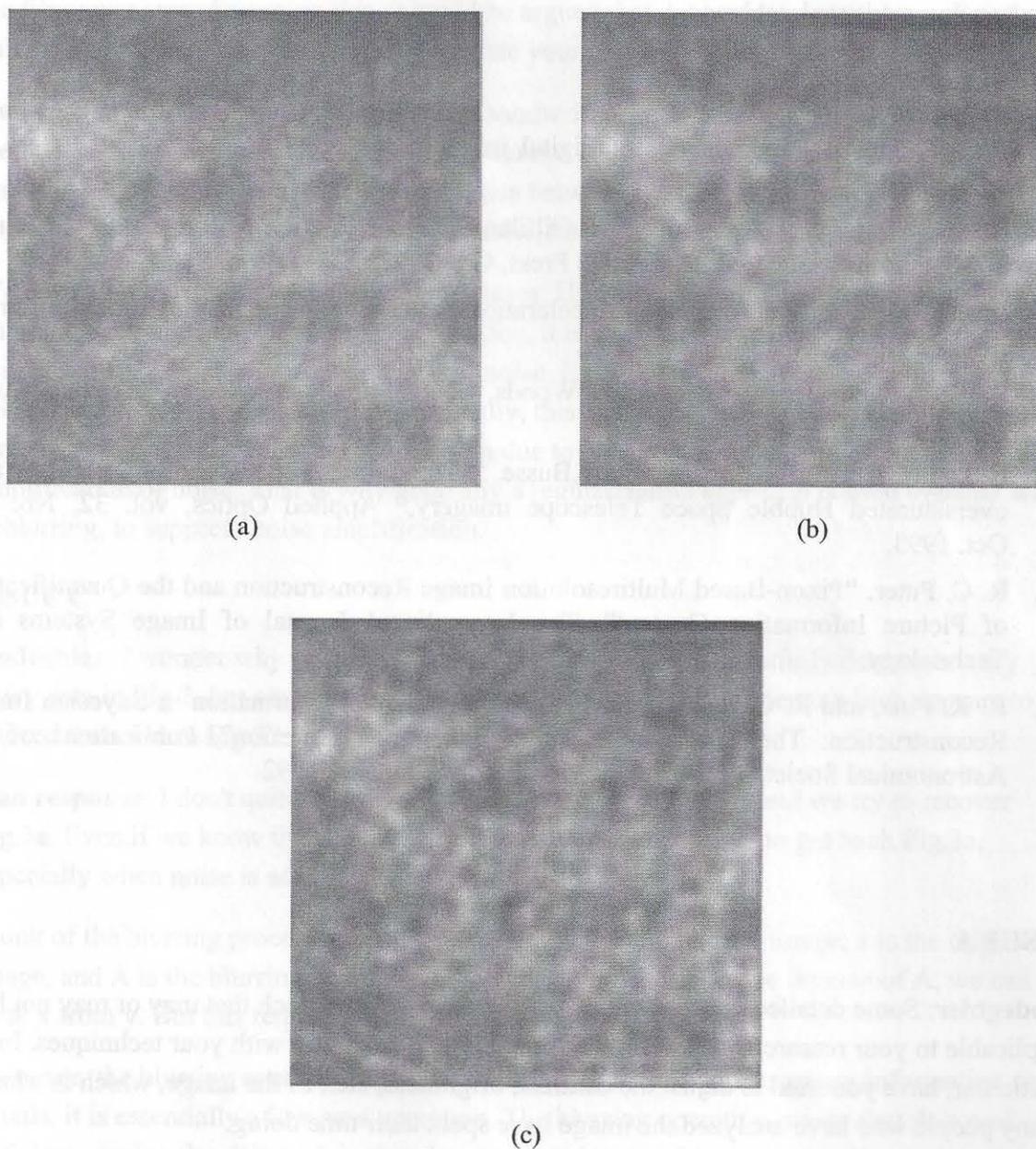


Fig. 4 (a) Part of the target image; (b) The restored image using Maximum Entropy; (c) The restored image using Maximum Residual Likelihood (Pixon).

3. Conclusion

We have tried several of the powerful restoration algorithms on the image. Unfortunately, the results are all very disappointing. The target image seems to be a particularly hard candidate for image restoration task. We think that the severe loss of information in the target image, plus the fact that we are unable to model the unknown degradation accurately could have prevented us from getting a good result. New and more sophisticated methods need to be developed to solve the problem.

