THE UNIVERSITY OF HULL

'Aviation Technogeopolitics and the Materialisation of the Pacific as United States Space, 1918-1941'

being a Thesis submitted for the Degree of Ph.D. in the University of Hull

By

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Abstract

This thesis develops a new concept - the 'technogeopolitical project' – that analyses the processes and mechanisms through which the existence of the recursive relationship between a chosen technology and geopolitics can be understood. The chosen case study is the US Government's desire to materialise the Pacific as US space during the interwar period. Several processes and mechanisms are analysed and discussed under the auspices of this 'project'. They include the development of military war plans, the planning and construction of Pan American Airways' transpacific commercial air routes, the drafting and implementation of various legislative documents, and the undertaking of surveys of numerous Pacific locations to site aviation facilities. Taken together, these processes constituted the technogeopolitical project that territorialised the Pacific Ocean as US space in the interwar years.

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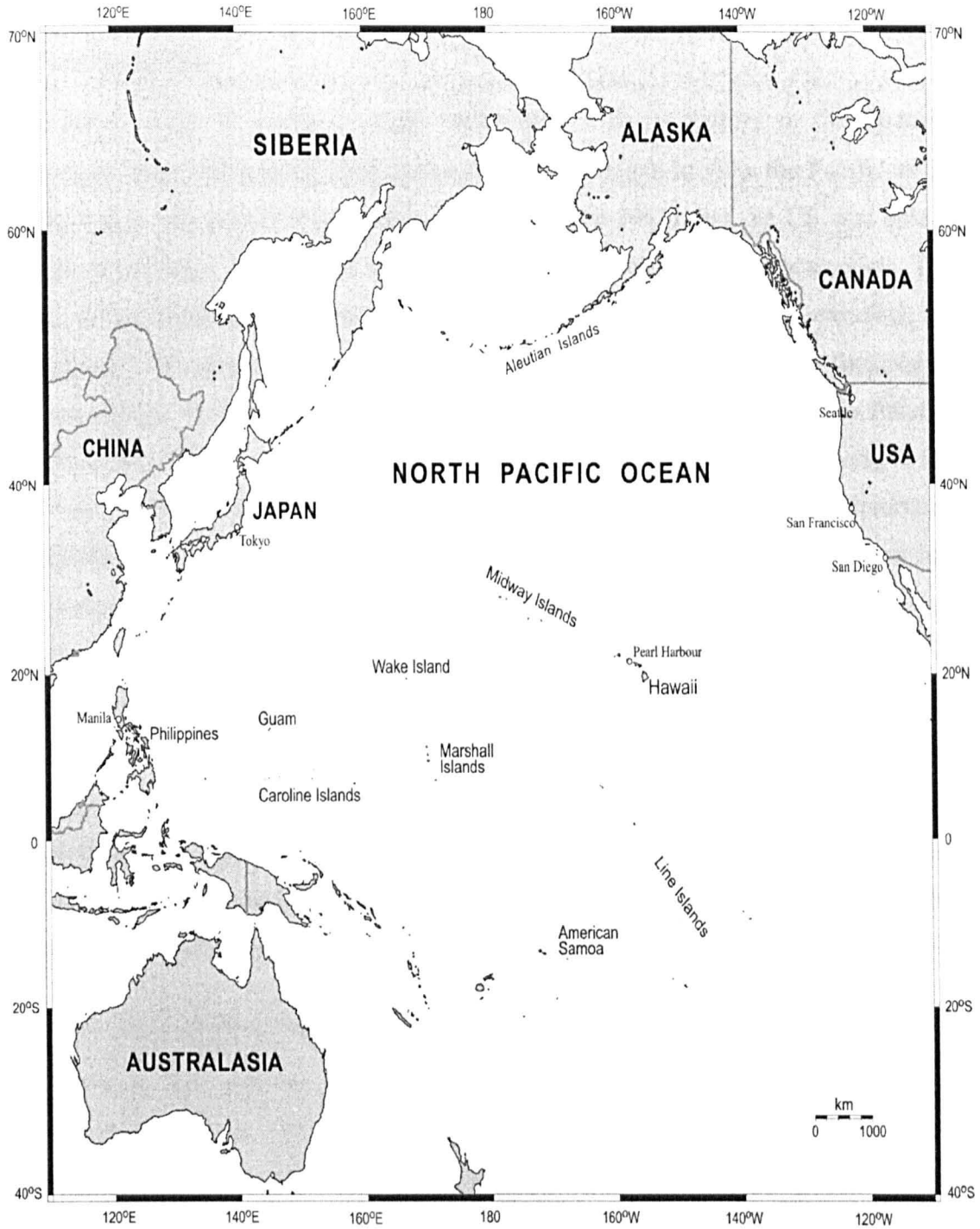

Fig. 1.1. The Pacific[1]

[1] John Garner. Map of the Pacific. (2005. Geography Department. University of Hull).

Chapter 1

A General Introduction

1.1 Introduction

This thesis seeks to prove a single contention: with its victory in the Spanish-American War (1898) the United States of America began to view the Pacific as US space, but it was not until the interwar period (1918-1941) that the US was able to use the technology of airpower to materialise and territorialise this perception. This thesis will examine and analyse a number of aviation related events, documents, and policies of the interwar US (such as the development of the first transpacific commercial air route and the evolution of the US Navy's war plans for the Pacific), to prove the validity of this argument. In order to do this the thesis will be split into two main sections: the first (encompassing chapters 2 & 3) will set out the theoretical framework for this research, and the second (chapters 4-7) will take the form of a number of case studies citing and analysing empirical evidence. The thesis will conclude with Chapter 8, which will draw together the evidence and analysis of the preceding chapters. In the remainder of this introduction, section 1.2 will situate this work in the wider geographical debates of the moment (specifically those covering issues such as the recent re-engagement with concepts of empire and imperialism, the theorisation of the role and place of technologies, and debates concerning perceptions of space and place). Finally, section 1.3 will provide some historical and geographical context for the main body of the research.

1.2 Theoretical positioning

This section will seek to position my thesis within current theoretical debates in human geography. It will discuss and analyse a number of tenets of geographical thought, all of which have formed the framework upon which this thesis is built. Beginning with some comments concerning the key theoretical positioning taken in this work – that of geopolitics and technogeopolitics (section 1.2.1) – this section will discuss (in sections 1.2.2 and1.2.3) the recent growth of interest within the social sciences in technologies – evidenced by paradigms such as actor-network theory (ANT) and studies of science, technology and society (STS). Linked to this is section 1.2.4, in which spatial theories will be discussed. Further to this, section 1.2.5 will

also investigate the current interest in issues of empire and imperialism. Comment will be made, in section 1.2.6, on the recent re-awakening of interest – specifically in light of the World Trade Centre/Pentagon attacks of September 11th 2001 – of the potential 'power' of aircraft, both in terms of absolute power and in terms of their cultural and psychological effects. At its core, this section will situate the theoretical approach taken in this thesis in terms of these other concepts. Thus, this section will begin with some introductory comments on the key concepts of geopolitics and technogeopolitics.

1.2.1 Geopolitics and technogeopolitics

For so long, at least according to Hepple, geopolitics was confined to the wilderness (a theory too dangerous to acknowledge, let alone to espouse) because of its perceived links with Nazi ideology.[1] However, in the final years of the Cold War (and encouraged by the fall of the Berlin Wall and the collapse of communism in Eastern Europe) geopolitics has undergone something of a renaissance.[2] Undertaking a quick search of a well-known internet bookshop brings back over 700 books that purport to be about some aspect of geopolitics.[3] What is perhaps more amazing is that of these, approximately 600 have been published in the last fifteen years, during the new post-Cold War world. Books by authors such as Gerard Toal, John Agnew, Klaus Dodds and David Atkinson, Brian Blouet, Simon Dalby, Peter Taylor and a host of others, published in the last decade or so have re-invigorated geopolitics and sought to catalyse new debates and provoke further discussion about these ideas and their usage.[4] Chapter Two will focus on the history and development of geopolitics,

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[1] Leslie W. Hepple. *The revival of geopolitics*, in Political Geography Quarterly. 1986. Vol. 5. No. 4. Pp. S21-S22. See also, Simon Dalby, David Atkinson & Leslie Hepple. *Classics in Human Geography revisited: Hepple, L. W. The revival of geopolitics*, in Progress in Human Geography. 2001. Vol. 25. No. 3. Pp. 423-430.

[2] John Agnew. Making Political Geography. (2002. Arnold. London). Pp. 133-135. Leslie W. Hepple. (1986). *Op cit. Passim.*

[3] The website in question is Amazon.co.uk, and the search on 'geopolitics' was undertaken on 5th February 2005. Credit for this approach must go to Rachel Woodward who uses a similar technique in the introduction to her book 'Military Geographies', see, Rachel Woodward. Military Geographies. (2004. Blackwell. Oxford). Pp. 4-6.

[4] Amongst the many books published on geopolitics in the last decade are, Gearoid O Tuathail. Critical Geopolitics. (1996. Routledge. London). John Agnew. (2002). *Op cit.* Klaus Dodds & David Atkinson (Eds). Geopolitical Traditions: a century of geopolitical thought. (2000. Routledge. London). Klaus Dodds. Global Geopolitics: a critical introduction. (2005. Pearson. Harlow). Brian Blouet. Geopolitics and Globalisation in the Twentieth Century. (2001. Reaktion Books. London). Gearoid O Tuathail & Simon Dalby (Eds). Rethinking Geopolitics. (1998. Routledge. London). Peter J. Taylor & Colin Flint (Eds). Political Geography: world economy, nation-state and locality. (1999. Longman. London).

but the remainder of this section briefly describes how I became interested in this field.

I first encountered geopolitical theory as an MA International Relations student. It immediately interested me, especially the seeming inclusion of transport technologies in the works of some of the classical writers, such as Halford Mackinder.[5] This appealed to my existing interests in aviation and transport technologies in general. When I began my Ph.D research I was specifically interested in investigating the 'place' of technology in geopolitics and I began to re-read Mackinder and others with a view to understanding their perspectives on the importance of technology in geopolitics.

Less than three months after I began my research an article appeared in *Political Geography* that mirrored my own initial thoughts on geopolitics and technology, and spurred me on to refine my thinking on these issues. The article - David Butler's 'Technogeopolitics and the struggle for control of world air routes, 1910-1928' - is important for two reasons.[6] Firstly, it was the first paper I read that dealt directly with aviation in the interwar period, and secondly and more importantly, it developed the concept of technogeopolitics. As will be discussed in Chapter Two, Butler argues that geopolitics and technology are intrinsically linked, and can be thought of as existing in a "recursive relationship".[7] I was immediately enthralled by this concept and determined to employ it in my research because I thought it would allow me to develop a new perspective on my case studies. However, merely using technogeopolitics – as defined by Butler – fails to provide a concrete framework upon which to conduct empirical research, because Butler doesn't define how the recursive relationship between technology and geopolitics should be actualised, nor is technogeopolitics specific enough to allow detailed analysis of specific incidents. Thus in this thesis I have sought to advance Butler's original idea by developing the concept of the 'technogeopolitical project'.

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[5] For information on Mackinder see Blouet's excellent biography. Brian Blouet. Halford Mackinder: a biography. (1987. Texas A & M University Press. College Station). For a critique of Mackinder's ideas and new perspective on his views see, Gearoid O Tuathail. *Putting Mackinder in his place: material transformations and myth*, in Political Geography. 1992. Vol. 11. No. 1. Pp. 100-118.

[6] David Butler. *Technogeopolitics and the struggle for the control of world air routes, 1910-1928*, in Political Geography. 2001. Vol. 20. Pp. 635-658.

[7] David Butler. (2001). *Ibid.* p. 637.

Using this concept (which will be discussed in more detail in Chapter 2) will allow me to concretise Butler's idea of technogeopolitics into a more tangible 'project' that analyses a number of processes and mechanisms that contribute to the existence of the recursive relationship at the heart of Butler's concept. In my thesis, the technogeopolitical project will analyse several definite processes and mechanisms used by the US to project power across the Pacific. Whilst not attempting to be a model for this process, this employment of technogeopolitics in the form of a 'project' does give significant advantages to the concept as used by Butler (as will be discussed in Chapter 2), and indeed adds value to his original idea.

Whilst technogeopolitics is the theory that I have chosen to use, there are a number of others that address the place of technology within the human world. The following two sub-sections will discuss two of the main strands of this debate. However, it is also necessary to examine technological determinism. Perhaps more a critique than a theory, this argues that technology is imbued with a level of 'power' and events, such as the Industrial Revolution, should be understood as being fuelled by developments in technologies, not in terms of the use of technologies by people.[8] However, this argument is flawed because it fails to acknowledge that it is people who are responsible for creating and advancing such technologies and are thus ultimately liable for the effects that these technologies may have. A more recent approach to technology is actor-network theory. The following sub-section discusses both this theory, and the issue of technological determinism, and seeks to explain why neither are used in this thesis.

1.2.2 Actor Network Theory

Whilst Butler's technogeopolitics does feature as the central theoretical framework of this work, I am also aware of the similarities between technogeopolitics and actor-network theory (ANT).[9] Indeed, I accept that I will be guilty of appropriating ANT

[8] For more information on technological determinism see, Daniel Chandler. Technological or Media Determinism. (1995). http://www.aber.ac.uk/media/Documents/tecdet/tecdet.html. Accessed 5th February 2005.

[9] John Law & John Hassard. Actor Network Theory and After. (1999. Blackwell Publishers. Oxford). One of the key thinkers in actor-network theory is Bruno Latour. His forthcoming book 'Reassembling the Social' and his 1996 volume 'Aramis, or the Love of Technology' provide useful introductions to this field. Bruno Latour. Reassembling the Social: An introduction to actor-network

terms throughout this thesis. However, it must be stressed that whilst I will use the word 'actor' in this work I do so more through a lack of other term rather than as tacit usage of ANT. Whilst I can see the potential of ANT in certain situations, I do not believe that it is the appropriate theory for this work for a number of reasons.

The first is that ANT seeks to understand the relationship between human and non-human 'actors' in the world from a societal and sociological viewpoint.[10] Related to this is the recent trend in cultural geography to use ANT to analyse human-animal, and human-nature relations.[11] However, in this thesis I seek to interrogate the place of these relationships in the political and geo-political landscape. My work is concerned solely with understanding how humans have *used* technology to materialise space and place, thus because I attribute no agency to the technology, this new trend in ANT has little relevance to my work. Another reason for not using ANT is related to the way in which technology will be constructed in this thesis. As Ian Bowler notes, ANT views "human and non-human actors [as] having equal status."[12] However, I view technology – which in the case of this thesis is aviation – as a 'tool' that is developed, and used, by humans. Thus, it is the people who create the aircraft and develop uses for them, that are more important to me. I am interested in the politics of people, corporations and government agencies, and it is on these that my thesis focuses. In addressing this relationship in this way I seek to highlight the inherently political uses of these 'tools' rather than their sociological nature. Linked to this is my wish to look specifically at geopolitical constructions of space, which again reinforces the political nature of my approach, thus making a technogeopolitical framework more suited to this research than any other theory. I see ANT as less interested in the technological advances than in the social actions they produce, whereas technogeopolitics is interested in the advances themselves and

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theory. (2005. Oxford University Press. Oxford). Bruno Latour. Aramis, or Love of Technology. (1996. Harvard University Press. Harvard).

[10] Peter Jackson. Rethinking the Social, in Kay Anderson, Mona Domosh, Steve Pile, & Nigel Thift (Eds). Handbook of Cultural Geography. (2003. Sage Publications. London). Pp. 37-38.

[11] See, for example, Sarah Whatmore. Hybrid Geographies: natures, cultures, spaces. (2002. Sage Publications. London). Noel Castree. Geographies of Nature in the Making, in Kay Anderson, Mona Domosh, Steve Pile, & Nigel Thift (Eds). (2003). *Op cit.* Pp. 168-183. Jennifer Wolch, Jody Emel, & Chris Wilbert. Reanimating Cultural Geography, in Kay Anderson, Mona Domosh, Steve Pile, & Nigel Thift (Eds). (2003). *Ibid.* Pp. 184-206.

[12] Ian Bowler. Rural Alternatives, in Peter Daniels, Michael Bradshaw, et al. An Introduction to Human Geography: issues for the 21st Century (second edition). (2005. Pearson Education. Harlow). p. 232. See also, Sarah Whatmore. (2002). *Op cit.* Pp. 35-58.

their use by humans. Indeed, the potential of the technogeopolitical project concept allows me to sidestep ANT here. In section 2.7. I will set out this concept in detail, and show why it is the approach most suited to understanding the US's use of aviation to materialise the Pacific as US space during the interwar period.

Although I have decided against using ANT, it could be argued that the comments made above, in defence of my decision could make me appear somewhat technologically deterministic in approach. However, I refute this charge. My perception of technology as a 'tool' is, I argue, the complete opposite of the ideas of technological determinism. Thus, this sub-section has explained why I have chosen not to use ANT, even though I am guilty of appropriating its terms on occasion. The following sub-section examines the studies of 'science, technology and society', another thread within contemporary human geography that seeks to understand the place of technology within our modern world.

1.2.3 Science, Technology and Society

As discussed in the previous sub-section, in recent years technology has become increasingly recognised within geography as an 'actor' in the construction of space and place, and this thesis aims to develop these concepts further.[13] One theoretical framework that has been developed to understand this is Science, Technology and Society (STS), which emerged in the late 1960's.[14] STS, as Cutcliffe defines it, has,

> "its primary focus [on] the explication and analysis of science and technology as complex societal constructs with attendant societal influences entailing a host of epistemological, political, and ethical questions."15

Hinchliffe and others have emphasised the importance of understanding the social context in which a technology is developed, as being a factor in shaping this development.[16] Indeed, Cutcliffe argues that science and technology should be perceived as being

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[13] See, for example, Hinchliffe's work on the role of electricity provision in Scandinavia. Steve Hinchliffe. *Technology, power, and space-the means and ends of geographies of technology*, in Environment and Planning D: Society and Space. 1996. Vol. 14. Pp. 659-682.

[14] Stephen H. Cutcliffe. Ideas, Machines and Value: an introduction to science, technology and society studies. (2000. Rowman & Littlefield Publishers, Inc. Oxford). p. VII. Stephen H. Cutcliffe & Carl Mitcham (Eds). Visions of STS: counterpoints in science, technology, and society studies. (2001. State University of New York Press. Albany). Pp. 2-3.

[15] Stephen H. Cutcliffe. (2000). *Op cit.* p. VIII.

[16] Steve Hinchliffe. (1996). *Op cit.* p. 663. Michael Gibbons & Philip Gummett (Eds). Science, Technology, and Society Today. (1984. Manchester University Press. Manchester). Passim. Wiebe E

> "value-laden social processes taking place in specific historical contexts shaped by, and in turn shaping, the human values reflected in cultural, political, and economic institutions."17

This is an important point because the theoretical framework of this thesis makes the connection between society and the technology developed within it implicit. The recursive nature of the relationship between technology and geopolitics (a social construction) is at the forefront of Butler's technogeopolitical theory. Kirsch has also written on "the role of technology in the transformation of space."[18] He argues that,

> "whether a new technology is driven by economic, military-strategic or even 'purely scientific' motives, it is subject to a variety of influences during its innovation, diffusion, regulation, and stabilisation in society."[19]

Given the speed with which aviation technologies advanced during the interwar period, these ideas of a time lag between invention and integration into society, during which processes of adaptation occur, are pertinent to this thesis.[20]

However, STS has been criticised from a number of different directions.[21] One of the biggest of these criticisms has come from the scientific community itself, which has argued against STS's perception that scientific knowledge is socially constructed rather than being "based on reason and empirical evidence".[22] In relation to my thesis, this is an interesting argument, because one of my key tenets is that advances in aviation technology were influenced by external factors, such as government and commercial interests, strategic necessities and financial concerns, and that pure scientific objectivism was not the key determinant of progress.

I have to acknowledge that in many ways STS does provide a viable theoretical lens with which I could develop this thesis. In its desire to understand the inter-relations

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Bijker, Thomas p. Hughes & Trevor J. Pinch (Eds). The Social Constructions of Technological Systems: new directions in the sociology and history of technology. (1987. The MIT Press. London). *Passim.*

[17] Stephen H. Cutcliffe. (2000). *Op cit.* p. VIII.

[18] Scott Kirsch. *The incredible shrinking world? Technology and the production of space*, in Environment and Planning D: Society and Space. 1995. Vol. 13. p. 529.

[19] Scott Kirsch. (1995). *Ibid.* p. 535.

[20] Scott Kirsch. (1995). *Ibid.* p. 535.

[21] For an interesting critique of STS written by STS scholars themselves see, Stephen H. Cutcliffe & Carl Mitcham (Eds). (2001). *Op cit. Passim.*

[22] Stephen H. Cutcliffe. (2000). *Op cit.* p. 61. Cutcliffe cites the example of Gross & Levitt's 1994 book in which they argue that science is an objective enterprise that is little influenced by society. See, Paul Gross & Norman Levitt. Higher Superstition: the academic left and its quarrels with science. (1994. The Johns Hopkins University Press. Baltimore).

between technology and society STS mirrors my own perspectives closely. However, whilst I am aware of its potential, I still prefer the technogeopolitical project and I will use this thesis to explore its potential.

1.2.4 Issues of place and space

Related to ideas of the 'geopolitical', issues of place and space have also continued to occupy the centre of geographical debate over recent years. This sub-section will position this thesis within these debates by addressing the development of ideas about territorial space as spatial theory. This will be done with specific reference to the Pacific as oceanic space, and the technological aspects of spatial theories.

In his 2001 book Philip Steinberg noted that, "relatively little research has been conducted on the historical geography of the ocean as a space."[23] He identified two traditional ways in which oceanic space has been conceived from a strategic viewpoint: "as a surface for troop movement and as a battlefield."[24] Importantly Steinberg develops his battlefield idea, into a "force-field".[25] This he defines as being not only a "space in which battles are waged but also a space across which power is projected."[26] This idea of power projection will be of central importance in this thesis. Steinberg also acknowledges the inherent politicisation of oceanic-space, and in line with his argument I argue that "spaces are both arenas and outcomes of politics", and that Pacific space should be re-conceptualised to,

> "include not only a history of conflicts ... but also a history of how various social forces or actors [in the case of this research these are identified as US strategic and governmental bodies] have attempted to have their interests represented through constructions of the space."[27]

Thus, I argue that projection of power was a crucial facet of the US's construction of the Pacific as US space and is linked to Steinberg's 'force-field' conceptualisation.