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Mark Rodeghier Commentary

ISSUE A

Rodeghier: Some detailed questions about methodological approach that may or may not be applicable to your research, given that we are not entirely familiar with your techniques. In particular, have you tried to adjust the contrast, brightness, etc., of the image, which is what many people who have analyzed the image have spent their time doing.

Yan response: Adjusting the contrast would not have altered the information contained in the original image. But it does help in visualization.

ISSUE B

Rodeghier: A potential problem with your team's approach is that the image does not seem to be primarily degraded by blurring, which is the degradation process on which you focused. Look at Figure 3, in order to compare the degraded test image of handwriting to the actual Ramey image. I did not see this same type of blurring with the Ramey image. Therefore, I wonder if the problem with the image is noise caused by the size of the letters being close to the film grain size. Assuming this, it could be argued that deblurring algorithms will not enhance the Ramey image. I would appreciate your feedback.

Yan response: The degradation of the test handwriting image and the actual Ramey image would not be exactly the same, and we also do not know the exact form of the blurring function. However, there are some similarities between the two. We agree that the degradation is due partly to the film grain noise, but severe blurring is also the cause.

We think that blurring is one of the main causes. However, the problem with blurring is that unless one is quite sure about the PSF function, it is generally very hard to recover the original image, especially in the presence of noise. Even when one has exact knowledge of the PSF, it is still a hard problem. Mathematically, this is due to the ill-posedness of the problem. One is trying to recover the lost information due to blurring, and one side-effect is the amplification of noise. That is why generally a regularization approach is used together with deblurring, to suppress noise amplification.

ISSUE C

Rodeghier: I wonder why your deblurring algorithms could successfully deblur the very noisy data in Fig 3, but could not read the lettering on the Ramey Memo which appears to be less blurred than that in Fig 3?

Yan response: I don't quite get this. But, say we are given Fig.3b, and we try to recover Fig.3a. Even if we know the PSF exactly, it is still near impossible to get back Fig.3a, especially when noise is added.

Think of the blurring process as $y = Ax$, where y is the blurred image, x is the original image, and A is the blurring operator. Ideally, if we can compute the inverse of A , we can get back x from y . But this requires that A is of full rank.

However, the blurring operation amounts to throwing away high frequency information or the details, it is essentially a low pass operation. The blurring operation means that A is rank deficient, or singular. When A is singular, an exact inverse does not exist. Even when A is not exactly singular, it will still be badly-conditioned. In that situation, any noise or round-off error will be amplified and the exact recovery of x is not possible.

In image restoration, a major task is to suppress this noise amplification effect by placing constraints into the solution, for example, by imposing smoothness constraint into the solution.

ISSUE D

Rodeghier: Your team may not have taken into account the fact that this is an old photo, not originally an electronic image. In other words, the original recording material was photographic film, with grain and other properties unique to that type of media. It seems this fact would be important in image reconstruction.

Yan response: We have considered that point and have looked at techniques that take into account film grain noise. But so far we still have no luck on the image. The letters in the image are probably too near to the resolution limit of the camera setting and too much information has been lost. We would not say that we have exhausted all available techniques, but so far most methods based on linear theory do not look promising. We have started to think about non-linear methods recently, but it is till too early to tell how they perform. We will update you when we get some results on that.

ISSUE E

Rodeghier: Perhaps what is needed now is to find experts who understand exactly this phenomenon – how to enhance old photos, not images as such. I wonder if the approach would be entirely different for photos.

Yan response: We think that enhancements of old photo, i.e., improve color appearance, contrast, remove scratches, or reducing film noise is quite different from recovering lost information. In the case of deblurring, there is not much different between the two media.

We think the task here is recovering the lost details so that the letters is readable to human eyes. Many images that are used in the image restoration field are actually scanned of actual photos or documents. We would be happy to provide additional info if needed. We will keep an eye on different restoration method to look out for promising candidate. The problem is a difficult one, but it is interesting too.

Bruce Maccabee Commentary

Rob Swiatek from FUFOR presented Maccabee with the final report from Hong Yan's team, as well as the team's responses to Rodeghier's queries. This step was taken as another critical review of the team's efforts. Maccabee's brief assessment follows:

Thanks for the message re: Ramey document restoration.

I agree with Houran who wrote:

"My colleague did not see this type of blurring with the Ramey image. He asserts therefore that the problem with the image is noise caused by the size of the letters being close to the film grain size. Assuming this, my colleague concludes that deblurring algorithms will not enhance the Ramey image."

The fact that the image size of even the largest letters is not great compared to the grain size of the film is the reason that I have stayed out of this. I suspect that a sizeable part of the "restored information" we have read about in the past (based on claims about being able to read the document to get that information) is in the eye of the beholder. In other words, there is so much noise what one claims to see is like seeing "something" in a Rorschach ink blot test. The individual letters are broken up, sometimes severely broken, by the absence of film grains. This makes any attempt at a restoration very difficult or perhaps even impossible, in my humble opinion (personal communication, Feb 4, 2004).

Conclusions and Discussion

Houran and Randle (2002) argued that research into the problem of the Ramey document needed outside corroboration from triangulated, experimentally-blind analyses conducted by well-qualified laboratories using a set of stringent guidelines. While the raw data and a methodological protocol exists for this type of effort, my attempts to organize this endeavor over the course of three years found only limited success. The lack of a positive response could be due to many reasons, including lack of necessary research funds to interest a major laboratory, a negative perception of the UFO field or the publicity related to its coverage by the media, or a perceived lack of importance to the Ramey document issue in relation to other private projects these laboratories might have been offered.

This project admittedly did not yield the outcomes originally intended, but it did produce some valuable insights and information without the need for additional funding. This is an exciting and significant outcome that should not be minimized. In particular, rather than developing feasibility study and budget for a triangulated, independent study of the Ramey document, the goal of actually completing such a study was partially realized. This was an

unexpected but important step towards understanding the nature and value of the Ramey document for the Roswell case.

After three years of research into the issues surrounding the Ramey document, including the null results from the two, independent experts outside the United States (and one expert who attempted preliminary analyses), I have concluded that there is no reliable evidence to date indicating the Ramey document is a “smoking gun” for the Roswell case.

While my past experiment (Houran & Randle, 2002, cf. 2003) documented priming effects for those attempting to decipher the document text, this same study also suggested the possibility that some of the text could be reliably and validly deciphered. Unfortunately, common words perceived in the document by past researchers and experimental participants were not cross-validated by independent experts in imaging science. In other words, all of the highly-trained individuals and teams who responded positively to my request for them to enhance and decipher the Ramey document while being experimentally “blind” to any confounding context produced null results.

It is especially damaging to the evidential value of the Ramey document that one preliminary analysis (with little detail as to methods used) and two in-depth analyses (with sufficient details to replicate the methods used) all concluded that the digital images are handicapped in terms of digital scan quality and film grain noise so as to render any image restorations on the available raw data illegible to the human eye. To be clear, I confirmed this conclusion with both Marion and Yan’s group. In their view, the text of the photographed document could not be accurately deciphered *before* or *after* enhancement/ restoration.

While these expert conclusions imply that even “restored” images of the Ramey document are currently not legible to the human *eye*, it does not preclude that the text of the Ramey document is illegible to the human *mind*. That is – as Estes, Maccabee, and others have asserted – people can and do still perceive discrete letters and even words in the ambiguity likely due to mechanisms akin to the psychological phenomenon of simulacra (finding meaning in ambiguous or random information, e.g., “seeing faces in the clouds”). To better understand some of the issues related to simulacra, interested readers should consult the extremely informative explanation and discussion by Brugger (2001).

The research summarized in this report; however, does not definitively resolve the problem of the Ramey document. As in the Houran and Randle (2002) study, these independent analyses offer the hope that restoration and/or enhancement techniques on raw data of higher quality will prove more successful in deciphering some or all of the structure or text. As it stands, the independent, expert research indicates that the available raw data (digital scans of the original negatives) has no practical or forensic value for the Roswell case. Yet, future work might rewrite the significance of the Ramey document.

Accordingly, it is recommended that the next steps include:

- *Continued contact with the laboratories identified in this report.* This includes those resources that have cooperated thus far and those that did have not. Two purposes would be served. First, maintaining the laboratories' interest in this problem so that independent and expert analysts will be motivated to conduct new research on the Ramey document should raw data of higher quality become available. Second, the direct assistance of these laboratories will be crucial in specifying the methodological procedures needed to produce this new raw data. For example, Marion's team noted the need to make several scans under different operating conditions (light source illuminating the film, colored filters, size of the aperture spot, choice of the sampling interval, etc), whereas Yan's team noted that not all processing techniques (linear and non linear) have been exhausted. Thus, better raw data coupled with additional analyses might yield different results than reported in this manuscript.
- *Develop a new research proposal.* Based on continued discussions with these expert laboratories, develop a line budget that specifies direct research costs associated with transportation and lodging of imaging experts who would facilitate new and better scans of the original negatives of the Ramey document. To this end, funding would need to be sought. One possibility is to propose that a production company underwrite this funding as part of the costs of producing a television documentary on this new phase of research into the Roswell case. This suggestion follows from the recent example of the Sci-Fi Channel sponsoring an archaeological excavation of the reported Roswell debris field (Sci-Fi Channel, 2004).
- *Discuss the proposal with the University of Texas at Arlington.* Once a methodological protocol is established and the cooperation of expert personnel guaranteed, the research proposal can then be presented and discussed with the University of Texas at Arlington. The intended outcome is permission to make new scans in order to conduct a definitive study of the Ramey document.
- *Independently establish legibility and validity of new, restored images.* If additional image analyses can be conducted under the circumstances above, then any outcomes (restored images) from the laboratories should be reviewed by a panel of select individuals to determine the extent of the legibility of the new images. For instance, the experimental protocol by Houran and Randle could be replicated, or probabilistic approaches such as used by David Rudiak could be useful here (i.e., where "unknown" letters or words are inserted among "known" letters or words based on word length and likelihood that a given letter or word makes sense in the context of the document).

This manuscript closes on a conceptual level. The experience of researching the Ramey document has given me both professional and personal joys and disappointments. My early work on the problem was characterized by cooperation among researchers, whereas my later efforts have been attacked in some circles to the point of near libel. I really expect nothing less from a topic as frustrating and controversial as the Roswell case. Constructive criticism and peer-review define academic research and are welcomed by me. In fact, most of my work in anomalistic psychology and ufology has been collaborative in nature.

Although I strongly disagree with the views and conclusions of other researchers, it is my feeling that everyone with whom I have interacted is sincere and passionate about finding the truth to the Roswell case. My position statement on the case is this: I am suspicious about the official explanations. Simply stated, I find it curious and almost dumbfounding that the military or other government agency can offer no definitive documentation to say what crashed in the New Mexico desert in 1947. Since that first press release on Tuesday, July 8, 1947, announcing the retrieval of a "flying disc," the public has been given progressively revised explanations for the crash debris (see: Johnson, 1947; McAndrew, 1995, 1997). Furthermore, these explanations do not satisfy many serious researchers who are extremely knowledgeable about the details of the case.

Having said that, it must be noted that objective and definitive evidence for an extraterrestrial interpretation of the Roswell debris is also lacking. What is needed is hard data or evidence that corroborates the eyewitness testimony deemed credible in the Roswell case. That has been my main motivation for pursuing the problem of the Ramey document – to apply scientific rigor wherever possible to empirical evidence that can help resolve this case. As such, I support continued research into Roswell and particularly the Ramey document. My sense is that the Ramey document is a dead end for resolving Roswell and that future research will validate the null results of the two expert analysts. By this I mean that additional work will reveal either that the text of the photographed document cannot be deciphered to a reliable degree, or if it can, that the text will not contain content consistent with the extraterrestrial hypothesis for the Roswell debris. Then again, my opinion is irrelevant. What matters is the outcome of careful, empirical research.

To that end, I sincerely hope that those both sympathetic and critical of my past and present studies will see the ultimate value and accomplishment in the present work: *that it is possible to bring science to bear on the Ramey document and the Roswell case in general*. In particular, let me echo statements written in the Preface – the fact that outside experts in digital imaging were willing to examine the problem of the Ramey document and offer impartial conclusions are exciting and significant outcomes! With the apparent exception of what some suspect to be the secret National Photographic Interpretation Center attempt to study the image (the agency probably used by the Air Force for their 1994 report), no true imaging experts had reviewed the Ramey document before this endeavor.

Now, because of this study, we know better what modern imaging methods applied to the photo of Ramey document can do. The key result, unfortunately, is that this turns out to be "not much." Whether the imaging experts could or could not have read the image before enhancement is arguably not as crucial, since they could not read an image that was not well enhanced from where they had started. To my way of thinking, the lack of enhancement is not a failure, because it was previously unknown whether the photograph could be significantly enhanced by professional imaging experts.

Since the image could not be substantially improved, what we learn is that the Ramey document is still a message in a metaphorical "bottle" – an ambiguous piece of data the value of which remains debatable. Without clear cut information to constrain interpretations of its context or content, both advocates and detractors of the extraterrestrial hypothesis for the Roswell debris will continue to use the document to push their agendas. This project was a search for meaning in all of the ambiguity surrounding the Ramey document, and in the end, we still have ambiguity even with the empirical information available to us.