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[23] Philip Steinberg. The Social Construction of the Ocean. (2001. Cambridge. Cambridge University Press). p. 10.
[24] Philip Steinberg. (2001). *Ibid.* p. 16.
[25] Philip Steinberg. (2001). *Ibid.* p. 17.
[26] Philip Steinberg. (2001). *Ibid.* p. 17.
[27] Steinberg, Philip. (2001). *Ibid.* p. 28.

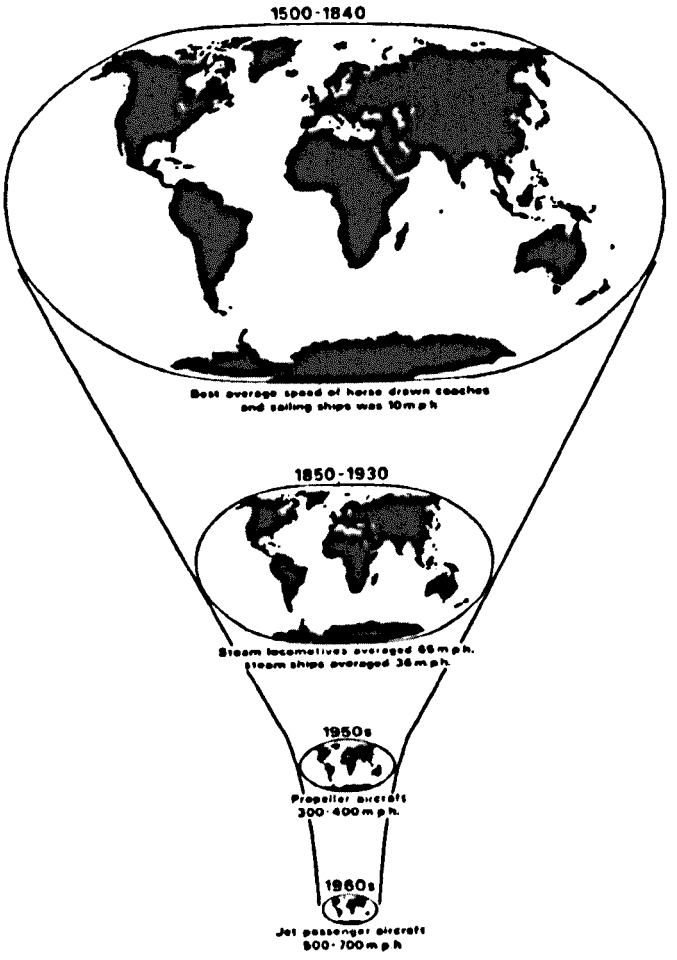

Fig. 1.2.1. The space-time compression effects of advances in transport technologies[28]

Linked to Steinberg's ideas about the construction of space, are those concerned with the theory of space-time compression enunciated by David Harvey.[29] This concept is related to ideas of the closure of space, but is also concerned with developments in technology (see Fig 1.2.1).[30] Harvey defined the phenomenon as being a collection of "processes that so revolutionise the objective qualities of space and time that we are forced to alter, sometimes in quite radical ways, how we represent the world to

[28] David Harvey. (1989). *Ibid.* p. 241. Harvey takes this diagram from Peter Dicken. Global Shift. (1998. Paul Chapman Publishing. London).

[29] David Harvey. The Condition of Postmodernity. (1989. Oxford. Blackwell).

[30] The closure of space is a phenomenon which appeared in the late Victorian period, when for the first time, there were no 'unexplored' parts of the world. Thus, the globe was a closed entity, which was known in its entirety. This created certain anxieties that inspired many of the early geopolitical theorists.

ourselves."[31] Further, he highlights the concept that space can be known and therefore 'conquered' by society.[32] As Harvey states,

> "the conquest and control of space, for example, first requires that it be conceived of as something usable, malleable and therefore capable of domination through human action."[33]

Harvey views geopolitics in the modern period as being fully intertwined with space-time compression and argues that as technological developments allowed the faster traverse of space, so the strategic and political importance of this space increased.[34] Equally significant, he argues, were changing perceptions of space.[35]

Further to this, I argue that the airpower revolution of the twentieth century has altered the perception of space-time relations and thus impacted upon geopolitical thinking more than any other technological innovation. Importantly, and inter-linked with this, Harvey poses the following question;

> "Were there...strategic spaces within the new globalisation of trade and politics, the command of which would confer favoured status upon particular peoples?"[36]

In the first half of the twentieth century, I argue that the Pacific was one of these spaces. Thus, in asking questions about how advances in transpacific aviation affected US territorialisation of the Pacific, this thesis shows an awareness of the importance of space-time compression (as a concept useful in understanding how the Pacific was perceived as US space) because of the effect on perceptions of both time and space that air travel could provoke.

1.2.5 Issues of Empire and Imperialism

In recent years, there has been a resurgence of interest in what might loosely be termed 'the geographies of empire.' This has taken two forms, both of which have informed this research specifically because of how they have allowed the US to be

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[31] David Harvey. (1989). *Ibid.* p. 240. Kirsch further defines space-time compression as incorporating "the material practices which transform the objective qualities of time and space...and also the changes in how we represent the world to ourselves." Scott Kirsch. (1995). *Op cit.* p. 531.
[32] David Harvey. (1989). *Op cit.* p. 246.
[33] David Harvey. (1989). *Ibid.* p. 254.
[34] David Harvey. (1989). *Ibid.* Pp. 273-5. Here Harvey identified Ratzel, Vallaux, Mackinder, and Mahan as geopolitical theorists who "recognised the significance of command over space as a fundamental source of military and political power." Pp. 273.
[35] For example note the importance he gives the perceived 'shrinking' of the world by the developments in aviation technologies in Plate 3.1, which show the biggest inroads, in terms of speed and perceived 'shrinkage', being made in the shortest period of time.
[36] David Harvey. (1989). *Ibid.* p. 275.

perceived as an 'empire'.[37] This sub-section will seek to introduce both of these forms and ascertain how this thesis 'fits' into these paradigms.

The first of these 'forms' is the critical re-assessment of the imperial 'projects' of the British Empire, and its contemporaries. Books, such as Anne Godlewska and Neil Smith's 'Geography and Empire' were amongst the first to include critical engagements with the ways that 'colonial projects' had been undertaken, and the role and place of geography within these.[38] In the last few years, this interest in re-problematising imperialism, and postcolonialism more generally, has witnessed the publication of several increasingly diverse books. Amongst others, Felix Driver's book 'Geography Militant' focuses on the "cultures of exploration and empire", Schwartz & Ryan's edited volume 'Picturing Place' analyses the importance of the visual records of the 'colonial project', and Klaus Dodds' book, 'Pink Ice', has sought to understand the geopolitics of the UK's relationship with its "South Atlantic Empire".[39] Indeed, Dodds' book is of particular relevance to this thesis. It considers the geopolitics and geostrategies adopted by an imperial power (the UK) to project its power across a vast expanse of ocean (the Atlantic) to continue to materialise a group of islands (the Falklands, and South Sandwiches amongst others) as British space.[40] Further to this, Neil Smith's recent book on the life of American political geographer Isaiah Bowman adds another impressive dimension to this growing genre, with an insightful volume that sheds new light on the geopolitics within the US's interwar administrations.[41] This thesis will seek to follow the trend developed in these publications by undertaking a critical assessment of how the US perceived its place in the Pacific, and how this perception was inscribed in documents of the time. For example, Chapter 6 will seek to analyse a number of

[37] In recent years a number of commentators have sought to argue that the US is at present, and may have been in its past, an empire or at least imperialistic in its tendencies. A good introductory volume on this can been found in Niall Ferguson. Colossus: the rise and fall of the American Empire. (2004. Penguin. London). An older, but perhaps more academic treatment of the same arguments, which considers the US in a longer time frame, can be found in Richard W. Van Alstyne. The Rising American Empire. (1974. W. W. Norton & Co. New York).

[38] Anne Godlewska and Neil Smith (Eds.) Geography and Empire. (1994. Blackwell. Oxford) For more comment on the history of geography and the imperial project see, David Livingstone. The Geographical Tradition. (1992. Blackwell. Oxford). Pp. 216-259.

[39] Felix Driver. Geography Militant. (2001. Blackwell. Oxford). J. Schwartz & J. Ryan (Eds.) Picturing Place: photography and the Geographical imagination. (2003. Taurus. London). Klaus Dodds. Pink Ice: Britain and the South Atlantic Empire. (2002. I. B. Tauris. London). Pp. 21-22.

[40] Klaus Dodds. (2002). *Ibid. Passim.*

[41] Neil Smith. American Empire: Roosevelt's geographer and the prelude to globalisation. (2003. University of California Press. London).

'imperial' surveys of the Pacific, undertaken by the US Navy, that include both textual and visual documentation.

The second form that recent debates on 'empire' and 'imperialism' has taken is that concerned with critiquing the increasingly 'imperialistic' foreign policies of the Administrations of the post-Cold War United States.[42] Beginning in the 1990's and intensifying since the attacks of 11th September 2001, many commentators have increasingly questioned the US's progressively more interventionist roles overseas. Michael Ignatieff discusses the US and international communities attempts to understand,

> "the conflict at the heart of the nation-building enterprise everywhere, between the imperial interests of the intervening powers, chiefly the Americans, and the local interests of the local people and their leadership to rule themselves."[43]

Ignatieff and his contemporaries have sought to use the terms associated with the Empires of the eighteenth and nineteenth centuries to describe the US of the twenty-first century. Similarly, Gregory has recently questioned the Bush administration's 'monochromatic' view of the world.

> "what else is the war on terror other than the violent return of the colonial past, with its split geographies of 'us' and 'them,' 'civilisation' and 'barbarism,' 'Good' and 'Evil'?"[44]

In 'The Colonial Present' Gregory uses both historical and contemporary examples from Iraq, Afghanistan, and Palestine to illustrate his argument that, since 9/11 the US has taken an increasingly interventionist role against states it perceives as 'evil'.[45] In identifying what he describes as these "imagined geographies" of difference, Gregory argues that the US has found a justification for its current 'imperial' project.[46]

David Harvey has also added to this debate, arguing that the US has used what he terms a mixture of the logics of "the territorial and the capitalist" in order to become

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[42] Stephen Howe. Empire: a very short introduction. (2002. Oxford University Press. Oxford). p. 116.
[43] Michael Ignatieff. Empire Lite: nation-building in Bosnia, Kosovo and Afghanistan. (2003. Vintage. London). p. vii.
[44] Derek Gregory. The Colonial Present. (2004. Blackwell. Oxford). p. 11.
[45] Derek Gregory. (2004). *Ibid.*
[46] Derek Gregory. (2004). *Ibid.* Pp. 255-256.

increasingly dominant.[47] In the context of this thesis, this concept of separating the logic of territory from the logic of capital (borrowed by Harvey from Arrighi) is significant because it will be argued throughout that the US was motivated by strategic and geopolitical concerns (the logic of territory), rather than financial and market concerns (the logic of capital) in its desire to materialise the Pacific as US space.[48] Indeed, I argue that one of the most important facets of this thesis is its concentration on the strategic and territorial factors that motivate a state to expand imperially, as opposed to the position of writers such as Harvey, that take more Marxist 'logic of capital' approach to empire.

From the perspective of this thesis, the link between these current debates on empire and the US, and the US's history, is hugely important. Of specific significance is the following quote from Ferguson's 2004 book 'Colossus: the rise and fall of the American Empire' in which he argues that,

> "the United States had only briefly flirted with [a] formal empire, beginning with the annexation of the Philippines on 1898 and ending [in] the 1930's."[49]

Thus, the renewed interest in the concept of Empire, and arguments (as espoused by Harvey, Gregory, and Ferguson amongst others) that the US is now an imperial power can be viewed in light of the contention that, during the period covered in this thesis, the US had an empire, and acted accordingly in the Pacific.[50] Therefore, this thesis will seek to provide insights into how this was manifested in the interwar period of the twentieth century, thus allowing us to compare and contrast the US's approach to 'empire' in the twenty-first century.

This sub-section has sought to provide an overview of some recent debates concerning issues of empire, including the re-problematisation of geography in the 'colonial projects' and 'imperial surveys' of the eighteenth and nineteenth centuries, and the revival of ideas of imperialism surrounding post-Cold War US Administrations. I have argued that this thesis fits into these debates, and with its

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[47] David Harvey. The New Imperialism. (2003. Oxford University Press. Oxford). Pp. 27-30.
[48] Harvey borrows these terms from, G. Arrighi. The Long Twentieth Century: money, power, the origins of our times. (1994. Verso. London).
[49] Niall Ferguson. (2004). *Op cit.* p. 8.
[50] David Harvey. (2003). *Op cit.* Niall Ferguson. (2004). *Op cit.* Derek Gregory. (2004). *Op cit.*

focus on the US's "formal empire" can add to them.[51] The following sub-section will look at another facet of this thesis – air power – and consider how this research has been informed by, and can add to, the current renewed interest in aviation.

1.2.6 Air Power

In this thesis, I use the terms 'air power' and 'aviation' interchangeably.[52] Chapter Three will undertake a detailed analysis of air power, its characteristics, and history of its theories, but in this introductory chapter it is necessary to comment upon where this thesis fits into newly 'aviation aware' geographies. In terms of popular culture, phrases such as 'shock and awe' (used to describe the US's devastating aerial bombardment of Iraqi cities – chiefly Baghdad – in March/April 2003) paint a visual 'imagined geography' of the potential of aviation to project power over vast distances.[53] I seek to argue that, in many ways flights, such as Pan American Airways' (Pan Am) inaugural transpacific flight in November 1935 (detailed in Chapter Seven) are not so different from 'shock and awe'. The planning, development of aircraft and intense media interest that accompanied both these events seem remarkably similar, as indeed do their *raison d'être*. 'Shock and awe' was intended to show the watching world that the US, through its superior air power, could project its power and will across the world. I argue that the Pan Am flights, and especially the US Government's links to them, can be thought of in the same terms (see Chapter Seven).

1.3 Historical and Geographical Contexts

This section will explain the key historical, geographical and technological contexts of this thesis, and seeks specifically to understand my interest in them as a basis for this research. Unlike some Ph.D theses - which exist as part of larger 'supervisor-run' projects - I have been the motivating factor behind the development of this research, and indeed wrote the research funding proposal myself. Thus, I have personal reasons for my choice of research, many of which are detailed in this section. In addition, this section also provides background, and contextual information, in which to situate the subsequent chapters.

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[51] Niall Ferguson. (2004). *Op cit.* p. 8.
[52] See Chapter 2 for a more detailed discussion of the definition of airpower.
[53] Harlan K. Ullman & James Wade. Shock and Awe: achieving rapid dominance. (1996. National Defence University. Washington DC).

1.3.1 The concept of the Frontier

This sub-section will examine the idea of the Frontier – an intangible boundary which, according to some, the US has constantly sought to move ever westward. From its inception as a sovereign nation though to the late nineteenth century, the US was pre-occupied with its internal expansion: developing the mid-west, the vast prairie lands and moving across the Rockies to the coasts of California and the Pacific Northwest.[54] During this period much was written on how the West was being 'won' by US pioneers, but less was penned about what would happen when the US achieved a closure of space. Still less focussed on the place of the Pacific in relation to this advancing frontier.[55] Amongst those writing during this period was Frederick Jackson Turner.[56] In his 1894 article entitled 'The Significance of the Frontier in American History' Turner "called attention dramatically to the passing of the American frontier", defining the history of the US as being that of an ever growing, expanding nation almost dependent on its internal expansion, to power its' social and economic development, which was now at an end.[57]

> "This perennial rebirth, this fluidity of American life, this expansion westwards with its new opportunities, its continuous touch with the simplicity of primitive society, furnish the forces dominating American character."[58]

Turner characterised this as an enduring trait in American society, industry and politics: a desire, and almost a need, to expand over the next horizon, calling the frontier the "line of the most rapid and effective Americanisation."[59] Turner highlights the significance of the closure of space, with the completion of westward

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[54] See, Frederick Jackson Turner. The Significance of the Frontier in American History, in Roger Kasperson and Julian Minghi (Eds.). The Structure of Political Geography. (1970. London. University of London Press). Pp. 132-139. For more information on the US's internal expansion see, Hugh Brogan. The Penguin History of the United States. (1990. Penguin. London). Pp. 224-255.

[55] Frederick Jackson Turner. The Significance of the Frontier in American History, in Roger Kasperson and Julian Minghi (Eds.). (1970). *Op cit.* Pp. 132-139.

[56] For anthologies of Turner's works see, Ray A. Billington (introduction to). Frederick Jackson Turner. Frontier and Section. (1961. Englewood Cliffs. Prentice Hall Inc). Wilbur Jacobs (introduction to). Frederick Jackson Turner. America's Great Frontiers and Sections. (1969. Lincoln. University of Nebraska Press). For analyses of these works see, Hofstadter, Richard & S. M. Lipset. (Eds.) Turner and the Sociology of the Frontier. (1968. London. Basic Books Inc).

[57] James Malin. *Reflections on the Closed Space Thinking of Turner and Mackinder and the Challenge of Those Ideas by the Air Age, Part I*, in Agricultural History. 1944. Vol. 18. p. 65. Frederick Jackson Turner. The Significance of the Frontier in American History, in Roger Kasperson and Julian Minghi (Eds.). (1970). *Op cit.* Pp. 132-139.

[58] Frederick Jackson Turner. The Significance of the Frontier in American History, in Roger Kasperson and Julian Minghi (Eds.). (1970). *Ibid.* p. 133.

[59] Frederick Jackson Turner. The Significance of the Frontier in American History, in Roger Kasperson and Julian Minghi (Eds.). (1970). *Ibid.* p. 133.

expansion, in the latter part of the nineteenth century.[60] More recently, both Malin and Kearns have argued that, in Britain, Halford Mackinder was also concerned with this new closed-world dynamic, which will be discussed in more detail in Chapter 2.[61]

The significance of the frontier concept is its focus on the desire to move ever westwards, inevitably reaching the Pacific coast. This is important as it is evidential of the US's wish to continually expand. Indeed, as Slater notes,

> "territorial expansion was an intrinsic part of United States expansion during the nineteenth century, [but] the Spanish-American War of 1898 bought in its wake a qualitatively different form of expansion that entailed the acquisition or control over territories that were not contiguous."[62]

Thus, in this thesis, I will argue that rather than stopping at the Pacific, the US (once it had gained its western Pacific territories in 1898) sought to move its frontier across the Pacific to encompass its newly acquired (non-contiguous) lands and project its power across the region.[63]

Linked to these concepts is the idea of individual nation-states having spaces over which they had a controlling interest, or were the hegemonic power. The development of these 'spheres of influence' preceded the global trading explosion of the nineteenth century, but the improvements in transport and military technology of the 'modern' period allowed these spheres to spread further into previously 'uncharted' areas across the globe. The Royal Navy's impact on the growth of the British Empire as a sphere of influence is an example of this.[64] The US had long held ties with Europe through their common Atlantic border, through migration, trade, and the US's origins as colonies of the European Powers. However, the Pacific was

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[60] Frederick Jackson Turner. The Significance of the Frontier in American History, in Roger Kasperson and Julian Minghi (Eds.). (1970). *Ibid.* p. 133.

[61] Mackinder's work is analysed in detail below. See James Malin. (1944). *Op cit.* p. 65. Gerry Kearns. Closed Space and Political Practice: Frederick Jackson Turner and Halford Mackinder. (1981. Liverpool. Liverpool Papers in Human Geography).

[62] David Slater. Locating the American Century: themes from a post-colonial perspective, in David Slater and Peter J. Taylor. The American Century: Consensus and coercion in the projection of American power. (1999. Blackwell. Oxford). p. 22.

[63] The US gained the territories of the Philippines and Guam under the Treaty of Paris after the 1898 Spanish-American War. See Chapter 4 for more information on this.

[64] For more information on the importance of the Royal Navy in the development and maintenance of the British Empire see, Niall Ferguson. Empire: how Britain made the modern world. (2004. Penguin. London). *Passim.*

much more 'unknown', and until the effects of space-time compression began to take effect in the latter stages of the nineteenth century, it was considered a space too large to traverse.[65] However, with the incorporation of acts, such as the 1823 Monroe Doctrine, which identified the US as 'guardian' over the western hemisphere, including its oceanic territory, engagement with the Pacific as a US sphere of influence was developing, albeit in a rather piecemeal way.[66]

Writing at the end of the nineteenth century, Alfred Thayer Mahan was an American naval officer who analysed the history of sea-borne warfare and commerce.[67] In perhaps his most famous book 'The Influence of Sea Power upon History' published in 1890, he set out his six geographical concepts, which he argued ultimately bore out his view that sea power, and not land power, was in the ascendancy.[68] Mahan's major thesis was that nations needed to pursue control of the sea. This is particularly important in the context of this thesis as much of his writing was required reading for the naval planners who would construct the US's strategic vision of the Pacific during the first decades of the twentieth century.[69] However, as Cohen has pointed out, Mahan had an Atlantic bias, and viewed the US's "Pacific shore lands and islands [as mere] extensions of the Atlantic-orientated European realm" which may have hindered the US's development of the Pacific as a separate space.[70] Thus Mahan's work skewed the idea of the US's sphere of influence away from the Pacific, causing tension with the Monroe Doctrine (which argued for hemispheric hegemony), and the developing Pacific oriented policies of the 1904 'Open Door' Act (that gave benefits for American trade with China).[71]

This sub-section has sought to introduce a number of ideas and concepts concerning the frontier and 'command' of space. It is important to be aware of the writings of

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[65] David Harvey. (1989). *Op cit.* p. 275.
[66] Hugh Brogan. (1990). *Op cit.* Pp. 261-262.
[67] Walter Livezey. Mahan on Sea Power. (1954. Norman. University of Oklahoma Press). Alfred Thayer Mahan. The Interest of America in Sea Power. (1898. London. Sampson Low, Marston & Co). Alfred Thayer Mahan. The Influence of Sea Power upon History. (1890. London. Sampson Low, Marston & Co). For a recent reassessment of Mahan's work see, Jon Sumida. Inventing Grand Strategy and Teaching Command. (1997. Johns Hopkins University Press. Baltimore).
[68] Alfred Thayer Mahan. (1890). *Op cit.*
[69] George Baer. One Hundred Years of Sea Power. (1994. Stanford. Stanford University Press). Pp. 1-2. See Chapters 5 & 6 for more information on this.
[70] Saul Cohen. Geography and Politics in a World Divided. (1963. New York. Random House). p. 93.
[71] Hugh Brogan. (1990). *Op cit.* Pp. 450-1. The Open Door Policy gave advantageous trading conditions to US companies that traded goods with China.

figures such as Turner and Mahan because many of the politicians, bureaucrats, adventurers, and businessmen whose work will be analysed in subsequent chapters would undoubtedly have been aware of them too. Further to this, the importance of the idea of the frontier, and the US's historical ties to the pioneering spirit, also need to be understood, in order to provide a context for the existence of a desire to materialise and territorialise the Pacific as US space. The following sub-section will outline the reasons for choosing the geographical area examined in this thesis.

1.3.2 The Pacific

As an MA student I took several courses that examined the US's foreign policy and geopolitical posturing during the twentieth century, but not one of these courses analysed the US's Pacific geopolitics. Instead, they all focussed on NATO, the 'special relationship' with the UK, and the US's 'Atlanticist' bias. This neglect of the US's geostrategic positioning vis-à-vis the Pacific led me to write my MA dissertation on the US Navy and its' role in developing the Pacific into what Hayes, Zarsky, and Bello called an "American Lake".[72] I argued that this failure to acknowledge the Pacific as an important space for the US, and one over which the US could extend territorial control, has led to the Pacific being under researched and under acknowledged within many academic debates. A recent example of this can be found in Neil Smith's book, in which he has provided a telling example of the lack of analysis of the place and role of the Pacific within the development of the US as a global superpower.[73] In his 462 page volume on the "American Empire", Smith's comments on the US's Pacific geopolitics run to only a handful of pages.[74] This is surely a damming indictment of how the US's geopolitical ambitions have been viewed with extreme Atlanticist bias. However, the evolution of the US's 'practical' construction of the Pacific as US space has undergone significant development during the twentieth century, and therefore one of the aims of this thesis is to acknowledge this gap in the literature and begin to redress this imbalance.

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[72] Peter Hayes, Lyuba Zarsky, and Walden Bello. American Lake. (1986. Penguin. Harmondsworth). Alison Williams. From Defensive to Offensive: the development of United States naval security strategies in the Pacific during the Twentieth Century. (1999. Unpublished MA Thesis. Keele University).

[73] Neil Smith. (2003). *Op cit.*

[74] Neil Smith. (2003). *Ibid.* Some of the most pertinent pages concerned are; Pp. 364-365, where Smith discusses Isaiah Bowman's wish to decolonise a number of Pacific island territories after WWII, whilst still retaining the Japanese Mandates for the US, and Pp. 409-410, where Smith again discusses the issue of decolonisation, but comments on the US's desire to develop military bases on a number of islands, and the ability to use airfields for Pan American Airways operations.

The Pacific has long been an important region for the US, as a brief history and analysis of the US's 'place' in the Pacific shows. The US first became interested in the Pacific as early as 1790 "when American vessels began rounding Cape Horn".[75] During the 19th century "American merchantmen, whalers, and surveying and mapping expeditions,...and guano operators" increased the US's knowledge of, and interest in, the Pacific.[76] However, it was not until 1898 that the US truly established itself as a Pacific power. In that year, the US was victorious in the Spanish-American War and gained the territories of Guam and the Philippines as part of the peace settlement (for a more detailed analysis of the outcomes of the Treaty of Paris, which concluded this conflict, see Chapter 4).[77] In the same year, the US formally annexed Hawaii as a US Territory.[78] Thus by the beginning of the Twentieth Century the US found itself with what Ferguson has termed a "formal [Pacific] empire", and a need to re-orient its foreign and security policies to take account of these new possessions.[79] In examining how these island territories became so significant to the US's ability and desire to project its power across the Pacific, this thesis also shows an awareness of current research in human geography that seeks to re-problematise the place and role of islands within imperial projects.[80]

Developments such as the Open Door Policy (1904), which made Chino-US trading easier, suggest that the US was quick to understand the potential of this new found

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[75] S. Whittemore Boggs. *American Contributions to Geographical Knowledge of the Central Pacific*, in The Geographical Review. 1938. Vol. XXVIII. No. 2. p. 177. Nathaniel Philbrick. The Heart of the Sea. (2001. HarperCollins. London). Robert E. Johnson. Thence Round Cape Horn: the story of the United States naval forces on Pacific station, 1818-1923. (1963. US Naval Institute Press. Annapolis).

[76] S. Whittemore Boggs. (1938). *Op cit.* No. 2. p. 177. For information on US whaling in the Pacific see, Nathaniel Philbrick. (2001). *Op cit.* For more information on the US's most important Pacific surveying expedition see, Nathanial Philbrick. Sea of Glory: the epic South Seas Expedition 1838-1842. (2004. HarperCollins. London). For more information on the US Navy's presence in the Pacific see, Robert E. Johnson. (1963). *Op cit.*

[77] Hugh Brogan. (1990). *Op cit.* Pp. 453-4.

[78] Harold Wiens. Pacific Island Bastions of the United States. (1962. D. Van Nostrand Company, Inc. Princeton). p. 35.

[79] In his 1997 book "Guardians of Empire" Brian McAllister Lynn specifically refers to the perceived existence of a US Pacific Empire during the interwar period. See, Brian McAllister Lynn. Guardians of Empire: the US Army and the Pacific, 1902-1940. (1997. University of North Carolina Press. Chapel Hill). *Passim.* Another book, with the same title, that again includes discussion on the existence of a US Pacific Empire is, David Killingray and David Omissi. Guardians of Empire: the armed forces of the colonial powers, c. 1700-1964. (1999. Manchester University Press. Manchester). Niall Ferguson. (2004). *Op cit.* p. 8.

[80] Perhaps the best example of this research can be found in a special edition of the Journal of Historical Geography on the historical geography of islands. Klaus Dodds & S. A. Royle (Eds.). Journal of Historical Geography. 2003. Vol. 29. No. 4. Pp. 487-598.

position.[81] However, as noted in section 1.2.5., whilst geo-economic policies (the logic of capital) such as the Open Door are evidence of a desire to expand US power across the Pacific, it was not until the advent of aircraft capable of spanning this ocean that the US was truly able to project power (in a logic of territory fashion) across a space that it had perceived as its own since 1898. Thus, I argue that it was geopolitical and geostrategic interests and advances that truly allowed the US to territorialise and materialise the Pacific as US space. In the next section, I discuss why I have chosen to analyse the role of aviation in this process.

1.3.3 US Pacific aviation history

The history of heavier than air flight is only just a century old, yet in that time such huge advances have been made that the Wright brothers would scarcely recognise modern aircraft as being descended from the craft that they first flew on 17th December 1903 at Kitty Hawk, North Carolina.[82] This thesis is timely because of the recent centenary of this flight, and because it takes a fresh approach to understanding the potential of aviation as a tool used by governments in formulating geopolitical and geostrategic positions and policies.

The development of airpower in the first decades of the twentieth century heralded new ways of perceiving space and distance, and accelerated perceptions of the world as 'shrinking' (as can be seen in Fig. 1.2.1). Thus, advances in aviation allowed huge distances to be traversed with ease and at previously unknown speeds. Although ocean liners, merchant vessels and US Navy ships had been plying the Pacific for years, the technologies involved in accomplishing these voyages had advanced only marginally when compared to the speed with which aviation technologies advanced during the first decades of the twentieth century. The development of new engines, and new construction materials, allowed aircraft designers to build craft with longer ranges, and bigger payloads. For example, during the First World War military aircraft were slow, and cumbersome, constructed of wood, with little payload capacity because of the low power to weight ratio of the engines.[83] By the advent of

[81] Hugh Brogan. (1990). *Op cit.* Pp. 450-1.
[82] For an excellent biography of Wilbur and Orville Wright see, Ian Mackersey. The Wright Brothers: the aviation pioneers who changed the world. (2004. Time Warner Paperbacks. London).
[83] For an in-depth study on aircraft of the First World War see, John W. R. Taylor (foreword). Jane's Fighting Aircraft of World War I. (2001. Random House. London).

the Second World War, aircraft were entering service with much improved radial engines with much higher power to weight ratios.[84] These aircraft were also being constructed of lighter materials, specifically metal alloys, that allowed a heavier payload to be carried over a much greater distance than their predecessors.[85] One of the key arguments running through this thesis is that aircraft were increasingly used as a tool of power projection by the US during the interwar period, because of advances in their speed, payload, and range. For example, a single aircraft carrier could launch upwards of 80 aircraft – each of which could fly far farther in an hour than its mother ship could steam.[86] However, the infancy of transpacific aviation was more concerned with conquering this ocean 'frontier', than with the significance of these flights for Pacific geopolitics. The following sub-section briefly describes the first transpacific flights, providing a historical context for later chapters that concentrate on the more strategic civil and military technogeopolitical use of aviation.

1.3.4 Pacific aviation pioneers

The first aircraft to traverse the Pacific were three US Army 'Douglas World Cruisers' that had embarked on a round-the-world flight in 1924.[87] Although crossing via the shortest over-water route – from the Aleutians across the Bering Straits – this flight proved that there were aircraft capable of crossing this last frontier.[88] Only a year later, US Navy Commander John Rodger unsuccessfully attempted to become the first to fly from California to Hawaii, but it was not until 1927 that the US Army claimed the honour of accomplishing that flight successfully.[89] Their Fokker C-2-3 aircraft (crewed by Lts. Maitland and Hegenburger) was the first to succeed in conquering the 2400 miles from the US West Coast to Hawaii that had been tempting fliers since the dawn of manned-powered flight.[90] Indeed the US-Hawaii flight gripped aviation enthusiasts with a

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[84] For an in-depth study on aircraft of the Second World War see, W. Gunston (foreword). Jane's Fighting Aircraft of World War II. (2001. Random House. London).
[85] A comparison of the aircraft included in the two previous footnotes show this.
[86] For more detailed information on this see Chapter 5.
[87] Carroll V. Glines. Around the World in 175 Days: the first round-the-world flight. (2001. Smithsonian Institution Press. Washington).
[88] Carroll V. Glines. (2001). *Ibid.* Pp. 74-83.
[89] Dwight R. Messimer. No Margin for Error: the US Navy's transpacific flight of 1925. (1981. Naval Institute Press. Annapolis).
[90] Robert, H. Scheppler. Pacific Air Race. (1988. Smithsonian Institution Press. Washington). Pp. 16-18.

zeal that for many was fatal. Although "a young air mail pilot named Ernie Smith and [his] navigator Emory Bronte" became the first civilians to conquer this route on 14th July 1927, only a month later thirteen crews were killed or injured during the ill-fated Dole Air Race – a competition with $35,000 prize money for successful completion of the same route.[91] Indeed, it would be a further seven years before a successful solo flight between the US and Hawaii was achieved – by the indomitable Amelia Earhart.[92]

The Dole race had shown the limitations and dangers of transoceanic crossings in these early aircraft. However the desire to cross the Pacific by aircraft was not dulled and less than a year later, an Australian, Charles Kingsford-Smith headed a four-man team that flew the first true transpacific flight.[93] On the morning of 31st May 1928 Kingsford-Smith and his three Australian compatriots took off in their aircraft, the 'Southern Cross', from Oakland, California (the same airport that had hosted the Dole race) and headed for Brisbane, via Hawaii and Fiji.[94] After over 80 hours in the air, and 8 days resting en route, they arrived in Australia.[95] Kingsford-Smith's flight was important for two reasons. Firstly, he proved that an air route between the North American and Australasian continents was feasible, and secondly, the flight showed the overwhelming importance of having sovereignty of Pacific islands (an issue that I will return to in Chapter 7). Their use of island airfield staging posts is evidence of one of the key factors that influenced US geopolitical planning for the Pacific during the interwar period (as will be highlighted in Chapters 5-7) and thus I argue that perhaps the real significance of Kingsford-Smith' 1928 flight was that it highlighted just how valuable ownership of such territories could be in terms of developing aviation as a Pacific power projection tool.

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[91] J. Suchon. Hawaii Race: Air Tragedy. http://www.oaklandtribune.com/Stories/0,1412,82~28099~1436650.html Accessed. 24/11/03. For more information on the Dole Air Race see, Robert, H. Scheppler. (1988) *Op cit.. Passim.* J. Suchon. Hawaii Race: Air Tragedy. *Op cit.* Accessed. 24/11/03. Anonymous. Pioneer Pacific Flyers wrote Tragic Chapter in Air History. http://www/sfmuseum.org/hist10/27dolerace.html. Accessed. 24/11/03.

[92] Doris Rich. Amelia Earhart: a biography. (1989. Smithsonian Institution Press. Washington). Pp.184-198.

[93] For an excellent account of this flight see, C. E. Kingsford-Smith and C. T. p. Ulm. The Great Trans-Pacific Flight. (1928. Hutchinson & Co. London). *Passim.*

[94] C. E. Kingsford-Smith and C. T. p. Ulm. (1928). *Ibid.* Pp. 17, 126-7, 139-196, 271.

[95] C. E. Kingsford-Smith and C. T. p. Ulm. (1928). *Ibid.* Pp. 17, 126-7, 139-196, 271.

The first non-stop crossing of the Pacific was achieved in 1931 by the famous US aviator Clyde 'upside down' Pangborn.[96] His craft had been so heavily modified (to be able to carry enough fuel for the trip) that it was less significant in terms of its overall importance for future US transpacific aviation than the Kingsford-Smith flight had been. Nevertheless it was important because it exemplified the pace with which advances in aviation occurred. In less than a decade the Pacific had changed from being a space only traversable by aircraft at its narrowest point (the Bering Straits) to one that was capable of being crossed in one flight without the need to refuel en route. However, the desire to cross the Pacific by aircraft did not diminish after these flights; the loss of Amelia Earhart – arguably the most famous female aviator of all time – on the Pacific leg of her round the world flight in 1937 showed that the Pacific remained a challenge for aviators throughout the interwar period.[97]

This section has given a brief overview of the history of transpacific aviation that precedes the case studies used in this thesis. They show the desire of many to conquer this vast space, and the ability of aircraft to fulfil these desires. This section also hints at other issues that will be dealt with in this thesis, those of the importance of 'ownership' of islands, the potential of aircraft as power projection tools, and the significance of the speed with which advances in aviation technologies occurred.

1.4 Discussion of chapters

This section gives a brief overview of each of the following seven chapters. This thesis is divided into two sections: the first, encompassing chapters 2 and 3, sets out the theoretical structure which will serve to frame the empirical examples that form the second section of this thesis. These will be analysed in chapters four to seven.

Chapter 2 will set out the geopolitical framework around which this thesis is based. In this chapter, I will provide a historical overview of the main authors and ideas that constitute what we think of as geopolitics. Within this, I will argue that an

[96] For more information on Clyde Pangborn see, D. G. Gordon. Wings over Washington. (1989. Museum of Flight. Santa Barbara). Pp. 29-30. See also, US Centenary of Flight - Clyde 'upside-down' Pangborn. http://www.centennialofflight.gov/essay/Explorers_Record_Setters_and_Daredevils/pangborn/EX14.htm. Accessed. 2nd December 2004.

[97] There are many books and articles that document Amelia Earhart's last flight across the Pacific. Two of the most interesting are Doris Rich. (1989). *Op cit.* Elgen M. Long & Marie K. Long. Amelia Earhart: the mystery solved. (2001. Touchstone. New York).

understanding of technology has long been a feature of some of the most prominent geopolitical writings, but that numerous subsequent academics read other agendas, for example the bipolarity of the Cold War, into these works and suppressed the technological perspective. Thus, I will re-read this technological aspect back into the works of geopolitical writers, attempting to understand the nature of the relationship between technology and geopolitics as highlighted by Butler. Perhaps the most importance section within this chapter is section 2.7. where I will set out the concept of the 'technogeopolitical project' in detail. This concept forms the theoretical framework upon which this thesis is built.

Chapter 3 will continue the focus on theory but will seek to move away from geopolitics to examine a second strand of theoretical writing that has informed my work: namely airpower theories. This chapter will begin with some discussion of the definition of airpower, and its strengths and weaknesses. Further to this, I will discuss the works of three airpower writers of the interwar period – Mitchell, Douhet, and Trenchard. These three men were the most prominent airpower theorists of the interwar period, thus an examination of their work gives a profound insight into how aviation was being perceived at this time. This chapter will also analyse the work of two contemporary writers (Bergerud, and Brown) who have sought to understand the importance of airfields in a geopolitical context. The following four chapters will move away from this theoretical focus to employ these ideas to analyse how the US undertook a technogeopolitical project to use aviation to materialise the Pacific as US space during the interwar period.

Chapter 4 will analyse a number of international treaties, Acts of Congress, and Government sponsored committees and projects extant during the interwar period. Documents, such as the 1922 Washington Naval Treaty that imposed a moratorium on the construction of military facilities across the Pacific, and the 1928 Foreign Air Mail Act clearly delimited the extent to which the US could expand it's 'might' into this region. In this chapter, I will seek to argue that these documents were part of an overarching project: to lay the foundations for the Pacific oriented policies and strategies that will be analysed in the subsequent three chapters. This chapter will also discuss the US Government's only official foray into Pacific island airfield

construction – the Line Island Project – and will comment on its significance as part of wider processes of territorialising the Pacific as US space.

Chapter 5 will examine a series of documents known as War Plan Orange (WPO). WPO was the US military's plan for conflict in the Pacific between the US and Japan. It will seek to assess how developments in aviation altered how the planners perceived this potential conflict, and how they changed the US's battle plan in light of such aviation advances. This chapter will be particularly concerned with concepts such as power projection and reach.

Chapter 6 will also analyse the military's understanding and incorporation of aircraft. However, it seeks to examine this concept from the perspective of military surveying, which I argue can be seen as a key mechanism within this technogeopolitical project. Using a number of US military surveys of different areas of the Pacific, this chapter will aim to illustrate the recursivity of the relationship between aviation and geopolitics through an understanding of how advances in aviation altered the location and types of islands being surveyed, and the reasons for which such surveys were being carried out.

Chapter 7 will turn the focus of attention away from the military to the civil aviation perspective by undertaking an analysis of the development of Pan American Airways, and it's transpacific routes. This chapter will argue for the existence of a link between the US Government and Pan Am. It will contend that Pan Am's ability to circumvent certain military restrictions across the Pacific was seen as favourable to the US administration as part of its Pacific 'project'. This chapter will also focus on ideas of sovereignty, and ownership of islands, and make brief comments on the 'Americanisation' of Pacific islands through the construction of Pan Am's facilities.

The final chapter (Chapter 8) will serve as a conclusion, drawing together both the theoretical and empirical arguments that run throughout this work. It will seek to develop an integrated argument, using examples from the preceding chapters, about the ways in which the US Government implemented a number of processes and mechanisms (ranging from surveys to military strategies) that can be understood as

being integral parts of an interwar technogeopolitical project, undertaken by the US Government to use aviation to materialise the Pacific as US space.

Chapter 2

From geopolitics to technogeopolitics: an analysis of the 'place' of technology within geopolitics past and present

2.1 Introduction

This chapter will detail the theoretical framework upon which this thesis is constructed – technogeopolitics. This concept, formulated by David Butler, and presented in his 2001 paper 'Technogeopolitics and the struggle for control of world air routes, 1910-1928', argues for the existence of a recursive relationship between geopolitics and technology.[1] Thus, this thesis uses technogeopolitics as the theoretical underpinning to develop an understanding of how aviation (as the chosen technology) and geopolitics operated in this recursive, and mutually constituted, manner to materialise and territorialise the Pacific as US space during the interwar period.

The role of this chapter is twofold. First, it will argue that classical geopolitical theory has been revisited by modern theorists on numerous occasions to contextualise current events. However, these scholars have failed to acknowledge the roles of transport technologies in the geopolitical spatialities being theorised. Indeed some have read technology out of these texts in order to emphasise other geopolitical perceptions that further their own agenda. It will be argued that some 'classical' and more contemporary geopolitical theorists have understood, at least to some extent, the importance of technology as a factor influencing geopolitical and geo-strategic posturing. Thus, in sections 2.2-2.5, an attempt will be made to re-read transport technologies back into the classic texts of geopolitical theory.[2] In addition, the second role of this chapter will be to analyse and explain contemporary geopolitical theorising, including Butler's technogeopolitics (in section 2.7) and the wider paradigm of 'critical' geopolitics (in section 2.6). Section 2.8 will conclude this chapter by drawing together the arguments presented throughout, that transport

[1] David Butler. (2001). *Op cit.* Pp. 635-658.
[2] For a useful introduction to the history of geopolitics see, John Agnew. (2002). *Op cit.* Pp. 51-84.

technologies have played an important role in much of the geopolitical theorising of the twentieth century, but that it has only been with the development of technogeopolitics that this relationship has been formally contextualised.

2.2 Halford Mackinder

Halford Mackinder was one of the first geopolitical theorists to interpret the effects of the *fin de siècle* closure of space on international state-craft and the ideas defined later by Harvey as space-time compression (discussed in Chapter 1). He was also one of the first to note the importance of technology as a factor in these struggles.[3] The following four sub-sections will seek to analyse Mackinder's key geopolitical works, and his understanding of the role and place of transport technologies within them.

2.2.1 The Geographical Pivot of History

In his seminal paper of 1904, 'The Geographical Pivot of History', Mackinder posited that in this new 'closed world system' events would become ever-more linked across regional and global scales.[4] Thus, geography would become increasingly important in explaining such events, and their ramifications, especially those of a global political nature. Mackinder argued that this opened up the possibility of developing a "formula which [expressed] certain aspects...of geographical causation in universal history" and an ability to apply this formula to the emerging 'closed world system' of the *fin de siécle*.[5] I argue that technology is of central importance to Mackinder's development of geopolitics. Indeed, it can be seen as the catalyst he identifies as invoking change within the 'closed world system.' Whilst Mackinder cites economic and social concerns as having a secondary role within geopolitical change, his primary catalysts are over-land transport technology,

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[3] As a product of his time, the industrial and imperial contexts of late nineteenth century Britain engulfed Mackinder, and his work reflected the complex but compelling demands of Victorian science and were influenced by the industrial and technological advances of which Britain was at the forefront. Indeed it has been argued that Mackinder did not see himself as a geopolitician at all and that he was more interested in how the "interplay of history and geography" could be linked to the "preservation of the Empire and democracy and the advancement of education and geography." For more background on Mackinder and his works see, David Livingstone. (1992). *Op cit.* Pp. 190-196. Michael J. Heffernan. Origins of European Geopolitics, 1890-1920, in Klaus Dodds & David Atkinson. (Eds.). (2000). *Op cit.* Pp. 32-39. Brian Blouet. (1987). *Op cit. Passim.*

[4] Halford J. Mackinder. The Geographical Pivot of History, in Roger Kasperson & Julian Minghi (Eds.). (1970). *Op cit. Passim.*

[5] Halford J. Mackinder. The Geographical Pivot of History, in Roger Kasperson & Julian Minghi (Eds.). (1970). *Ibid.* p. 162.

exemplified by the growth of the railway system across the Eurasian landmass.[6] These developments underpin the entire 'pivot' thesis.