Yet, this state of affairs can possibly change. We have discovered that outside and impartial experts in digital imaging are available and motivated to work on the problem. Now, we need to capitalize on the other main finding from this project. This finding is really an action item. We now know it is the time to allow these experts, if possible, to help acquire and subsequently work on better quality raw data. In this way, the search for meaning in the Ramey document might finally come to fruition.

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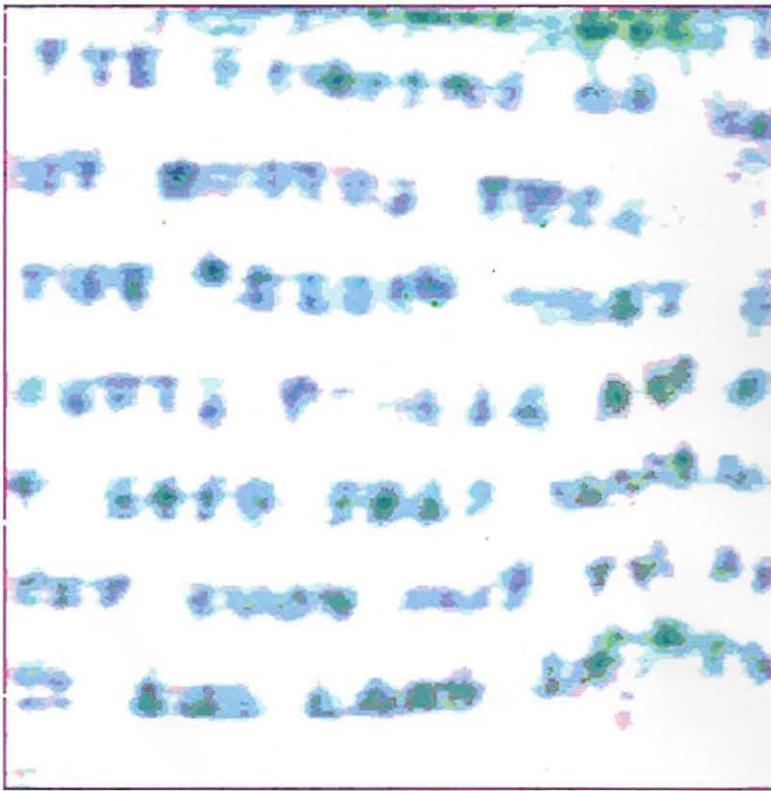
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Author Biography

James Houran, Ph.D. Psychology, is a fifteen-year veteran in the field of research and clinical psychology, full member of the American Psychological Association and the American Psychological Society, and serves as a peer-reviewer for more than ten professional journals.

Houran has a deep history in psychological research and is an accomplished author, with over 100 journal articles to his credit and work published in some of the most prestigious psychology and psychiatry journals, such as the *British Journal of Psychology* and the *Journal of Nervous and Mental Disease*. More than having a single-focused background, Dr. Houran is internationally known as a generalist in research and clinical psychology. His main forte has been the study of attitudes, beliefs, and behavior – the crux of all human interactions. His work on the psychology of so-called “paranormal” beliefs and experiences, as well as the psychological foundations of fantasy relationships (exemplified in the topic of “celebrity worship” and stalking) has received tremendous international media attention. However, Dr. Houran has also applied advanced research methods to other clinical domains such as personality structure, mental illness and wellness, brain organization and its influence on behavior, and gender differences in depression. His innovative research has been featured by numerous media outlets and programs including A&E, BBC, The Discovery Channel, NBC’s *Today Show*, National Public Radio, *New Scientist*, *Wilson Quarterly*, *Rolling Stone*, and *Psychology Today*.

Previously, Dr. Houran served as an Instructor of Clinical Psychiatry at the Southern Illinois University School of Medicine and worked as a researcher and therapist. He received a Bachelor’s in psychology from Benedictine University (Lisle, IL), a Master’s in clinical psychology from the University of Illinois at Springfield, and a Doctorate in psychology from the University of Adelaide. He is currently a research psychologist employed by a private company in Dallas, Texas.



In the Andre Marion analysis, this PhD scientist from Institut d'Optique Theorique et Applique Centre Universitaire d'Orsay, France has tried color manipulation. The color information of the image has been used in several transformations, especially in regard to HIS (hue, intensity, saturation). For more details, see page 47.