At the heart of Mackinder's 1904 thesis was his notion of the 'geographical pivot' as illustrated in Fig. 2.2.1.[7]

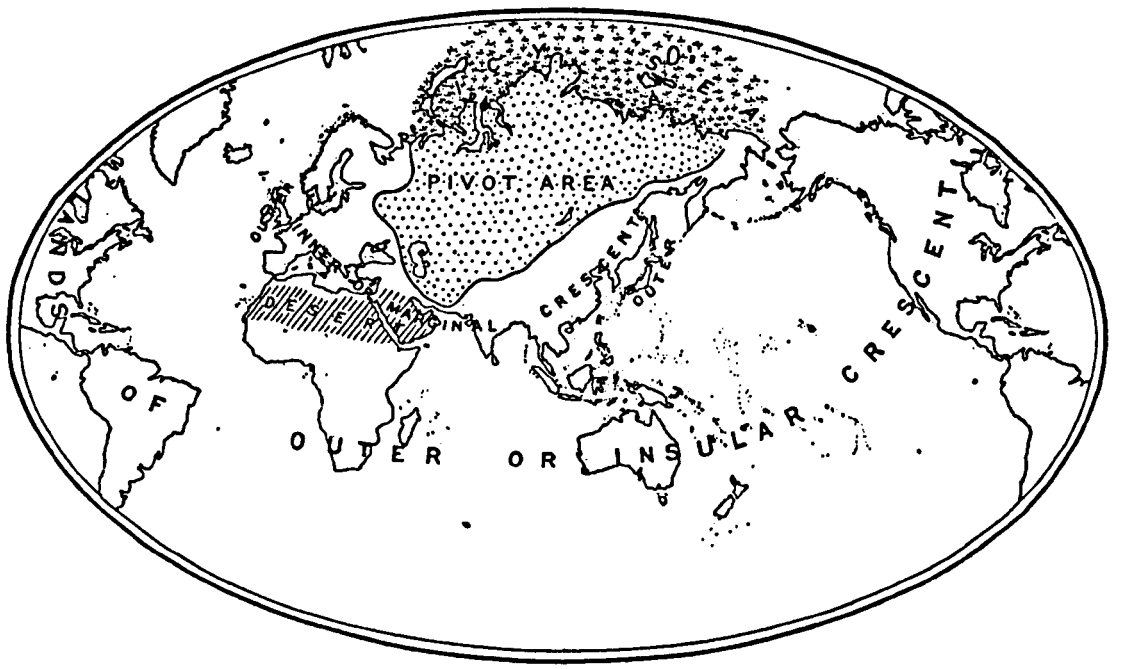

Fig.2.2.1. Mackinder's pivot and crescent areas[8]

Mackinder argued that since 1492 (when Columbus 'discovered' the Americas), sea powers had traditionally had the advantage over land powers in matters of foreign conflict.[9] Large amounts of equipment, supplies, and soldiers could be carried more quickly and efficiently to and from the battlefield by sea than over land, because the advances in shipbuilding technologies had outstripped those of land-based transportation. This had given countries (such as Great Britain) an advantage over countries (such as Russia) that were reliant on moving materiel over land. However,

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[6] Halford J. Mackinder. The Geographical Pivot of History, in Roger Kasperson & Julian Minghi (Eds.). (1970). *Ibid.* p. 168.

[7] Geoffrey Sloan. Sir Halford J. Mackinder: The Heartland Theory Then and Now, in Colin Gray & Geoffrey Sloan. (Eds.) Geopolitics, Geography and Strategy. (1999. London. Frank Cass) p. 25. Halford J. Mackinder. The Geographical Pivot of History, in Roger Kasperson & Julian Minghi (Eds.). (1970). *Op cit.* p. 162.

[8] Halford J. Mackinder. The Geographical Pivot of History, in Roger Kasperson & Julian Minghi (Eds.). (1970). *Ibid.* p. 176.

[9] Halford J. Mackinder. The Geographical Pivot of History, in Roger Kasperson & Julian Minghi (Eds.). (1970). *Ibid.* p. 176. See also, Alfred Thayer Mahan. (1890). *Op cit.*

the development of steam locomotion and the railways was beginning to transform this land power/sea power dynamic. Land powers were becoming more able to move materiel across their territory and to conflict zones with as much ease as sea powers. Furthermore, Mackinder identified the growing geopolitical power of Russia because it had supplies of raw resources and population that might now be exploited given this 'coming of the railways' and was also situated in a 'perfect' geopolitical position, to realise its expansionist potential. Moreover, the frozen Arctic Sea and internal and northern drainage protected the pivot from any potential military action by sea-borne power. Mackinder warned that,

> "Trans-continental railways are now transmuting the conditions of land power, and nowhere can they have such effect as in the closed heart land of Euro-Asia...The Russian railways have a clear run of 6000 miles from Wirballen in the west to Vladivostok in the east. The Russian army in Manchuria is as significant evidence of mobile land-power as the British army in South Africa was of sea-power."[10]

The 'pivot' theory thus identified Russia as a vast natural frontier and geopolitical entity within the Eurasian landmass.[11] Mackinder also demarcated four 'marginal' regions surrounding the 'pivot' region in the form of four concentric circles (see Fig. 2.2.1).[12] He explained that when land powers became dominant over sea powers in this new era, European Russia, being at the heart of the vast continental landmasses of Europe and Asia would gain hegemony over these marginal areas and challenge the global dominance of the British Empire.[13]

It can be argued that Mackinder exaggerated Russia's might given the primarily feudal structure of its social development during this period. He may also have overestimated the extent to which the Russian rail network would expand in the first decades of the twentieth century. Yet, while his argument was compromised, his theory was nevertheless important because it prophesized the rise of Russia, then a dormant power waiting to assert itself in the wake of the technological advances in

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[10]Halford J. Mackinder. The Geographical Pivot of History, in Roger Kasperson & Julian Minghi (Eds.). (1970). *Op cit.* p. 168.
[11] Halford J. Mackinder. The Geographical Pivot of History, in Roger Kasperson & Julian Minghi (Eds.). (1970). *Ibid.* p. 162.
[12] Halford J. Mackinder. The Geographical Pivot of History, in Roger Kasperson & Julian Minghi (Eds.). (1970). *Ibid.* p. 165.
[13] Halford J. Mackinder. The Geographical Pivot of History, in Roger Kasperson & Julian Minghi (Eds.). (1970). *Ibid.* p. 168.

overland transportation and communication of the late nineteenth century.[14] Mackinder was not alone in recognising the importance of the emergent railway technologies, but his work was unique in developing an understanding of the effects this new technology could have on international geopolitical relationships in this new closed world system.

This sub-section has examined and analysed Mackinder's 1904 paper – arguably one of the most seminal works in geopolitical theory – from a new perspective, that of understanding the place of transport technologies within it. It has argued that Mackinder considered the role of technologies as central to the composition of his 'geographical pivot'. The following sub-section will analyse Mackinder's book 'Democratic Ideals and Reality', to discuss how his views on technology developed and were affected by the use of aviation in the First World War.

2.2.2 Democratic Ideals and Reality

In 1919, in the immediate aftermath of the First World War, Mackinder published 'Democratic Ideals and Reality': the product of two decades of thinking on global balance of power issues.[15] In this work, Mackinder altered the geographical position of the 'pivot' region, moving it westwards to cover central Northern Europe, increasing its size, and re-naming this evolved area the 'Heartland'.[16] Blouet points out that it is a mistake often made by Mackinder's detractors that the 'pivot' and the 'Heartland' are the same area developed by the same ideas.[17] He argues that whilst the 'pivot' was primarily a theoretical concept, the 'Heartland' was grounded more solidly in European political 'realities' and that they are thus intrinsically different.[18]

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[14] Halford J. Mackinder. The Geographical Pivot of History, in Roger Kasperson & Julian Minghi (Eds.). (1970). *Ibid.* p. 168.

[15] Halford J. Mackinder. Democratic Ideals and Reality. (1944. Harmondsworth. Penguin). Brian Blouet. (1987). *Op cit.* p. 164.

[16] Halford J. Mackinder. (1944). *Op cit. Passim.* It is important to note that James Fairgrieve identified a 'Heartland' region in his 1915 book, *Geography and World Power* which bears striking similarities to Mackinder's. See James Fairgrieve. Geography and World Power. (1915. London. University of London Press). Pp. 327-346.

[17] Brian Blouet. (1987). *Op cit.* p. 167.

[18] Brian Blouet. (1987). *Ibid.* p. 167.

These political 'realities' were informed by Mackinder's fear for the British Empire given the renewed potential for the Russians to expand from their 'pivot' region.[19] Moreover, he was concerned that the 'democratic ideals' of US President Wilson, which underpinned the construction of the new world order in the Versailles Treaties, might fail to curtail the threat of renewed German or Bolshevik expansionism.[20] If these powers chose to ally themselves together this would increase the power, and geographical size of the 'pivot' region, and become a major threat to world peace. More importantly from Mackinder's perspective, they could threaten the continuation of the British Empire. Mackinder encapsulated this threat in the mantra by which he is best known, and for which he has been most widely attacked by his critics. He stated that,

> "Who rules East Europe commands the Heartland: Who rules the Heartland commands the World-Island: Who rules the World-Island commands the World."[21]

However, the crux of Mackinder's 'Heartland' thesis was again his interest in the difference between land powers and sea powers. Indeed, his text devotes a chapter to each, which take the form of historical commentaries on how land and sea powers have evolved in the geographical area that he defines as the 'World-Island'.[22] Whilst acknowledging that Mackinder continues to concentrate on the land power/sea power debate, I argue that by 1919 he also makes several important, and educated, references to the growing importance of aviation.[23] For example, he notes that,

> "The opening of [the Heartland] by railways...and by aeroplane routes in the near future constitutes a revolution in the relations of men to the larger geographical realities of the world."[24]

Admittedly, Mackinder saw aviation as secondary to land and sea power, developed by nation-states to supplement their front line land and sea forces. However, the fact that he does acknowledge it at all is important, because it provides evidence of an awareness of airpower as a tool that could be used by countries to serve their geopolitical ends. As Mackinder notes,

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[19] This fear was now heightened as Mackinder saw the German Reich as being as powerful, and thus a second potentially dangerous 'pivot' region within Europe, potentially capable of attacking the British Empire.
[20] Brian Blouet. (1987).*Op cit.* p. 169.
[21] Halford J. Mackinder. (1944). *Op cit.* p. 113.
[22] Halford J. Mackinder. (1944). *Ibid.* Chapters 3 & 4.
[23] Halford J. Mackinder. (1944). *Ibid. Passim.*
[24] Halford J. Mackinder. (1944). *Ibid.* p. 62.

> "Today armies have at their disposal not only the Transcontinental Railway but also the Motor-Car. They have, too, the Aeroplane, which is of a boomerang nature, a weapon of land power as against sea power."[25]

Similarly he commented that,

> "In the days of air navigation which are coming, sea-power will use the water-way of the Mediterranean and Red Seas only by the sufferance of land-power, for air-power is chiefly an arm of land-power, a new amphibious cavalry."[26]

Thus, although airpower does not figure extensively in the 'Heartland' thesis, its significance is recognised by Mackinder, and is acknowledged.

This sub-section has sought to analyse the transport technology component of Mackinder's 'Democratic Ideals and Reality' and has shown the extent to which he had become aware of its potential as a tool of power projection. The following sub-section will analyse an article written by Mackinder twenty years after this book was published, and will analyse how his views on aviation had developed.

2.2.3 The Round World and the Winning of the Peace

In 1943, Mackinder published an article in the journal *Foreign Affairs* entitled 'The Round World and the Winning of the Peace', where he assessed "whether [his] strategic concept of a Heartland [had] lost any of its significance under the conditions of modern warfare."[27] Mackinder re-orientated his Heartland, equating it directly with the boundaries of the USSR, and returning it to the geographical setting of the 'pivot'.[28] Importantly, he continued to develop his geopolitical understanding with relation to developments in technology. Whilst he still often portrayed airpower as an addition to other forms of technology, for example noting that, "convoys of merchant ships, assisted by powerful icebreakers [have] airplanes reconnoitring ahead for water lanes through the pack ice", he also began to see airpower as a geopolitical factor in its own right, noting that,

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[25] Halford J. Mackinder. (1944). *Ibid.* p. 87.
[26] Halford J. Mackinder. (1944). *Ibid.* p. 54.
[27] Halford J. Mackinder. *The Round World and the Winning of the Peace*, in Foreign Affairs. 1943. Vol. 21. No. 4. p. 595.
[28] Halford J. Mackinder. (1943). *Ibid. Passim.*

> "a hostile invasion across the vast area of circum-polar ice and over the Tundra mosses and Targa forests of Northern Siberia seems almost impossible in the face of Soviet land-based air defense."[29]

Furthermore, I argue that developments in airpower technologies led Mackinder to rethink the construction of his outer crescent region. He commented that the Atlantic could been seen as a 'Midland Ocean' and that in this region Britain, the United States, and Canada could be conceived of as being "moated aerodrome[s]" although he fails to develop this theme further.[30]

This sub-section has analysed the third of Mackinder's key texts on geopolitics to discuss the evolution of his views on the significance of transport technologies – and specifically airpower. The following sub-section will seek to provide some concluding comments and criticisms of Mackinder's work.

2.2.4 Conclusions

It can be argued that Mackinder is hugely important because he wrote about the geopolitical aspirations and 'realities' of nations, and because he focused on technological change as being a catalyst driving this evolving 'closed world system'. Even though he focused on the land power/sea power dynamic in the changing geopolitical landscape of the early twentieth century, his work is also of critical importance in assessing the growing importance of aviation during this same period. His comments in 'Democratic Ideals and Reality' are evidential of the growing importance of airpower as early as 1919, and comments in 'The Round World and the Winning of the Peace' show that he was aware of the increasing roles of airpower technologies.[31]

However, many criticisms have been levelled at Mackinder and his ideas.[32] Many of these can be attributed to his desire to see the hegemonic status of the British Empire continue into the twentieth century: his 'pivot thesis' being written as a warning to Britain of the perils of the growth of a continental land power. With regard to aviation, it could be argued that Mackinder saw it largely as a secondary tool, used

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[29] Halford J. Mackinder. (1943). *Ibid.* p. 600.
[30] Halford J. Mackinder. (1943). *Ibid.*. p. 604.
[31] Halford J. Mackinder. (1944). *Op cit.* Halford J. Mackinder. (1943). *Op cit.*
[32] See for example, Gearoid O Tuathail. (1992). *Op cit.* Pp. 100-118. Arthur Butler Dugan. *Mackinder and his Critics Reconsidered*, in, The Journal of Politics. 1962. Vol. 24. No. 2. Pp. 241-257.

by both land and sea powers, and thus a ubiquitous commodity of less deterministic value than land or sea based transport technologies. It must also be noted that Mackinder's 'pivot' and 'Heartland' failed completely to recognise the growing importance of the United States, and the American hemisphere within international power politics. This exclusion leads, in my opinion, to an over-exaggeration of the position of the European continent. Given the Pacific focus of this thesis, this Eurocentric gaze is one of Mackinder's major failings. However, much of a positive nature can be gleaned from his work, especially concerning the development of a transport orientated geopolitical lens with which to analyse interwar international political statescraft. This section is also important because unlike other interpretations of Mackinder's work – that have been coloured by their readers' Cold War realities – this work has sought to rediscover the central position of transport technologies within Mackinder's thinking. Whilst Mackinder was certainly amongst the foremost geopolitical writers of the early twentieth century, he was by no means alone. The following sections will detail the work of other European and American writers who also considered the role of technology within their work on geopolitics.

2.3 European interwar geopolitics

This section will seek to analyse briefly the existence of technology in two European schools of geopolitical thought that were active during the first four decades of the last century. The first sub-section (2.3.1) will focus on perhaps the most infamous of these, Germany's *Geopolitik*, whilst the second sub-sections will briefly discuss Italian geopolitical theorising (section 2.3.2). Section 2.3.3 will provide some concluding comments on these two strands of European interwar geopolitical theorising.

2.3.1 German *Geopolitik*

Geopolitik developed in the aftermath of the Versailles Peace Treaty at the end of World War I and was lead by Major Karl Haushofer who expounded the concept of *Lebensraum*, or living space.[33] As Wolkersdorfer notes, Haushofer "shaped the

[33] Holger Herwig. Geopolitik: Haushofer, Hitler and Lebensraum, in Colin Gray & Geoffrey Sloan. (1999). *Op cit.* Pp. 218-241. It should be noted however that Friedrich Ratzel's work on the 'organismic' nature of the state formed the basis for Lebensraum, and German *Geopolitik*. See, Mark Bassin. *Race contra Space: German Geopolitik and National Socialism*, in Political Geography Quarterly. 1987. vol. 6/2. p. 116. Brian Blouet. (2001). *Op cit.* Pp. 56-62.

German geopolitical discourse more than any other one individual."[34] In the aftermath of Germany's humiliation and Austro-Hungary's territorial dismemberment at the Versailles conference, his ideas dealt with the desire to expand Germany's territorial frontiers in order to allow the state to develop to its full potential.[35] As Diner comments,

> "Karl Haushofer's geopolitics represents the effort at an ethnocentric imperialist scientisation of international politics [developing] ... particular interests in a 'natural right' to expansion ... and conquest."[36]

In this respect *Geopolitik* became inextricably linked to the National Socialists, Hitler, and the Nazis' desire to create a German state encompassing all, and only, the Germanic race. This link (as will be discussed in section 2.5) ultimately lead to geopolitics being ostracised as a valid academic pursuit in the post-World War Two period.

This exclusion has also coloured subsequent writers' perspectives of what constituted *Geopolitik*. Thus, there has been a lack of recognition in the literature of the definite acknowledgement in *Geopolitik* of the importance of technological developments during the interwar period, and an understanding of the effect that they could have on German security. For example, one of Haushofer's contemporaries, Rupert von Schumacher, described by Herb as "one of the foremost cartographic theorists in *Geopolitik*", had a definite technological component in his work.[37] Herb's 1989 article in Political Geography Quarterly, *Persuasive cartography in Geopolitik and national socialism* includes maps by Schumacher from the 1930's, including one (Fig. 2.3.1) which specifically illustrates the geopolitical potential of airpower.[38]

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[34] Günter Wolkersdorfer. *Karl Haushofer and Geopolitics - the history of a German mythos*, in Geopolitics. 1999. Vol. 4/3. p. 148.
[35] Holger Herwig. Geopolitik: Haushofer, Hitler and Lebensraum, in Colin Gray & Geoffrey Sloan. (1999). *Op cit.* p. 232.
[36] Dan Diner. *Knowledge of Expansion: on the geopolitics of Karl Haushofer*, in Geopolitics. 1999. Vol. 4/3. p. 183.
[37] G. Henrik Herb. *Persuasive Cartography in Geopolitik and National Socialism*, in Political Geography Quarterly. 1989. Vol. 8. No. 3. p. 291.
[38] G. Henrik Herb. (1989). *Ibid.* p. 292.

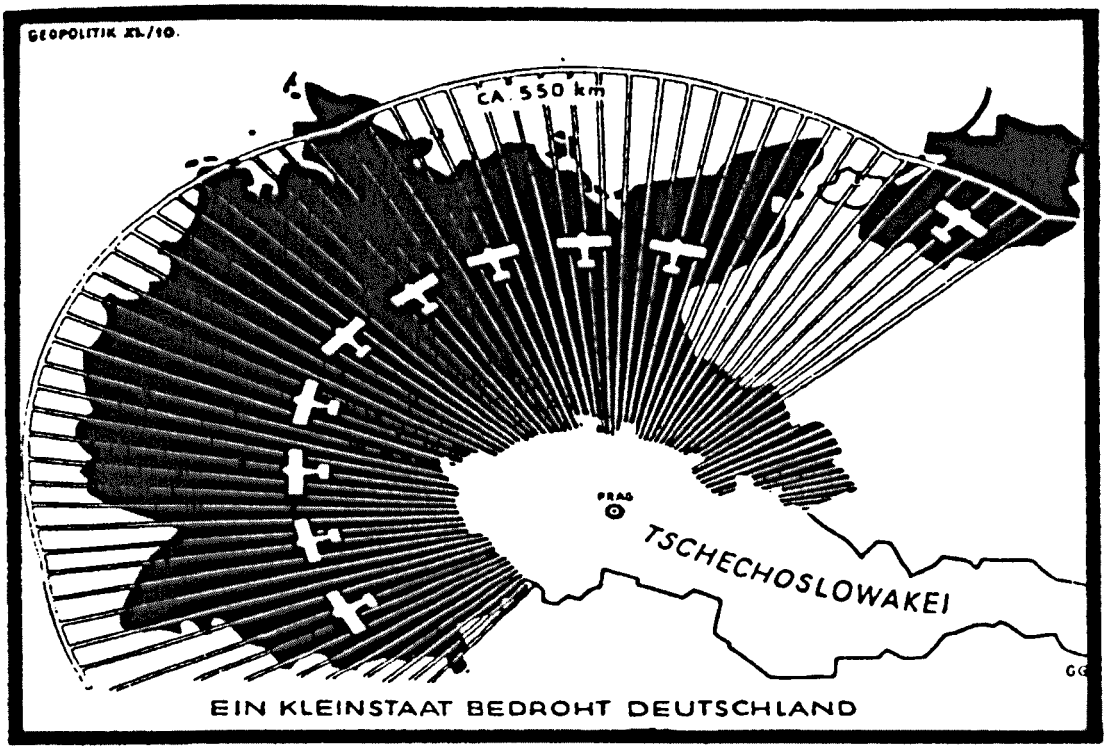

Fig. 2.3.1. Schumacher's airpower map – 'A small state threatens Germany' [39]

This portrayal of Czech airpower over-flying Germany, symbolising "Germany's vulnerability to air attacks from neighbouring countries", shows that technological development and its relation to ideas of power and (in)security played at least some part in German *Geopolitik.*[40] As noted previously, this aspect of *Geopolitik* has been subsumed, especially by American geopolitical theorists such as Richard Hartshorne, who sought to distance themselves from the legacy of Haushofer's Lebensraum and its links to Nazi expansionism and racial purity.[41]

Interestingly, Haushofer's work was not confined to developing and analysing geopolitics in the European setting. In 1924, he published the first edition of his 'Geopolitics of the Pacific Ocean'.[42] In it, Haushofer analysed a number of geographical elements that he argued influenced the geopolitical construction of the region, including physical geography, sociology, racial distribution, economics and

[39] Rupert von Schumacher. Ein Kleinstaat Bedroht Deutschland. (1934). quoted in G. Henrik Herb (1989). *Ibid.* p. 292.
[40] G. Henrik Herb (1989). *Ibid.* p. 292.
[41] Klaus Dodds & David Atkinson. Preface, in Klaus Dodds & David Atkinson. (Eds.). (2000). *Op cit.* p. xiv.
[42] Lewis A. Tambs. An English Translation and Analysis of Major General Karl Ernst Haushofer's Geopolitics of the Pacific Ocean: studies on the relationship between geography and history. (2002. The Edwin Mellen Press. Lampeter).

trade, and security.[43] Haushofer's reason for writing this book are unknown, but can be argued to be concerned with developing an understanding of the international situation in the region, with specific focus on the great power rivalries that existed there. This book is important because it shows that during the interwar period there was some degree of interest in the geopolitics of the Pacific region.

This sub-section has sought to identify a transport technology element within the German geopolitical school of *Geopolitik,* and has also identified an interest in the geopolitics of the Pacific region. I argue that the work of Schumacher, specifically his maps, are illustrative of an understanding of the power projection potential of aircraft, as perceived by Haushofer and his contemporaries. The following sub-section will seek to develop an understanding of Kern's comment that, during the first decades of the twentieth century, "rivers of geopolitics coursed all over the European cultural terrain".[44] It was not only amongst the great powers that geopolitical theorising could be found: in France, Italy, and the Iberian Peninsula radical geopolitical theorists were also at work.[45] In order to illustrate this, the following sub-section will briefly detail the geopolitical theorising in one of these countries; Italy.

2.3.2 Italian Geopolitics

This sub-section will briefly detail the Italian school of geopolitical thought, which developed concurrently with German *Geopolitik.* The Italians' geopolitical thinking developed in line with a desire for power and empire. As Atkinson comments, Italian interwar geopolitics,

> "did not merely address the static facts of nation, state and territory, but also dealt with the ongoing fluctuating patterns of global political affairs. It considered

[43] Lewis A. Tambs. (2002). *Ibid. Passim.*
[44] Stephen Kern. The Culture of Time and Space, 1880-1918. (1983. Cambridge. Harvard University Press). p. 228.
[45] Geoffrey Parker. *French geopolitical thought in the interwar years and the emergence of the European idea,* in Political Geography Quarterly. 1987. Vol. 6/2. Pp. 145-150. David Atkinson. Geopolitics, cartography and geographical knowledge: envisioning Africa from Fascist Italy, in M. Bell. R. A. Butlin. & M. J. Heffernan. (Eds.). Geography and Imperialism, 1820-1940, (1995. Manchester: Manchester University Press). Pp. 274-276. James. D. Sidaway. Iberian Geopolitics, in Klaus Dodds & David Atkinson. (Eds.). (2000). *Op cit.* Pp. 118-149.

imperialism, trade-flows, nationalist and ethnic tensions and other such geographical and political issues which increasingly convulsed the inter-war world."[46]

A notable feature of Italian geopolitics was its cartographic representations of Italy and its North African territories.[47] One map (Fig. 2.3.2), is particularly relevant to the concepts of geopolitics and technology expounded in this thesis.

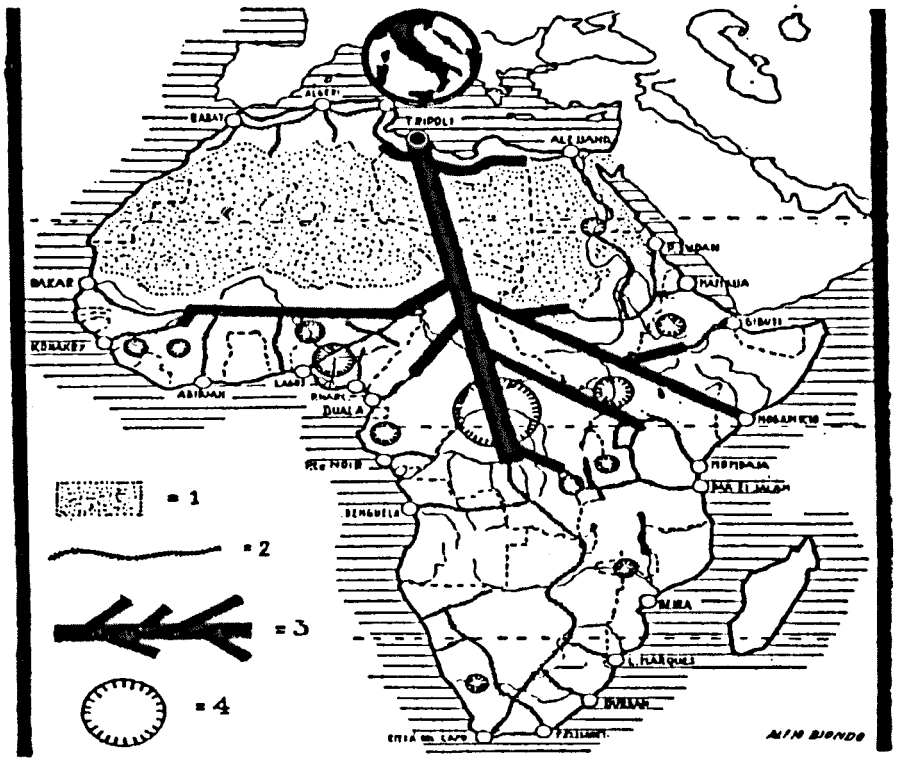

Fig. 2.3.2. Biondi's trans-Africa road and rail network[48]

This representation by Biondi, of a trans-African road and rail network linking the outposts of the Italian Empire to Italy, shows the role of technology in maintaining and expanding Italy's colonial control throughout Africa. Again, this is important as it acknowledges the importance of transport technologies in other geopolitical discourses. Interestingly, Atkinson fails to consider this interpretation in his chapter:

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[46] David Atkinson. *Geopolitical Imaginations in Modern Italy*, in Klaaus Dodds & David Atkinson. (Eds.). (2000). *Op cit.* p. 97.

[47] For a detailed analysis of this see, David Atkinson. Geopolitics, cartography and geographical knowledge: envisioning Africa from Fascist Italy, in Bell, M. R. A. Butlin. & M. J. Heffernan. (Eds.). (1995.). *Op cit.* Pp. 274-276. David Atkinson. Arrows, Empires, and Ambitions in Africa: the geopolitical cartography of Fascist Italy, in J. Stone (Ed.). Maps and Africa. (1994. Aberdeen University Press. Aberdeen). Pp. 43-65.

[48] David Atkinson. Geopolitics, cartography and geographical knowledge: envisioning Africa in Fascist Italy, in M. Bell. R. A. Butler & M. J. Heffernan. (Eds.) (1995). *Ibid.* p. 284. For further interpretations of this map see, David Atkinson. Arrows, Empires, and Ambitions in Africa: the geopolitical cartography of fascist Italy, in, J. Stone. (Ed.). (1994). *Op cit.* Pp. 51-52.

an omission that reinforces the technological 'gap' in geopolitical analysis that this thesis seeks to fill.[49]

2.3.3 Conclusions

Thus it can be seen that, as Kern notes, "rivers of geopolitics [did] cours[e] over the European cultural terrain" during the interwar period.[50] German *Geopolitik* had a reach far beyond Germany's national borders (especially in its influence on US academic geography), and the importance of Empire (in the Italian geopolitical journal) were dominant, even in the closed world system. This is important, given the implicit roles of technology within these two strands. This section has shown that many writers were thinking about the significance of technology as an 'actor' in the geopolitical process. This perspective was also shared by geopolitical theorists across the Atlantic which will be examined in the following section.

2.4 US Geopolitical Theorising

This section will seek to detail and analyse the development of geopolitical theorising in the United States during the interwar and Second World War periods, with specific reference to the role and place of transport technologies. The first sub-section (2.4.1) will analyse the role of one of the most significant non-European geopolitical figures, Isaiah Bowman. This will be followed by comments (in section 2.4.2) on Nicholas Spykman, who wrote an important geopolitical text during the Second World War that illustrates a change in the perception of technology within geopolitical thinking. Finally, some conclusions will the given in section 2.4.3.

2.4.1 Isaiah Bowman

Whilst geopolitical writing in the US was perhaps less prolific than in interwar Europe, a possible exception to this was Isaiah Bowman who first published his book 'The New World: problems in political geography', in 1921.[51] In it, he discusses the post-First World War international situation using a political geography methodology. Indeed, Smith argues that,

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[49] David Atkinson. Geopolitics, cartography and geographical knowledge: envisioning Africa from Fascist Italy, in M. Bell. R. A. Butlin. & M. J. Heffernan. (Eds.). (1995). *Op cit.* Pp. 282-285.
[50] Stephen Kern. (1983). *Op cit.* p. 228.
[51] Isaiah Bowman. The New World: problems in political geography. (1921. New York. World Book Company). The version used in this thesis is the 1928, 4th edition. Isaiah Bowman. The New World: problems in political geography. (1928. New York. World Book Company).

> "*The New World* was the inaugural text of a modern American political geography, offering a vision appropriate for a world in which even the empty spaces of the world are no longer non-political". [52]

In the 1928 (fourth) edition, his chapter on "The Pacific Realm, Australia and New Zealand" analysed the changing geopolitics of the region.[53] Some idea of the importance with which Bowman viewed the geopolitics of the Pacific can be gleaned from the weighting of the chapters in this book. Whilst the Pacific chapter covers 16 pages, his chapter on the "Problems of Imperial Britain" covers 89 pages, and that on "The Political Geography of Russia" covers 31.[54] Indeed, his treatment of the Pacific is one of the smallest chapters of the entire 785 page book. Considering that the US borders the Pacific, this lack of interest highlights the European outlook of US geopolitics (of which Bowman was a major figure) during this period.[55] This, Smith argues, can be understood as part of Bowman's desire to highlight the American anti-imperialist stance. He argues that, "Imperialism to Bowman, was a system of direct political coercion and control over a people and had no place in the modern world."[56] However, in 'The New World' Bowman somewhat contradicts this philosophy in his comments on the US's Pacific territories, particularly the Philippines, which he describes as "a rich possession".[57]

Bowman makes some other interesting observations regarding the geopolitical situation in the Pacific. One of the most important of these, in the context of this thesis, is that the US was interested in "its small scattered holding" of islands because of their potential in "assist[ing] communication between Hawaii and the Philippines".[58] Bowman refers to this regarding the development of transpacific telegraph cable stations, but the same argument can be used regarding aircraft, especially given the importance of air-mail as a tool for communication during the

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[52] Neil Smith. (2004.). *Op cit.* p. 183. Emphasis in original. An excellent critique of Smith's book can be found in, John Paul Jones III, Matthew Hannah, Wolfgang Natter, Felix Driver, Anne Godlewska, & Neil Smith. *Book Forum: Neil Smith's American Empire*, in Political Geography. 2005. Vol. 24. Pp. 237-266..

[53] Isaiah Bowman. (1928). *Op cit.* Pp. 610-626.

[54] Isaiah Bowman. (1928). *Ibid.* Pp. 34-123 & 450-481.

[55] Bowman's central position in the development of US interwar geopolitics can be seen in Smith's excellent 'biography'. Neil Smith. (2004). *Op cit. Passim.*

[56] Neil Smith. (2004). *Ibid.* Pp. 187-188.

[57] Isaiah Bowman. (1928). *Op cit.* p. 729.

[58] Isaiah Bowman. (1928). *Ibid.* p. 614 & p. 731.

interwar period. He also identifies the Philippines as being of key geopolitical importance, noting that "in case of war [it] would form an advance base".[59]

In addition, Bowman includes a map of the Pacific (Fig, 2.4.1) in which he clearly annotates the 'imperial' holdings of the major powers in the region.[60]

Fig. 2.4.1 Bowman's 1928 Political Map of the Pacific [61]

This map shows that Bowman was aware of the major power rivalries that existed in the interwar Pacific. He even includes a number of distances between US Pacific territories and the continental US on this map, perhaps suggesting that he was aware of a desire within the US to materialise the Pacific as US space using geographical and geopolitical tools (such as surveying), or perhaps to provide some sense of the scale of the ocean, thus drawing the attention of the US to the size of their 'empire'. However, most of Bowman's Pacific chapter is taken up with the environmentally deterministic thinking of the day, with numerous comments on the racial make up of the region, and the problems that may occur due to immigration of the "yellow races" into US, and European 'owned' territories.[62]

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[59] Isaiah Bowman. (1928). *Ibid.* p. 729.
[60] Isaiah Bowman. (1928). *Ibid.* p. 613.
[61] Isaiah Bowman. (1928). *Ibid.* p. 613.
[62] Isaiah Bowman. (1928). *Ibid.* p. 615 & Pp. 610-628 inclusive.

With regard to the use of transport technologies, Bowman does make comments regarding telegraph cabling (as noted above). In the whole of 'The New World' he makes only two references to aviation, however one of these does show particular insight. He notes, in his chapter on the Far East, that,

> "It is of interest to note that the effect of the short and successful campaign [by the British in Afghanistan in 1919] was heightened by the use of airplanes which bombed critical places in Afghanistan and appeared over the capital, Kabul. This new instrument of warfare illustrates its usefulness in this instance in a brilliant manner, since in earlier times the difficult terrain had limited military operations."[63]

In this quote, Bowman sums up many of the strengths of airpower, such as power projection and its psychological impact. This early understanding of the potential of airpower is important in the context of this thesis, as it shows that the airplane had made an impact, albeit limited, on US geopolitical thinking at an early stage in its development.

Whilst these quotes from 'The New World', and the insight of Smith, show that Bowman was keenly interested in, and determined to affect, the geopolitics of the interwar period, in the context of this thesis it is perhaps his omissions, and biases that are of more importance. Although I have to acknowledge that transpacific aviation was very much in its infancy when Bowman's final edition of 'The New World' was published (in 1928), his lack of understanding of the potential of aviation to alter the geopolitics of the Pacific is disappointing. Further to this, Smith makes barely a handful of comments regarding Bowman's interest in the Pacific, and most of these concern the desire of the US military to "occupy an array of Pacific Islands as strategic bases" in the post-second World War period.[64] Thus, whilst Bowman has been touted as the "most famous American geographer of the Twentieth Century", his lack of interest in the significance of the Pacific (with perhaps the exception of the Philippines), shows his Eurocentric perspective, whilst his partial understanding of the potential of aviation shows a lack of interest in the place of technology in geopolitics.[65]

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[63] Isaiah Bowman. (1928). *Ibid.* p. 562.
[64] Neil Smith. (2004). *Op cit.* p. 409.
[65] Neil Smith. (2004). *Op cit.* Frontispiece.

2.4.2 Nicholas Spykman

Nicholas Spykman, another American, writing during the Second World War, followed Mackinder's thesis but "rejected the land power doctrine" and instead highlighted the importance of "maritime mobility [as] the basis for a new type of geopolitical structure" which he termed the "overseas empire."[66] In his 1942 book 'America's Strategy in World Politics', Spykman comments on the importance of the development of aviation as a factor affecting "maritime mobility."[67] He argued that,

> "bases within the bombing radius of...enemy aircraft have lost much of their effectiveness. Fleets inferior in airpower at the scene of battle have little chance of victory...Fighters can shoot down observation planes and give to the fleet the advantage of a monopoly of aerial observation."[68]

He also comments on the contemporary limitations on aviation, noting that,

> "the mid-Pacific is spanned by Pan American Airways by means of intermediate stations. But there are as yet no planes in operation that can cover oceanic distances...In terms of present-day technology, transoceanic airpower cannot be a serious threat unless it can count on friendly air bases [across] the water."[69]

In this quote Spykman sees aviation in a different way to many of his predecessors. He does not conceive it as being able to affect geopolitics, merely to be effected by geography. Indeed, I argue that he fails to understand that airpower had the potential to attack enemy air bases, thus altering the geostrategic landscape, and being a geopolitical actor rather than an inert object effected by geopolitics (as will be highlighted in Chapter 3). Throughout this chapter I have argued that recent geopolitical writers failed to understand the place of technology within earlier geopolitical texts, and thus themselves fail to acknowledge the existence of a mutually constituted relationship between geopolitics and technology. In the above quote, Spykman illustrates the beginnings of this trend.

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[66] Saul Cohen. (1963). *Op cit.* p. 46. Nicholas Spykman. Heartland and Rimland, in, Roger Kasperson & Julian Minghi (Eds.). (1970). *Op cit.* p. 170.
[67] Nicholas Spykman. Heartland and Rimland, in, Roger Kasperson & Julian Minghi (Eds.). (1970). *Ibid.* p. 170.
[68] Nicholas Spykman. America's Strategy in World Politics. (1970. Archon Books. Copy of 1942 edition). p. 32.
[69] Nicholas Spykman. (1970). *Ibid.* p. 391.

2.4.3 Conclusions

The quotes in this section are important as they show that European geopolitical thinkers were not alone in recognising the roles that technology played in geopolitics. Isaiah Bowman has been shown, in Smith's recent book, to have played an important part in shaping US interwar geopolitics, although his perspective on the Pacific was somewhat basic, and his Eurocentrism seems to have coloured his arguments. In addition, the extent to which he recognised the potential of technologies within this is debateable. By contrast, there is little doubt that Spykman was aware of technology in this context. However, I argue that Spykman failed to see technology as affecting geopolitics. For example, his second quote gives the impression that aviation had no geopolitical influence, being reliant on "friendly air bases" to function. This brief re-reading of these works reinforces the ways that their inclusion of transport technologies as an actor in the geopolitical process has been ignored by subsequent geopolitical historians.[70]

In addition to this, it is worth examining briefly, at this point, the extent to which the geopolitical theorising of Mackinder, Haushofer, and Bowman, fed into the US policies for the Pacific during the interwar period that will be examined in later chapters. Whilst little specific documentation exists directly linking the non-American geopolitical theorists to the interwar US administrations, Isaiah Bowman did have direct links to the Washington elites. He was Director of the American Geography Society from 1915-1935, served as an advisor to the US delegation at the Versailles Conference, and during World War II served in the State Department.[71] Thus, if from no other source, the US administration was almost certainly provided with information on the geopolitical theorising of the European geopolitical thinkers discussed above by Bowman.[72]

2.5 Post War Geopolitical Theorising

This section will provide some comments on the place of technology within geopolitical thinking in the Cold War and post-Cold War eras. In the post-Second

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[70] For example Spykman is most well known for his Rimland thesis, in which he fails to discuss technology. However in his 1942 book, he deals at length with issues concerning the uses of technology and its relation to geopolitics.

[71] For more information on Bowman see, Neil Smith. (2003). *Op cit.*

[72] Neil Smith. (2003). *Ibid.* Pp. 25-28.

World War era geopolitics was shunned due to its link with Nazi ideology and was sidelined as an academic discipline. However, some geopolitical writers did emerge, and this section will examine the work of two of those whose work included discussion of technologies.

2.5.1 Saul Cohen

One of the foremost US post-war geopolitical writers has been Saul Cohen. In his 1963 book, 'Geography and Politics in a World Divided', he made several references to the growth of a post-war airpower debate in the US and its effect on the US's position on the international political stage.[73] Importantly he also makes specific comment upon the Pacific as a US sphere of influence noting that,

> "The United States is now a Pacific power, no less than an Atlantic power. Alaska not only neighbors Siberia; its borders are a short 1,400 miles from Hokkaido."

In a recent article in Political Geography, entitled 'Geopolitical Realities and United States Foreign Policy', Cohen defined a five tiered geopolitical system, with the US dominant in a "maritime realm" that encompasses "North and Middle America, Maritime Europe and the Mahgreb, the Asia-Pacific Rim, South America and Sub-Saharan Africa".[74] Cohen acknowledges the pan-oceanic view of the US: a perspective which I argue was produced by the mechanisms employed by the US to territorialise and materialise the Pacific as US space during the interwar period.[75] He also notes the continuing importance of technology as a tool to enforce this hegemonic perspective, commenting that, "the geostrategic forces that bind the Western Pacific to the United States [are maintained] through American sea and airpower."[76] In the context of this thesis this comment is significant, as Cohen highlights the role of technology in this geopolitical construction of the Pacific as US space through the advances in naval and commercial aviation analysed in this thesis.

2.5.2 Peter Hugill

A more recent re-interpretation of the relationship between space and technology has been developed by Peter Hugill. Hugill approaches the history of world trade as

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[73] Saul Cohen. (1963). *Op cit.* Pp. 49-51.
[74] Saul Cohen. *Geopolitical Realities and United States Foreign Policy*, in Political Geography. 2003. Vol. 22. p. 5.
[75] For more comment on this view see Peter Hayes, Lyuba Zarsky & Walden Bello. (1986). *Op cit.*
[76] Saul Cohen. (2003). *Op cit.* p. 30.

mediated through developments in transport technology from a world systems theory perspective.[77] In many ways, he shares his approach with that of Steinberg (discussed in Chapter 1) who, in agreeing with Hugill's world-systems theory approach to oceanic space, states that although,

> "Ocean-space does not fall into any of the three categories of space commonly identified by world-systems theory...[however] ocean-space, like the development of land-space, serves a crucial role in the reproduction and development of the world system and that historically it has been constructed and regulated as one unique element of social space so as better to serve the system's functions."[78]

Hugill argues that,

> "an understanding of the world system must be tempered through two further understandings. The first of these is the technologies of transportation and production...The second is the...development of long wave theory."[79]

He continues by highlighting the implicit placing of technological development with this theoretical framework, commenting on work done by Brian Berry, which takes account of technology in a geographical context.[80]

> "Berry notes that one Kondratiev cycle peaks as new technologies emerge, usually in the eighties and nineties of each century...The other cycle peaks in the thirties or forties of every century, when much capital is tied up in investment in the technologies developed in the eighties and nineties."[81]

Given Hugill's conceptual background, it is important to address how he analyses developments in aviation technologies. He considers the rise of aviation to presage the development of the "first true global system", and divides aviation into military and commercial sectors, citing their differing functions as his dividing factor.[82] His work centres on five self-identified stages of commercial aviation.[83] However he also notes the links between commercial and military aviation, commenting that "military aviation has geostrategic importance, and many advances in civil aviation have

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[77] For a more detailed analysis of world-systems theory, see Peter Taylor. Political Geography of the Twentieth Century. (1993. London. Belhaven Press). Pg 35. Immanuel Wallerstein. Geopolitics and Geoculture. (1991. Cambridge. Cambridge University Press). *Passim.*

[78] Philip Steinberg. (2001). *Op cit.* Pg, 24.

[79] Peter Hugill. World Trade since 1431. (1995. Baltimore. Johns Hopkins University Press). p. 6.

[80] Brian Berry. Long Wave Rhythms in Economic Development and Political Behaviour. (1991. Baltimore. Johns Hopkins University Press). noted in Peter Hugill. (1995). *Op cit.* p. 12.

[81] Peter Hugill. (1995). *Ibid.* p. 12.

[82] Peter Hugill. (1995). *Ibid.* p. 249. Hugill argues that previous modes of land and sea based transport were able to move goods, but aircraft could also move information and people quickly and efficiently, thus creating a global system that was not impeded by change of terrain.

[83] Peter Hugill. (1995). *Ibid.* Pp. 251-298.

military origins"[84] Thus, I argue that Hugill sees the recursivity of technology and geopolitics (as did Butler) at work in the US aviation industry.[85]

2.5.3 Conclusions

There have been some contemporary geopolitical theorists who have recognised the role and place of transport technologies as actors. Both Saul Cohen and Peter Hugill have argued that airpower has a significant role to play in understanding the US's perceptions of the Pacific as US space; both argue that US geopolitics have been affected by advances in transport technologies. Whilst the previous sections of this chapter have dealt with what 'classical' approaches to geopolitical theorising, the following section will discuss and analyse the importance of a 'critical' approach to understanding geopolitics.

2.6 Critical Geopolitics

In 1992, Gearoid Ó Tuathail & John Agnew's article 'Geopolitics and Discourse' was published in the journal Political Geography.[86] This article set out to re-conceptualise geopolitics through the concept of *discourse*: to investigate how geopolitics, in both variants of 'formal' and 'practical', was situated and constructed within a contested social and historical dialogue and *not* within the separate vacuum that many traditional geopolitical writings would have us believe.[87] Thus, as Youngs comments,

> "Treating theory as discourse opens up complex possibilities for doing much more that assessing theory in its own terms. The fundamental myth that theory stands apart from reality, that it is somehow separate from other forms of practice, is overturned. Instead theory is considered as just one, albeit specific, form of practice which is necessarily informed by other forms of practice."[88]

In essence, Ó Tuathail and Agnew aimed to change the lens through which geopolitics interpreted statescraft and to problematise the very foundations upon which the whole discipline was built. In his subsequent 1996 book 'Critical

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[84] Peter Hugill. (1995). *Ibid.* p. 249.
[85] It is interesting that Hugill was Butler's M.Sc. supervisor when Butler developed his technogeopolitics concept. (Author's personal conversation with Peter Hugill. Summer 2002).
[86] Gearoid Ó Tuathail & John Agnew. *Geopolitics and Discourse*, in Political Geography. 1992. Pp. 190-204.
[87] Gearoid Ó Tuathail & John Agnew. (1992). *Ibid*, p. 190
[88] Gillian Youngs. The Reality of American Idealism, in David Slater and Peter J. Taylor. (Eds.) (1999). *Op cit.* p. 211.

Geopolitics', Ó Tuathail defined this new perspective as 'critical geopolitics' and added the further category of 'popular' geopolitics to this framework.[89]

Like Steinberg, and his use of discourse in the construction of oceanic space, Ó Tuathail & Agnew drew many of their ideas from the writings of Foucault and specifically his premise that "geography as a discourse is a form of power/knowledge".[90] At the heart of this idea was a definition that was to underpin critical geopolitics. They stated that,

> "Geopolitics...should be critically re-conceptualised as a discursive practice by which intellectuals of statescraft 'spatialise' international politics in such a way as to represent it as a 'world' characterised by particular types of places, peoples and dramas."[91]

Perhaps the most cogent definition of critical geopolitics can be found in Ó Tuathail's chapter in Gray and Sloan's 1999 book 'Geography, Geopolitics and Strategy'.[92] Here Ó Tuathail defines four 'dimensions' of critical geopolitics; 'formal', 'practical', 'popular' and 'structural'. The first of these 'dimensions', 'formal' geopolitics is concerned with "what is usually considered 'geopolitical thought'...[and] is a problematic of intellectuals, institutions and the forces shaping geopolitical thought in particular places and contexts."[93] Ó Tuathail defines his second dimension 'practical' geopolitics as being "concerned with the geographical politics involved in the everyday practice of foreign policy...[addressing] how common geographical understandings and perceptions enframe foreign policy conceptualisation and decision making."[94] His third 'dimension', that of 'popular' geopolitics, covers "the geographical politics created and debated by the various media [that shape] popular culture" and includes the 'geopolitical visions' projected by the print and tele-visual media, as well as in popular literature, visual art and

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[89] Gearoid Ó Tuathail. (1996). *Op cit.*
[90] Philip Steinberg. (2001). *Op cit.* p. 34. Gearoid Ó Tuathail. (1996). *Op cit.* p. 59. Gearoid Ó Tuathail & John Agnew. (1992). *Op cit.* p. 192. For more information on Foucault's power/knowledge nexus see, Colin Gordon (Ed). Michel Foucault. Power/Knowledge: selected interviews and other writings, 1972-1977. (1980. Harvester Press. Brighton). *Passim.*
[91] Gearoid Ó Tuathail & John Agnew. (1992). p. 192.
[92] Colin Gray & Geoffrey Sloan. Geopolitics, Geography and Strategy. (London. Frank Cass. 1999).
[93] Gearoid Ó Tuathail. Understanding Critical Geopolitics: Geopolitics and risk society, in Colin Gray & Geoffrey Sloan. (1999). *Op cit.* Pp. 109-110.
[94] Gearoid Ó Tuathail. Understanding Critical Geopolitics: Geopolitics and risk society, in Colin Gray & Geoffrey Sloan. (1999). *Ibid.* p. 110.

propaganda.[95] Ó Tuathail's final dimension, structural geopolitics, examines "structural processes and [the] tendencies that condition how all states practice foreign policy."[96] He identifies globalisation, and the information technology revolution of the 1990's, as being examples of such processes in the modern world. Thus, formal geopolitics deals with academics and their theorising about the international system. Practical geopolitics analyses government foreign policies and actions. Popular geopolitics examines how the media influences our worldview, and Structural geopolitics investigates how changing international technologies, can impact on an individual state's policies. These definitions constitute critical geopolitics.

The significance of the development of critical geopolitics over the last decade, in the revitalisation of geopolitics cannot be overemphasised. However, some criticisms of O'Tuathail's work have been made. An excellent example of this can be found in a special review symposium published in *Political Geography* in 2000, in which a number of academics (working in fields related to critical geopolitics) critiqued Ó Tuathail's 1996 book.[97] Many of their questions and queries mirror my own uncertainties with Ó Tuathail's interpretations, and although acknowledging the importance of this book, many of the reviewers developed interesting arguments concerning critical geopolitics.[98]

Michael Heffernan and Wolfgang Natter both sought to question the way in which Ó Tuathail defines his 'critical geopolitics' and queried whether his definition was defined clearly enough. Heffernan comments that Ó Tuathail uses "several different versions" of the term through the book, and Natter asks whether "critical geopolitics, as envisioned by Ó Tuathail [is] really possible".[99] In his article with Agnew, Ó Tuathail defines critical geopolitics quite succinctly, but in the book his approach is

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[95] Gearoid Ó Tuathail. Understanding Critical Geopolitics: Geopolitics and risk society, in Colin Gray & Geoffrey Sloan. (1999). *Ibid.* p. 110.
[96] Gearoid Ó Tuathail. Understanding Critical Geopolitics: Geopolitics and risk society, in Colin Gray & Geoffrey Sloan. (1999). *Ibid.* p. 110.
[97] Susan Roberts (Eds.). *Review Symposium*, in Political Geography. 2000. Vol. 19. Pp. 345-396.
[98] Susan Roberts. (2000). *Ibid.* p. 345.
[99] Michael J. Heffernan. *Balancing visions: comments on Gearóid O Tuathail's critical geopolitics,* in Political Geography. 2000. Vol. 19. p. 350. Wolfgang Natter. *Hyphenated practices: what put the hyphen in geopolitics?,* in Political Geography. 2000. Vol. 19. p. 358.

far wider, which compromises the definitions the earlier work is built upon. As Natter argues,

> "future work might benefit from a more thorough theorisation of the many mediations in play; between practical and formal geopolitics and lived spatial practices; between statescraft intellectuals and the pragmatic reasoning of engaged statespersons; and, between representational space, representations of space, and space as lived."[100]

A further criticism levelled at Ó Tuathail's book is its implicit side-lining of the 'popular' aspect of critical geopolitics behind the more statescraft-linked 'practical' and 'formal' aspects of geopolitics. Joanne Sharp highlights this unequal relationship in her critique, arguing that popular geopolitics is given "short shrift" by Ó Tuathail, who she argues describes it as "largely propagandistic".[101] This is an obvious omission in Ó Tuathail's work. He concentrates almost totally on practical and formal geopolitics throughout his book. One of the few exceptions was his Bosnian case study in which he cites work by US news agencies.[102]

In response, Ó Tuathail takes on board many of the comments his critics make, but argues that given his subject matter, his book is a success. He acknowledges that,

> "The book is built from sources of inspiration that are in creative tension...it is made up of many different styles...and, while it 'works', it does not necessarily 'work' as promised.[103]

Yet, that it does not "work as promised" is perhaps the books biggest failing, especially coming in the wake of the success of Ó Tuathail and Agnew's 1992 article. Thus, in this thesis, whilst being aware of the importance of critical geopolitics I am also aware of these criticisms, and have chosen to use a different geopolitical perspective as the theoretical framework with which to analyse my case studies.

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[100] Wolfgang Natter. (2000). *Ibid.* p. 358.
[101] Joanne Sharp. *Remasculating geo-politics? Comments on Gearóid O'Tuathail's Critical Geopolitics,* in Political Geography. 2000. Vol. 19. p. 362.
[102] Gearoid O Tuathail. (1996). *Op cit.* Pp. 187-225.
[103] Gearóid O'Tuathail. *Dis/placing the geo-politics which one cannot not want,* in Political Geography. 2000. Vol. 19. p. 395.

2.7 Technogeopolitics and the technogeopolitical project

This section will introduce and discuss the theory at the centre of this thesis – technogeopolitics. In 2001, David Butler published an article entitled 'Technogeopolitics and the struggle for control of world air routes 1910-1928'.[104] He postulated the concept of 'technogeopolitics, defined as the "recursive relationship between technology and geopolitics as a lens for analysis."[105] Butler developed this further by stating that technogeopolitics provides a "method for analysing geopolitical events that are strongly influenced by technological factors."[106] This distinction sets this form of analysis apart from other geopolitical investigations that include technological subjects (but avoids the potential problem of falling into the trap of technological determinism) by acknowledging the importance of technological developments to geopolitics but without becoming technologically deterministic in its approach. In line with Butler's thinking, I argue that geopolitical writers now have to let go of many previous assumptions that technology operates in a vacuum immune from changing geopolitical situations and strategies. Traditionally, technology has been little understood as an actor in geopolitical processes; it was usually seen merely as an object affected by them. Indeed, I have argued earlier in this chapter that a re-reading of texts by Mackinder and others can bring to light their perceptions that technology could be understood as an actor in the geopolitical process. This is why technogeopolitics, especially in the context of this thesis, is of such importance.

In his paper, Butler uses the civil aviation industry as the technology around which to develop his technogeopolitical standpoint.[107] He argues that developments in aviation technology during the early decades of the twentieth century directly influenced what he terms a nation's "geopolitical realities".[108] In the concluding section of his article Butler identifies five themes which he argues emerged during his work on the aviation conferences of the early twentieth century. These themes are important in understanding both the theoretical background to technogeopolitics. These five themes are,

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[104] David Butler. (2001). *Op cit.*
[105] David Butler. (2001). *Ibid.* p. 635
[106] David Butler. (2001). *Ibid.* p. 636
[107] David Butler. (2001). *Ibid. Passim.*
[108] David Butler. (2001). *Ibid.* p. 636.

> "(1) states pursue specific technologies to enhance their geopolitical positions;(2) states react to other states' technical developments geopolitically which in turn affects their own geopolitical position; (3) if a state is technologically immature it will use its power to restrict access by other nations to enable it time to catch up technologically and compete on a level technological field; (4) if a state is technologically mature vis-à-vis its commercial and military rivals, it will push for the most liberal...policy allowing a comparative advantage ... ;(5) at any time technological developments may evolve at such a rate as to potentially wipe out any geopolitical gains or losses for a nation, thus forcing states to re-examine their geopolitical foreign policy."[109]

Whilst these themes do provide a semblance of a framework to technogeopolitics, I argue that Butler's concept is too woolly and vague to be completely viable. However, I have taken his original idea as a starting point and have developed into a more concrete concept, which I term the 'technogeopolitical project'.

The 'technogeopolitical project' seeks to use Butler's ideas on the relationship between geopolitics and technology, but adds the identification of a specific process or mechanism through which this relationship is realised. This allows us to understand technogeopolitics – or the 'technogeopolitical project' – as a more tangible and concrete set of actions and practices. Indeed, perhaps most pertinent strength of this 'project' over Butler's technogeopolitics is its solidity, making more amorphous ideas – such as geopolitics and territorialisation – much more tangible and substantial. It seeks to understand how technology is used to incorporate a specific space, rather than attempting to make grand overarching claims about how all space is manipulated by the mutually constituted relationship between technology and geopolitics.

Each 'project' is time or space specific, but the wider concept can be applied to other spaces and time frames where the interplay between technology and geopolitics has influence the perception/control of space. Processes and mechanisms that can be viewed as being 'technogeopolitical projects' include: the undertaking of surveys of territory or space, the development of technologies specifically related to developing 'control' of territory, the development of strategic planning, and the growth of media

[109] David Butler. (2001). *Ibid.* p. 654.

interest in these technologies and how they traverse this space. Thus, some examples of 'technogeopolitical projects' comprise: the construction of the Berlin to Baghdad railway, the laying of the trans-oceanic telegraph cables, and the development of Imperial Airways' Empire route. Each of these was a 'technogeopolitical project' to materialise control over space.

In this thesis, I argue that the US Government undertook a 'technogeopolitical project' using aviation to materialise the Pacific as US space during the interwar period. I provide evidence to show that they achieved this through the wide-scale use of surveys of potential sites for the construction of aviation facilities across the Pacific; through the development of War Plan Orange (a strategic planning document for war against Japan to be fought across the Pacific); through Pan American Airways' development of transpacific commercial air routes; through the construction of aircraft (both for commercial and military uses) specifically designed to traverse this region; through the enactment of numerous laws, international treaties, and Government committees that sought to advance the US's power across the Pacific through their use of aviation; and through the interest of, and publicity produced by, the US mass media in events such as the numerous Pacific pioneer flights.

2.8 Conclusions

This chapter has sought to examine and analyse a number of geopolitical texts to argue that an understanding of the significance of technology as an actor in the geopolitical process has been lost as these texts have been re-read over time. In sections 2.2.-2.4, I have examined and analysed the original 'place' of technologies within works by key geopolitical theorisers such as Mackinder, Haushofer, Bowman, and other pre-Second World War commentators. Within these sections I sought to illustrate how technology and its role, within a mutually constituted geopolitical relationship, had been all but read out of these works by recent scholarship.

I continued this theme in section 2.5., in which works by Cohen and Hugill were analysed to give some insight into how more recent geopolitical thinkers have sought to problematise technology. Section 2.6 developed this idea of problematising geopolitics with a discussion of critical geopolitics. This more nuanced way of

analysing geopolitics in a variety of arenas (formal, practical, popular, and structural) has allowed political geographers to re-problematise many areas of foreign policy, diplomatic affairs, international politics, and numerous other situations.

These sections all provided a sound historical bases upon which to situate my own geopolitical concept – the technogeopolitical project. In section 2.7 Butler's technogeopolitics was set out and critiqued, and I argued that whilst it had merit it lacked the solidity to make it a viable theory for use in this thesis. Thus, I introduced the 'technogeopolitical project' as a concept that builds on the recursive relationship between technology and geopolitics identified by Butler, but concretises it with the introduction of the idea of specific processes and mechanisms (which can be readily identified and analysed) that form each project. Thus I argue that this concept gives a much more rigorous way of analysing how the relationship between technology and geopolitics actually functioned in reality.

The following chapters will seek to analyse a number of these processes and mechanisms, which were employed by the US. I will argue that the US's perception of the Pacific as US space can only be understood if viewed from a technogeopolitical standpoint, as part of a recursive relationship with geopolitics which acted as processes and mechanisms by which the US was able to territorialise and materialise the Pacific as US space.

The next chapter will discuss and analyse the second major theory used in this thesis, that of airpower, and will seek to identify the main characteristics (strengths and weakness) of aviation. Further to this, the chapter will undertake a comparative analysis of the three main interwar airpower theorists to ascertain their impact on US airpower practice. Finally, it will analyse two recent books that have sought to theorise the geographies of airfield locations, and their subsequent geostrategic effects on a region.

Chapter 3

Air power: theory and practice

3.1 Introduction

It can be argued that awareness of the power projection potential of aviation has never been higher than over the last four years. The despicable use of commercial aircraft as missiles of destruction on September 11th 2001 has had a significant effect on how air power is understood.[1] Related to this, the media coverage of the US-led coalition's 'shock and awe' campaign in Iraq in March 2003 served only to reinforce the idea of the power and reach of modern state-of-the-art military aircraft. Interestingly, 2003 also marked the centenary of the first manned powered flight, made by the Wright Brothers, at Kitty Hawk, North Carolina, on December 17th 1903, which ushered in the air age. A number of books published to coincide with this anniversary have repositioned air power theory as an important arena of debate during the twentieth century, with titles such as Walter Boyne's 'The Influence of Air Power upon History' even daring to compare airpower with sea power – in its titular plagiarism of Mahan's seminal text 'The Influence of Sea Power on History'.[2] Another post-9/11 book, Stephen Budiansky's 'Air Power' subtitles itself as a "history of the people, ideas and machines that transformed war in the century of flight".[3]

This thesis seeks to understand the processes by which the US used aviation as a tool to territorialise and materialise the Pacific as US space during the interwar period. In order to undertake such an analysis is it first necessary to set the context. Thus, this chapter aims to introduce the concept of air power and through a discussion and analysis of its key interwar theorists, construct an understanding of the perception of aviation held by those in the US who were responsible for seeking to use aviation in

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[1] See, for example, Walter J. Boyne. The Influence of Air Power upon History. (2003. Pelican Publishing Co. Gretna). Pp. 363-365. Klaus Dodds. (2005). *Op cit.* Pp. 72-73. Thomas R. Leinbach and John T. Bowen, Jr. Airspaces: air transport, technology, and society, in Stanley D. Brunn, Susan L. Cutter and J. W. Harrington, Jr. (Eds). (2004). *Op cit.* Pp. 285-313.

[2] Walter J. Boyne. (2003). *Op cit.* Alfred T. Mahan. (1890). *Op cit.*

[3] Stephen Budiansky. Air Power: from Kitty Hawk to Gulf War II, a history of the people, ideas and machines that transformed was in the century of flight. (2003. Viking Penguin. London).

the interwar Pacific. It is argued that an understanding of these theoretical positions is vital in order to provide necessary context for the empirical chapters that follow.

This chapter is composed of three main sections, each dealing with a different aspect of air power theory, and all acting in concert to develop an understanding of the role of air power theory in this thesis. Air power technology radically changed experiences of space, time, territory, and security during the interwar period.[4] Thus, the first section of this chapter will examine the key characteristics of air power: those abilities and limitations that prescribe the roles that aircraft can undertake. The second section will analyse the ideas of several key interwar aviation theorists whose 'air power debates' informed American strategic and political thinking concerning the potential uses of aviation. Brigadier General William 'Billy' Mitchell was at the forefront of these debates in the US. Additionally, the views of the Italian Guilio Douhet, and the RAF's Hugh Trenchard were also known in US aviation circles.[5]

Related to these theories, the third section of the chapter discusses airfield theories. As Brown argues, "without airfields there can be no airpower".[6] In this thesis, I argue that an airfield can be defined as any space upon which aircraft can be launched and recovered. This can take the form of a strip of land, an aircraft carrier's deck, or a harbour for flying boats. Thus, it is necessary to examine the importance of airfields in this chapter, as it can be argued that they have direct relevance to air power theories. During the interwar period the location and construction of airfields was influenced by the work of the air power theorists, and those who applied their ideas in the practical sphere. The writings of Eric Bergerud and Jerold Brown are analysed here in order to understand the strategic and geopolitical potential of airfields when viewed as elements affecting air power. The final section will seek to draw together a number of conclusions about air power theory and its role within the wider context of this thesis. It will include comment on how this formal technogeopolitical theorising of aviation is significant, in terms of the wider remit of this thesis, to develop an understanding of the US's attempts to use aviation to materialise and territorialise the

[4] For an analysis of America's fascination with the air age see, Joseph Corn. The Winged Gospel: America's romance with aviation. (2001. The Johns Hopkins University Press. Baltimore). *Passim*.
[5] Walter J. Boyne. (2003). *Op cit.* p. 143.
See also, http://www.apc.maxwell.af.mil/text/theory/intro.htm. Accessed March 2004.
[6] Jerold Brown. Where Eagles Land: Planning and Development of US Army Airfields, 1910-1941. (1990). p. 1.

Pacific as US space during the interwar period. This introductory section has set out the parameters of this chapter. The following section begins the in-depth analysis of airpower with an examination of its abilities and limitations.

3.2 The characteristics of air power

In order to understand the works of Mitchell and his contemporaries (see section 3.3), and to situate their debates within a wider theoretical framework, this section details the positive and negative characteristics of airpower. However, it is first necessary to define air power as a concept to which these characteristics can be applied. In his chapter in Lambert and Williamson's 1996 book 'The Dynamics of Air Power' Philip Towle argues that air power can be defined as,

> "the use, or denial of the use, of the air...for military purposes by or to vehicles capable of sustained and controlled flight beyond that area and range of the immediate surface conflict."[7]

Further to this, the Royal Air Force, in their recent document 'AP3000' define air power as,

> "The ability to project military force in air or space by or from a platform or missile operating above the surface of the earth. Air platforms are defined as any aircraft, helicopter or unmanned air vehicle."[8]

Thus, it can be seen that no single definition of air power seems to exist, and that a degree of individual interpretation is inevitable. In this thesis, the Towle definition has been taken as a starting point, but is qualified slightly because of the inclusion of commercial aircraft within the remit of this thesis. Thus the definition of air power used throughout this work is,

> 'the ability to control the use or deny use of the air above territory, either land or sea, over which a nation claims sovereignty rights, and the further ability to project that power over contested territories'.

3.2.1 The strengths of air power

This sub-section will detail the first of two attributes of air power, namely its strengths, whilst the succeeding sub-section (section 3.2.2) will examine air power's limitations.[9]

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[7] Philip Towle. The Distinctive Characteristics of Air Power, in Andrew Lambert & Arthur Williamson. The Dynamics of Air Power. (1996. HMSO. MOD. Bracknell). p. 3.
[8] British Air Power Doctrine (AP3000) Ch. 2. Air Power. p. 1.2.1.
www.raf.mod.uk/downloads/doctrine/02.pdf Accessed January 2005.

From the beginning of the air age, as Butler's 2001 article shows, the desire to control air space was of primary importance. Indeed, the Versailles Treaty made stipulations concerning issues surrounding sovereignty of the sky and air power and, as Butler notes, one of the first major air conferences of the interwar period was primarily concerned with a major power seeking to assert hegemonic power over the commercial air traffic across the whole continent.[10]

> "the US in [the 1928] treaty set the stage for a single US airline, Pan American Airways, to dominate international aviation in the Western Hemisphere as the US's 'chosen instrument' all-the-while excluding the aircraft of other nations."[11]

A further example of this can be seen in Omissi's book on the UK's deployment of aircraft to its African colonies during the interwar period.[12] It provides a thorough example of how important air power could be in extending a country's power far from its shores. Omissi's descriptions of how the RAF acted as the "long arm of government", affecting the "balance of power in Southern Sudan" merely by the establishment of air bases in remote areas, effectively illustrates the potential of aircraft to assert and project this hegemonic power.[13]

At the heart of all air power theorists' work is a desire to understand, and advocate, their perception of the best way to harness aviation in order to produce the most efficient deployment of military air power. In order to understand this it is necessary to examine the distinctive characteristics of air power.[14] This sub-section seeks to identify and understand the importance of the strengths, or abilities, of manned-powered aircraft. Whilst it must be noted that throughout the twentieth century advances in technology have mediated some of these abilities (and also some of the limitations that will be discussed in section 3.2.2), the basic attributes of air power have remained constant since the first heavier-than-air craft were successfully flown

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[9] For a concise list of airpower's strengths see, Phillip S. Meilinger. Airwar: theory and practice. (2003. Frank Cass. London). Pp. 1-2.
[10] The 1919 Versailles Treaty. http://www.yale.edu/lawweb/avalon/imt/menu.htm. Accessed April 2005.
[11] David Butler. (2001). *Op cit.* p. 652.
[12] David E. Omissi. Air Power and Colonial Control: the Royal Air Force 1919-1939. (1990. Manchester University Press. Manchester).
[13] David E. Omissi. (1990). *Ibid.* p. 88.
[14] Philip Towle. The Distinctive Characteristics of Air Power, in Andrew Lambert & Arthur Williamson. (1996). *Op cit.* p. 3.

by the Wright Brothers and their contemporaries in the first decade of the twentieth century.[15] Thus this sub-section seeks to understand the effect of these strengths during the interwar period, and to provide therefore some context for the case studies chapters that follow.

In his 1991 book 'Technology and War' Martin van Creveld, argues that,

> "The principal strengths [of aircraft are] speed, flexibility, the ability to reach out and hit any point regardless of natural and artificial obstacles, and a great potential for achieving surprise."[16]

Towle agrees, but develops his ideas further, as shown in the following diagram (Fig. 3.2.1).[17]

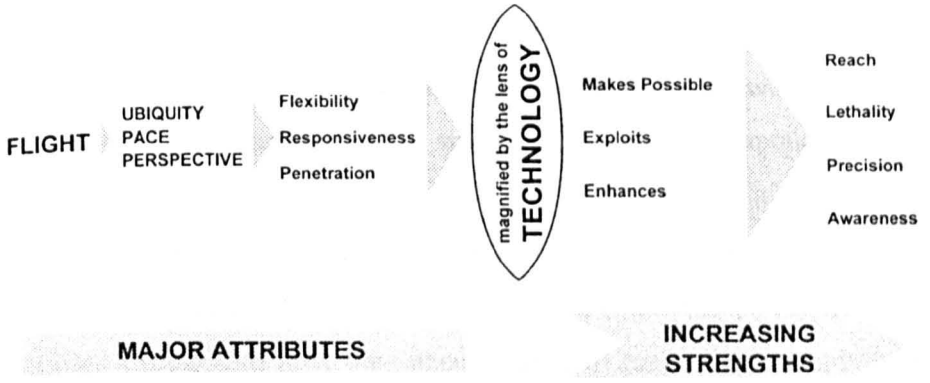

Fig. 3.2.1.Towle's major attributes of air power[18]

This diagram can be used as a basis from which to identify the key attributes of air power that differentiate it from other forms of transport technology. It is necessary to examine each of these in turn in order to attempt to analyse the specific importance of each in the interwar period.

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[15] A heavier-than-air craft is any flying machine that is constructed of materials that mean it not naturally buoyant in air. All aircraft are heavier-than-air machines. The opposite of this is are lighter-than-air craft, which are machines such as kites, or airships (filled with a buoyant gas) that are constructed out of lighter materials which allow them to float without the aid of an engine.

[16] Martin van Crefeld. Technology and War: from 2000 B. C. to the present. (1991. The Free Press. New York). p. 188.

[17] Philip Towle. The Distinctive Characteristics of Air Power, in Andrew Lambert & Arthur Williamson. (1996). *Op cit.* p. 5.

[18] Philip Towle. The Distinctive Characteristics of Air Power, in Andrew Lambert & Arthur Williamson. (1996). *Ibid.* Pg 5.

The ubiquity of air power is one of its greatest assets. By the end of the First World War aircraft had developed to the extent that the centuries-old barrier between land and sea could be overcome by the capability to over-fly both. This ability to fly anywhere (within the limits of fuel capacity and some technical limitations) allowed aviation pioneers a feeling of ubiquity, and the ability to move freely across space and territory.[19] In addition, the speed or pace of aircraft was far greater that extant land or sea bases modes of transport, gifting air power advantages over ships, railroads and motor vehicles that was not lost in military and commercial sectors.[20] From a military perspective,

> "The pace at which air power operations can be generated allows information to be exploited whilst it still has currency, thus impacting on the overall tempo of operations."[21]

Pace can also be thought of in terms of the speed with which aircraft can be deployed in a power projection capacity. This is usually much quicker than land or sea forces, due to the ability to aircraft to extend their reach beyond their base.

> "The rapid arrival and build-up of aircraft near or in troublespots provides a visible sign of presence and intent."[22]

Further to this, from a commercial aviation perspective, the development of the Pan American Airways transpacific route in the 1930's (that will be analysed in chapter 7) is a brilliant example of how the speed of aircraft made them so advantageous to use. Pan Am's route took only six days to traverse the Pacific in comparison with steamships of the day that took more than double that time to sail the same route.[23]

Perspective is also deemed by Towle and many others to be a major attribute of air power. Perspective is defined as the ability to use the height achieved by aircraft to 'look down' at the earth and thus gain a 'gods eye view'. Indeed the RAF, in its recent publication AP3000, states that "the military advantages of elevation include enhanced observation and perspective of the battlespace."[24] This idea came to

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[19] Philip Towle. The Distinctive Characteristics of Air Power, in Andrew Lambert & Arthur Williamson. (1996). *Ibid.* p. 4. Phillip S. Meilinger. (2003). *Op cit.* p. 1.
[20] Phillip S. Meilinger. (2003). *Ibid.* p. 1.
[21] British Air Power Doctrine (AP3000) Ch. 2. Air Power. p. 1.2.6. www.raf.mod.uk/downloads/doctrine/02.pdf. Accessed 6th December 2004.
[22] Royal Air Force Operations. www.raf.mod.uk/organisation/airpower_1.html. Accessed. 6th December 2004.
[23] For more information on this see Ch. 7.
[24] British Air Power Doctrine (AP3000) Ch. 2. Air Power. p. 1.2.3.

fruition in the First World War when European Armies began to use aircraft as spotters and observers in battle, using their ability to fly over the battlefield to gain a unique viewpoint on the battle below.[25] This offered aviators the ability to see a much wider horizon than their colleagues operating on land or at sea had. Thus, this gave air power the ability to produce a completely different perspective of the battlefield as a whole.[26]

Fig. 3.2.1 shows that these three basic principles, of ubiquity, pace, and perspective, allow air power the advantages of flexibility, responsiveness, and penetration.[27] These in turn can be magnified by the 'lens of technology' to produce the key abilities of air power, which they identify as being reach, lethality, precision, and awareness.[28] Although these abilities were not all present in equal measure during the early years of aviation, the early air power theorists recognised these abilities, and the potential that this new technology had.

3.2.2 Limitations of air power

By contrast with the strengths and abilities of air power, its limitations must also have to be acknowledged and taken into consideration when assessing the writings of the interwar theorists. Van Crefeld comments that as aviation developed,

> "the most important weaknesses were probably a growing dependence on sophisticated ground facilities, vulnerability to attack when on the ground, limited endurance, relatively small burden-carrying capacity, and a great drop in effectiveness during bad weather or at night."[29]

In practice, these limitations acted in various ways. The growing dependence on technologies and ground facilities went hand in hand with advances in aviation. As aircraft became more sophisticated so they required increasingly specialised

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www.raf.mod.uk/downloads/doctrine/02.pdf *Op cit.*

[25] For more information on the role of aviation in the First World War see, Quentin Reynolds. They Fought for the Sky: the story of the First World War in the air. (1974. Pan. London). Ralph Barker. A Brief History of the Royal Flying Corps in World War I. (2002. Robinson. London. Williamson Murray. War in the Air, 1914-45. (2002. Cassell. London). Pp. 30-79.

[26] Philip Towle. The Distinctive Characteristics of Air Power, in Andrew Lambert & Arthur Williamson. (1996). *Op cit.* Pp. 5-6.

[27] Philip Towle. The Distinctive Characteristics of Air Power, in Andrew Lambert & Arthur Williamson. (1996). *Ibid.* p. 5. Phillip S. Meilinger. (2003). *Op cit.* p. 1.

[28] Philip Towle. The Distinctive Characteristics of Air Power, in Andrew Lambert & Arthur Williamson. (1996). *Op cit.* p. 5. Philip Meilinger identifies range, or reach as one of airpower's strengths. Phillip S. Meilinger. (2003). *Op cit.* p. 1.

[29] Martin van Crefeld. (1991). *Op cit.* p. 188.

paraphernalia.[30] In section 3.4.1 I will discuss how this was manifest at airfields, which needed to be longer, flatter, and built from tarmac because of the developments in aircraft landing gear that made grass runways unsafe to use.[31]

Van Crefeld's second limitation – vulnerability to attack on the ground – can be understood as a direct result of some of the advances in the strengths of airpower discussed in section 3.2.1. As aircraft became stronger, and developed longer ranges, so they became increasingly able to reach beyond enemy frontlines, able to reach airfields and attack aircraft on the ground. In turn, this led to the development of anti-aircraft batteries and hardened aircraft shelters to protect aircraft on the ground.[32] This vulnerability to attack could be mediated by another of Van Crefeld, and Meilinger's limitations – that of the effect of weather and night.[33] Pre-Second World War aircraft did not enjoy the technological advantages of radar and thus flying was done by sight. Thus, poor visibility and darkness hampered flying. In addition, and of relevance to this thesis, are problems caused by extremely cold conditions (as experienced in the Northern Pacific and Alaskan region) that led to ice forming on wings. This condition, known as icing, seriously affected the flight performance of aircraft and until the invention of heated wings would ground aircraft.

In addition to these limitations, Towle (Fig. 3.2.2) identifies detachment, impermanence, payload, and political constraints.[34] Detachment describes the lack of communication between aircraft and the ground that was especially evident in the early years of aviation. This meant that although observers were able to view the battlefield from above, their inability to communicate with the ground limited the influence they could have. Related to this is the concept of impermanence.[35] Until the invention of the helicopter, aircraft were only able to over-fly an area. Whilst directly overhead an aircraft could exercise power over those below, but as it moved over the area so its power waned.

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[30] Phillip S. Meilinger. (2003). *Op cit.* p. 2.
[31] For more information on this see, Jerold Brown. (1990). *Op cit.* p. 5.
[32] For information on the development of anti-aircraft guns see, David Hamer. Bombers versus Battleships: the struggle between ships and aircraft for the control of the surface of the sea. (1999. Conway Maritime Press. London). Pp. 41-47.
[33] Martin van Crefeld. (1991). *Op cit* p. 188. Phillip S. Meilinger. (2003). *Op cit.* p. 2.
[34] Philip Towle. The Distinctive Characteristics of Air Power, in Andrew Lambert & Arthur Williamson. (1996). *Op cit.* Pg 9.
[35] Phillip S. Meilinger. (2003). *Op cit.* p. 2.

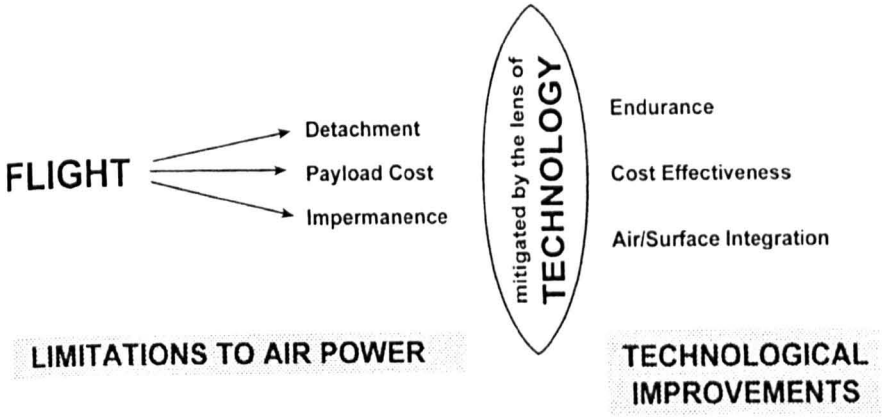

Fig. 3.2.2. Towle's limitations of air power[36]

In the early years of aviation the construction materials available to aircraft manufacturers were lightweight, and comparatively flimsy, woods and fabric.[37] This limited the amount of payload an aircraft could carry, a limitation (identified by numerous commentators) that was equally important in the commercial and military sectors.[38] Carrying a large payload would require aircraft to carry less fuel and thus be dependent on refuelling stops to reach their destination. This began to become less of a limitation as new metal alloys came on stream, but the balance between payload and fuel had always been complicated and has imposed limitations on all aircraft. A final, yet important limitation on airpower is that of politics.

In addition to the limitations listed by both Van Crefeld and Towle, it is generally recognised that Governments hold the purse strings of the military, and thus they also play a role in determining the rate of development of aviation. Government support can either strengthen or weaken airpower. In the interwar US, established naval and army lobbies had sufficient influence to ensure that aviation was seen as being outside of the mainstream, and that its progress could be curtailed when faced with other concerns such as ship-building or re-armaments programmes.[39] Such issues

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[36] Philip Towle. The Distinctive Characteristics of Air Power, in Andrew Lambert & Arthur Williamson. (1996). *Ibid.* Pg 9.
[37] John H. Morrow, Jr. The Great War in the Air: military aviation from 1909 to 1921. (1993. Smithsonian Institute Press. Washington D.C). *Passim.*
[38] Phillip S. Meilinger. (2003). *Op cit.* p. 2. Philip Towle. The Distinctive Characteristics of Air Power, in Andrew Lambert & Arthur Williamson. (1996). *Op cit.* Pg 9. Martin van Crefeld. (1991). *Op cit.* p. 188.
[39] George W. Baer. (1993). *Op cit.* p. 141.

could also affect commercial air travel. Butler notes that the US was so isolationist in the first decades of the twentieth century that it refused to attend the 1910 Air Conference: this omission resulted in its embryonic aviation industry falling even further behind those of Western Europe.[40] The early air power theorists were aware of these advantages and limitations of air power and sought to develop theories for the use of aviation that played to its strengths and lessened its limitations.[41]

3.2.3 Conclusions

This section has sought to identify and explain the key advantages and weaknesses of aviation. Strengths, such as ubiquity, pace, and perspective, have been juxtaposed against limitations ranging from detachment and impermanence, to weather and political constraints. Whilst it must be noted that some of these weaknesses have been mitigated by developments in technology that have advanced air power's strengths, others have continued to influence the deployment of aircraft (both military and commercial) throughout the twentieth century. Though, as Meilinger notes, "aircraft can now fly farther, longer and higher, whilst delivering greater ordnance far more precisely than ever before."[42] The purpose of this section has been to provide a level of technical information on aviation to help contextualise the content of the subsequent sections of this chapter. The following section introduces, discusses and analyses the air power theories of three major aviation thinkers of the interwar period. It seeks to develop an understanding of their differing views on the potential of aviation - presaged by their knowledge of the characteristics of air power as highlighted above - and how these views influenced developments in US aviation planning and strategy during the interwar period.

3.3 Air Power Theorists

This section will introduce the men and ideas that constituted the interwar air power debate. It begins by discussing the emergence of air power as a theoretical concept and detailing the two conflicting aspects proposed. This section will then situate the beliefs of the three major interwar air power theorists within this arena, interjecting

[40] David Butler. (2001). *Op cit.* p. 639.
[41] It must also be noted that developments in aviation technologies affected some of these attributes and limitations during the interwar period, but none were made obsolete.
[42] Phillip S. Meilinger. (2003). *Op cit.* p. 2.

comment on how their standpoints were received in the US. Finally, the influence of these airpower theories in the interwar US will be discussed.

With developments in the practical technologies of aviation, so came the growth of air power theories. Two major strands in theory proliferated, each with its own proponents. The first of these is the theory that became known as 'strategic bombing'; the second is 'air superiority'. Strategic bombing is concerned with the efficient use of airpower's assets of reach, lethality, and precision in order to inflict heavy blows on an enemy's hinterland and infrastructures.[43] Advocates of this strand argue that the ability of aircraft to over-fly battlefronts and strike deep into enemy territory is one of airpower's unique attributes.[44] However, at least in the early years of aviation, these abilities were hampered by the limitations of payload and restricted range. The second strand of the theoretical debate, that of air superiority, is concerned with the deployment of aircraft to fight each other in massive air battles, somewhat akin to the battle fleet concepts endemic within Navy strategies of the pre-World War Two era.[45] Taking advantage of air power's ubiquity and speed, this strand of theory argues that aviation's true potential lies in the ability to take and maintain control of the sky above any given area, and to exercise control of that space, thus enacting the very definition of air power (as given in section 3.2).

In relation to this research these two, often competing, strands of theory are important because debates over the use of air power were vociferously fought in the US, and it can be argued that the outcomes of these debates impacted on the interwar aviation policies of the US. Thus, it is necessary to understand the key ideas of the air power theorists at the heart of these debates, and to further understand how this formal theorising was transformed into practical aviation strategies. It is also important to understand how the advantages and limitations of air power, as discussed by Towle, van Crefeld and others, worked to promote both theoretical strands. The following three sub-sections will discuss and analyse each of the main air power theorists of the interwar period – Mitchell, Douhet, and Trenchard.

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[43] For a detailed example of the concept of strategic bombing in practice see, Phillip S. Meilinger. (2003). *Ibid.* Pp. 39-43.
[44] See section 3.3.2 for examples of this.
[45] George W. Baer. (1993). *Op cit.* p. 83.

3.3.1 William 'Billy' Mitchell

General William 'Billy' Mitchell was, undeniably, the most famous – or perhaps infamous – of the interwar air power theorists. An American who had joined the US Army Signal Corps in 1898 – apparently inspired by the outbreak of the Spanish-American War – he rose to prominence after the First World War as a supreme advocate of military aviation and an independent US Air Force.[46] This sub-section will details Mitchell's career and examine his perspectives on the use of air power as a tool with which to establish 'air superiority'.

After the Spanish-American War, and deployments to both Alaska and the Philippines Mitchell's career progressed rapidly. By the time the US entered World War One (in April 1917) he had risen to the rank of Major and "was soon recognised as the premier United States aviation officer in France."[47] Intrigued by aviation Mitchell had paid for private flying lessons in 1916 and thus found himself at the forefront of the new technology of military aviation. According to Boyne, Mitchell became friends with Hugh Trenchard (see section 3.4.3) and also met with Guilio Douhet (see section 3.4.2). Once in France Mitchell was immediately struck by the potential of aviation to change the face of warfare. Clodfelter's quote from Mitchell's First World War memoir shows this very succinctly,

> "A very significant thing to me was that we could cross the lines of these contesting armies in a few minutes in our airplane, whereas the armies had been locked in the struggle, immovable, powerless to advance, for three years."[48]

What Mitchell saw in France, coupled with his friendship with Trenchard, would shape his ideas on the use of air power for many years. Indeed, as early as 1918 he argued that "the first mission of offensive airpower must be the destruction of the enemy's air force" – the key prerequisite for the establishment of air superiority.[49]

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[46] For more information on Mitchell's early military career see, Walter J. Boyne. (2003). *Op cit.* p. 142. Lt. Col. Mark A. Clodfelter. Molding Airpower Convictions: development and legacy of William Mitchell's strategic thought, in Philip Meilinger et al. The Paths of Heaven. (1997. Air University Press. Alabama). Pp. 80-81.

[47] Walter J. Boyne. (2003). *Op cit.* Pp. 142-143.

[48] William Mitchell. Memoirs of World War I: from start to finish of our greatest war. (1960. Random House. New York). p. 59. Quoted in Lt. Col. Mark A. Clodfelter. Molding Airpower Convictions: development and legacy of William Mitchell's strategic thought, in Philip Meilinger et al. (1997). *Op cit.* p. 84.

[49] Lt. Col. Mark A. Clodfelter. Molding Airpower Convictions: development and legacy of William Mitchell's strategic thought, in Philip Meilinger et al. (1997). *Ibid.* p. 86.

On his return to the US, Mitchell began to advocate his contention that the US needed to form an independent air force. Unlike the UK, which had established the Royal Air Force as its third armed force during the First World War, the US had two armed forces (the Army and the Navy) both of which maintained 'air services' that had responsibility for providing air operations. Mitchell argued that this was holding the US back. Related to this Mitchell also felt that technological advances in aviation had the ability to alter the balance of future conflicts. According to Lincoln, Mitchell told a Senate House Committee, on December 5th 1919, that "an air force would soon be superior to a navy for national defense" and further claimed that "an adequate air force alone could prevent hostile invasion".[50] Mitchell argued that air superiority – the ability to control the skies and thus prevent enemy attacks on land or sea – was the key to modern military strategy. Central to his theory was his desire to prove that the battleship centred Navy was obsolete, and that aircraft had advanced to such an extent that they could now sink ships.[51] This claim was all but laughed at by the US Navy, whose upper echelons were packed with battleship enthusiasts who believed that the US's battleship fleet provided the US with an unsinkable, impregnable line of defense.[52] Undeterred, Mitchell organised a series of demonstrations to prove his ideas, and on July 21st 1921 the "ex-German dreadnought *Ostfriesland*, anchored fifty miles off Cape Hatteras" was attacked.[53] According to Boyne,

> "eight Martins and three Handley Page 0/400s attacked, with the 2,000-pound bombs that Mitchell had personally monitored as they were being built. Mitchell ordered that the bombers try for near-misses, believing this to be the most damaging method of attack. Two bombs were dropped, one striking the side of the *Ostfriesland* to explode about twenty-five feet away, as near a miss as could be desired. The ship sank within twenty-one minutes."[54]

With the sinking of the *Ostfriesland* Mitchell proved that battleships were vulnerable to attack from above. Interestingly, these tests probably did more to promote advocacy of aircraft carriers than for Mitchell's independent air force.[55] However,

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[50] Ashbrook Lincoln. *The United States Navy and the Rise of the Doctrine of Air Power*, in Military Affairs. 1951. Vol. 15. No. 3. p. 146.
[51] Walter J. Boyne. (2003). *Op cit.* Pp.145-7.
[52] George W. Baer. (1993). *Op cit.* p. 107.
[53] Ashbrook Lincoln. (1951). *Op cit.* p. 152. The *Ostfriesland* had been claimed by the US as part of German war reparations. Its size and armour-plating were as near to a US battleship as possible.
[54] Walter J. Boyne. (2003). *Op cit.* p.146.
[55] See chapters 5 for more information on US aircraft carrier development.

they did reinforce his ideas about the importance and potential of air superiority as a key tool in future conflict.

The *Ostfriesland*'s sinking arguably made Mitchell more enemies than friends within the US military. This, coupled with his increasingly vocal attacks of military policy in the press and at a number of Government Committees led to Mitchell becoming somewhat of an embarrassment to the Army. He was sent to Europe in 1922 to "prevent him for disrupting the Washington Naval Conference of 1922" (the Treaty of which will be discussed in Chapter 4) and to the Pacific in 1924.[56] However, Mitchell was not to be silenced. Instead, he produced a pamphlet on the 'Pacific problem' in which he called for the deployment of land-based aircraft on Pacific islands to provide air superiority at these outposts of US power.[57] He even attacked the value of deploying aircraft carriers to the region, arguing that they would be unable to launch enough aircraft with enough speed to ensure adequate air control.[58] Thus, Mitchell continued to develop his ideas on air power, which culminated with the publication, in 1925, of his book 'Winged Defense'.[59]

'Winged Defense' is an important book because it contains Mitchell's views on a wide variety of air power issues in one volume. In the rest of this sub-section, 'Winged Defense' is examined for two main strands of thought: first, Mitchell's views on the debate between air superiority and strategic bombardment, and second, his comments on the Pacific. This section is also important in providing context for section 3.3.4 in which the impact of the air power theorist's work on US aviation strategies of the interwar period is examined.

As noted above, Mitchell knew both Guilio Douhet and Hugh Trenchard – the other two major air power protagonists of the era – and his knowledge of their ideas can be seen in 'Winged Defense'. For example, at the end of World War One Mitchell was a

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[56] Lt. Col. Mark A. Clodfelter. Molding Airpower Convictions: development and legacy of William Mitchell's strategic thought, in Philip Meilinger et al. (1997). *Op cit.* p. 92.
[57] Lt. Col. Mark A. Clodfelter. Molding Airpower Convictions: development and legacy of William Mitchell's strategic thought, in Philip Meilinger et al. (1997). *Ibid.* p. 92.
[58] Lt. Col. Mark A. Clodfelter. Molding Airpower Convictions: development and legacy of William Mitchell's strategic thought, in Philip Meilinger et al. (1997). *Ibid.* p. 92.
[59] William Mitchell. Winged Defense, in David Jablonsky. Roots of Strategy Book 4. (1999. Stackpole Books. Mechanicsburg). Pp. 409-516.

firm believer in the concept of air superiority, the argument that control of the skies maintained by aerial dog-fighting, was key to victory. However, during the decade between the end of the war and the publication of his book, Mitchell's views had become more nuanced.[60] Although he still argued that,

> "the only defence against aircraft are other aircraft which will contest the supremacy of the air by air battles. Great contests for control of the air will be the rule of the future"[61]

He mitigated this by continuing that, "once supremacy of the air had been established, airplanes can fly over a hostile country at will."[62] Thus, in effect Mitchell was, without backtracking on his support for air superiority, also advocating the possibilities for strategic bombing that air superiority would bring. David Jablonsky, in his foreword to the 1999 edition of 'Winged Defense', argues that Mitchell was forced to reconsider and become a supporter of strategic bombardment when he realised that no Government would sanction an independent air force that would only contain fighters for air superiority operations. Whilst air superiority would be important, Mitchell came to support the view that it represented just the first stage of aerial warfare, and that carefully targeted strategic bombing of industrial and commercial centres would ultimately provide victory. This change of emphasis is important, both in terms of how Mitchell's ideas came much more into line with those of Trenchard (see section 3.4.3), and also for the future development of the US's military air forces (see section 3.4.4).

The second important strand of Mitchell's book is that which deals with the Pacific. Ever since his 1924 deployment to review Pacific defenses Mitchell had been interested in developing air power strategies for the US in that region.[63] In 'Winged Defense' he notes that the US had traditionally been able to rely on its geographical isolation from the rest of the world as its main form of defense, "we are [separated] from Europe by the Atlantic, and from Asia by the Pacific which form most certain and tremendously strong defensive barriers."[64] However, he conceded that, "the coming of aircraft has greatly modified this isolation on account of [their] great range

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[60] William Mitchell. Winged Defense, in David Jablonsky. (1999). *Ibid.* Pp. 413-414.
[61] William Mitchell. Winged Defense, in David Jablonsky. (1999). *Ibid.* p. 435.
[62] William Mitchell. Winged Defense, in David Jablonsky. (1999). *Ibid.* p. 436.
[63] Brian McAllister Lynn. (1997). *Op cit.* Pp. 214-215.
[64] William Mitchell. Winged Defense, in David Jablonsky. (1999). *Op cit.* p. 425.

and speed."[65] Thus, he argued, the US needed to construct airfields across the Pacific to which scores of land-based planes could be deployed. Whilst he never saw the potential of aircraft carriers, he made important comments about the usefulness of land-based planes to defend the region.

In 'Winged Defense' he also categorised countries according to their geographical type and their relative ability to withstand or use aerial warfare. The US, he argued, was a country "which is entirely self-sustaining but is out of the ordinary aircraft range."[66] In order to attack or defend such a country, Mitchell – in a prophetic passage – states that,

> "Strings of island bases will be seized by the strong powers as strategic points so that their aircraft may fly successively from one to the other as aircraft themselves can hold these islands...An island, instead of being easily starved out, taken or destroyed by navies as was the case in the past, becomes tremendously strong because it cannot be gotten at by any land forces, and, while supremacy of the air is maintained, cannot be taken by sea forces."[67]

This quote is incredibly insightful, and can be argued to indicate the influence Mitchell's work had on shaping US aviation thinking (as will be analysed in section 3.3.4). Furthermore, section 3.4 examines the work of two current 'airfield' theorists whose views on the potential and importance of islands as airfields mirror those espoused by Mitchell.

This brief appraisal of 'Winged Defense' clearly shows the theoretical vision of Mitchell. His continued support of an independent air force led him to develop and alter his views on aerial warfare in order to provide a raison d'étre for his 'Force'. At the same time, his public advocacy of aviation as a tool of power projection and national defense – most notoriously through his reading of Winged Defense to the 1925 President's Aircraft Board committee – ensured that he was without doubt the most well-known figure in US military aviation in the interwar period.[68] The

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[65] William Mitchell. Winged Defense, in David Jablonsky. (1999). *Ibid.* p. 425.
[66] William Mitchell. Winged Defense, in David Jablonsky. (1999). *Ibid.* p. 437.
[67] William Mitchell. Winged Defense, in David Jablonsky. (1999). *Ibid.* Pp. 437-438.
[68] The President's Aircraft Board was convened by Calvin Coolidge in order to report on the potential uses of both military and civil aviation to the US, and to suggest ways in which the US Government could encourage developments in aviation. Dwight Morrow et al. Report of the President's Aircraft Board. (1925. Government Printing Office. Washington DC).

following two sub-sections will examine the work of Mitchell's contemporaries, the Italian advocate of wide scale strategic bombing – Giulio Douhet, and Hugh Trenchard – the first 'Chief of the RAF' and a staunch advocate of what he termed 'morale bombing'.

3.3.2 Giulio Douhet

Giulio Douhet was the leading advocate of strategic bombing during the interwar period.[69] Like Mitchell, Douhet had gained firsthand experience of the potential of military aviation during the First World War. A career soldier who joined the Italian Army in 1888, he developed an early interest in aviation and had already begun to consider the possibilities of aerial warfare before Italy entered the conflict in 1915.[70]

Douhet's views on strategic bombing began to solidify when he witnessed the stagnation of trench warfare and its effect on soldiers.[71] His revulsion at the conditions endured by Italian infantry led Douhet to consider how aviation could remove this facet of modern warfare. As Meilinger comments,

> "The World War proved to Douhet that new technology required a greater superiority for an attack to succeed; and 'succeed' was a misnomer if it meant the slaughter of thousands...he argued that although technology had caused the trench stalemate, it would be technology – in the form of the airplane – that would end it. Only aircraft could overcome the fundamental problem of a prolonged war of attrition."[72]

However, his vociferousness at what he saw as the Italian Army's incompetence and failure to use aviation productively led to his court-martial and imprisonment.[73] After his release, and subsequent pardon, Douhet continued to comment on aviation and in 1921 he "completed his most famous work, *The Command of the Air*".[74]

In 'The Command of the Air', Douhet set out his vision for an independent air force that, according to Estes, "could act directly to break national resistance at its very

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[69] Stephen Budiansky. (2003). *Op cit.* p. 137.
[70] Phillip S. Meilinger. (2003). *Op cit.* Pp. 7-10.
[71] Lt. Col. Richard H. Estes. *Giulio Douhet: more on target than he knew*, in Airpower Journal. Winter 1990. p. 1 of online version.
http://www.apc.maxwell.af.mil/text/theory/intro.htm. Accessed 26th March 2004.
[72] Phillip S. Meilinger. (2003). *Op cit.* p. 13.
[73] Walter J. Boyne. (2003). *Op cit.* p. 139.
[74] Phillip S. Meilinger. (2003). *Op cit.* p. 12. Emphasis in original.

source."[75] Simply put, Douhet argued that Mitchell's air superiority and great air battle were unlikely to occur. As Meilinger notes, Douhet,

> "reasoned that a stronger air force would be foolish to seek out its weaker enemy in the air, but should instead carry out the more lucrative task of bombing the enemy's airfields and aircraft industry."[76]

In addition to this, Douhet also discussed how a weaker air force should operate. Again, he argued that it would not be in its interests to seek a Mitchell-esque 'air battle'. Instead, he "envisioned a rather peculiar scenario in which opposing air forces studiously ignored each other while flying past to destroy the other's airfields and factories."[77] Thus, unlike Mitchell, who (at this time) believed that air superiority was the ultimate goal, Douhet argued that it was no more than a necessary prerequisite for the more important task of bombing the enemy into submission by large forces of heavy bombers.

In 'The Command of the Air' Douhet states that,

> "aerial offensives will be directed against such targets as peacetime industrial and commercial establishments; important buildings, privates and public; transportation arteries and centers; and certain designated areas of civilian population as well."[78]

This quote sums up Douhet's views on the potential uses of air power. He believed that the only way to stop the trench-bound attrition-type warfare of the First World War was to attack the enemy at home.

> "take the center of a large city and imagine what would happen among the civilian population during a single attack by a single bombing unit...within a few minutes some 20 tons of high-explosive, incendiary, and gas bombs would rain down. First would come the explosions, then fires, them deadly gases floating on the surface and preventing any approach to the stricken areas...By the following day the life of the city would be suspended."[79]

In this way, Douhet argued that the will of the ordinary people would be broken and they would put pressure on their government to sue for peace.

> "A complete breakdown of the social structure cannot but take places in a country subjected to this kind of merciless pounding from the air. The time would soon come

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[75] Lt. Col. Richard H. Estes. (1990). *Op cit.* p. 2 of online version. Giulio Douhet. The Command of the Air, in David Jablonsky. (1999). *Op cit.* Pp. 263-408.
[76] Phillip S. Meilinger. (2003). *Op cit.* p. 14.
[77] Phillip S. Meilinger. (2003). *Ibid.* p. 14.
[78] Giulio Douhet. The Command of the Air, in David Jablonsky. (1999). *Op cit.* p. 295.
[79] Giulio Douhet. The Command of the Air, in David Jablonsky. (1999). *Ibid.* p. 332.

when, to put an end to horror and suffering, the people themselves, driven by the instinct of self-preservation, would rise up and demand an end to the war."[80]

Whilst these ideas might seem extreme, to Douhet, his mind still affected by what he witnessed in the trenches, this type of 'strategic' bombing held the only way forward. Indeed, as Meilinger notes, it must also be remembered that Douhet was primarily concerned with developing a theory of air power applicable to Italy.[81] Nevertheless, he did meet both Mitchell and Trenchard, and his ideas appear to have enjoyed more influence abroad than they did in Italy (a specific example being the RAF Bomber Command's attacks on German cities in World War Two).[82] The impact of his work on US air power will be discussed in section 3.3.4

Thus, this section has briefly detailed and analysed the work of Giulio Douhet. His advocacy of strategic bombing evidenced in his book 'The Command of the Air' shows a completely different approach to, and understanding of, the potential of air power. The final sub-section below, discusses the views of Hugh Trenchard – the British 'father of the RAF' who arguably took the middle ground between Mitchell and Douhet.

3.3.3 Hugh Trenchard

This sub-section seeks to develop an understanding of the third interwar air power theorist Hugh Trenchard. In common with his two contemporaries, Trenchard was also a career soldier. However he had successfully campaigned for, and been instrumental in, the creation of the world's first independent military air service – the Royal Air Force.[83] Like Douhet, Trenchard also advocated strategic bombing, but like Mitchell he argued in favour of striking industrial and economic targets, rather than civilian centres advocated by Douhet.[84] As Boyne comments,

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[80] Giulio Douhet. The Command of the Air, in David Jablonsky. (1999). *Ibid.* p. 333.
[81] Phillip S. Meilinger. (2003). *Op cit.*. p. 16.
[82] For an insight into Bomber Command's raids on German cities see, Martin Middlebrook. The Berlin Raids: RAF Bomber Command winter 1943-1944. (2000. Cassell & Co. London). For a more general history of Bomber Command, its tactics and targets see, Max Hastings. Bomber Command. (1999. Pan Books. London).
[83] The Royal Air Force was created in April 1918 as an amalgamation of the Royal Flying Corps and the Royal Naval Air Service. For more information see, Roy Conyers Nesbitt. An Illustrated History of the Royal Air Force. (1990. Colour Library Books Ltd. Godalming). Pp. 20 & 54-71.
[84] http://www.apc.maxwell.af.mil/text/theory/intro.htm. Accessed 26th March 2004.

> "Trenchard thought that strategic bombing might be useful in striking the enemy production centers [sic] for steel, chemicals, armament and similar essential war industries."[85]

Unlike his two contemporaries, however, Trenchard did not publish his theories on air power, instead he let his development of the RAF speak for itself. Indeed, as the only one of the three theorists to have had direct influence over shaping aviation policy, an understanding of Trenchard's support for what became known as 'morale bombing' is important because it gives an insight into the blurred nature of the 'margins' between theory and practice.[86]

In advocating 'morale bombing' Trenchard sought to advocate "attacks on enemy industry designed to break the morale of the factory workers and, by extension, the population as a whole."[87] Indeed, as Budiansky notes,

> "The ultimate objective of air attack, [as] explained [by] Trenchard's staff in a typical incantation of the formula, is largely achieved by influencing the morale of the enemy population and the maximum effect will be achieved by aerial bombardment of legitimate objectives in [the] great centres of production."[88]

This approach differed from Douhet's focus upon hitting civilian targets, but mirrored his belief that the key to effective use of air power was as a psychological weapon.[89] Thus, whilst Mitchell saw air power as a traditional weapon, to be used to inflict physical damage, both Douhet and Trenchard recognised the unique psychological effect that it could have.[90]

> "Throughout the 1920's Trenchard and his staff penned memorandum after memorandum stressing that civilian society was not only the fundamental source of and enemy's power but also its Achilles' heel."[91]

Trenchard's 'morale bombing' was accurately named, as his interest was in exploiting air power's ability to reach beyond the front lines and strike at previously 'safe' centres. He argued that this would damage the morale of the enemy's

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[85] Walter J. Boyne. (2003). *Op cit.* p. 130.
[86] For more information on 'morale bombing' see Philip S. Meilinger. *Trenchard and Morale Bombing: the evolution of Royal Air Force Doctrine before World War II*, in Journal of Military History. 1996. Vol. 60. No. 2. Pp. 243-270.
[87] Philip S. Meilinger. (2003). *Op cit*, p. 37.
[88] Stephen Budiansky. (2003). *Op cit.* p. 132.
[89] For more information on Douhet see section 3.4.2.
[90] It can be argued that this psychological effect has been most recently witnessed in the US's tactic known as 'shock and awe' used to commence the allied attack on Iraq in March 2003. See Chapter 1 for more information on that.
[91] Stephen Budiansky. (2003). *Op cit.* p. 132.

population causing them to pressure their government into capitulation. However, at heart, Trenchard was a realist and his first priority was to build up the fledgling air service. Thus,

> "Trenchard saw to it that the majority of the RAF funds were spent not on a fleet of long-range strategic bombers, but instead on air bases, on training, and on maintaining a logistics base...The decision to spend the limited funds in such a way ruled out fulfilling his philosophy – but it kept the RAF alive."[92]

This is important, because it shows the pivotal difference between Mitchell and Douhet – who had only limited influence over military 'realities' (thus enabling them to maintain their theoretical positions) – and Trenchard, who was forced to sacrifice his morale bombing ideas because of a need to provide an air force that functioned.

This sub-section has briefly introduced the concept of 'morale bombing' and its primary advocate, Hugh Trenchard. The following sub-section will look specifically at the effect that these three theorists had on US air power planning in the interwar period. Therefore an awareness of Trenchard's 'sacrifice' is important to consider, because it is evidential of the gap between theory and practice.

3.3.4 Conclusions

The previous three sub-sections have sought to explain and analyse the theories espoused by the key air power theorists of the interwar period. Of specific importance to this research is an understanding of the extent to which the work of these three affected practical aviation planning, in both military and civilian sectors, in the interwar US. Thus, this concluding sub-section will discuss the influence of these men on the development of military aviation in the interwar US. It will identify which of the two strands of airpower theory – air superiority or strategic bombing – gained the ascendancy within aviation policy-making circles (and those charged with its practical implementation) and assess the impact of this on the US's strategies for Pacific air warfare.

Douhet's ideas concerning strategic bombing undoubtedly had an influence in the US, evidence of which can be seen in the US Army Air Corps support (in concert

[92] Walter J. Boyne. (2003). *Op cit.* p. 131.

with the RAF's Bomber Command) for the heavy bombing of German cities in World War Two. Indeed, according to Meilinger,

> "Douhet had his earliest and greatest influence in America...In 1922 the Italian air attaché wrote about Command of the Air in Aviation magazine, and Billy Mitchell later admitted that he had met with Douhet during a trip to Europe the same year. About the same time, and perhaps as a result of that meeting, a translation of excerpts from Command of the Air made its way into Air Service files...by the mid-1930's articles discussing Douhet began to appear in US military publications, and a translation of the second edition was circulated around the Air Corps in 1933."[93]

Trenchard, it can be argued, also had an effect on the US, but it was more concerned with his position as 'father' of the RAF – the world's first independent air service – which many US airpower advocates wished to copy with the establishment of an independent US Air Force.[94] Further to this, his advocacy of 'morale bombing' was taken up by the US Army, as the Allied heavy bombing of German cities and specific industrial centres (and the US's bombing of Tokyo) attest.[95]

However, it was Mitchell who undoubtedly had the greatest effect upon practical aviation policies in the inter-war United States.[96] His work, specifically 'Winged Defense' was widely read by the students of the Army Air Corps Tactical School; his views on strategic bombardment were taken up by the next generation of airpower strategists.[97] Amongst proponents of this form of airpower were men who would be responsible for Army aviation in the Second World War – 'Hap' Arnold, and Carl Spaatz.[98]

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[93] Philip Meilinger. (2003). *Op cit.* p. 30.
[94] The US Air Force was eventually established after the end of the Second World War. See, David A. Anderton. The History of the US Air Force. (1981. Book Club Associates. London). Pp. 131-136.
[95] Martin Middlebrook. (2000). *Op cit.* Max Hastings. (1999). *Op cit.* For more information on the US's bombing of Japan see, Richard B. Frank. Downfall: the end of the imperial Japanese empire. (1999. Random House. New York). *Passim.*
[96] Walter J. Boyne. (2003). *Op cit.* p. 142.
[97] http://www.apc.maxwell.af.mil/text/theory/intro.htm. Accessed 26/3/04. For more information on the Army Air Corps in the interwar period see, Jeffery S. Underwood. The Wings of Democracy. (1991. Texas A&M University Press. College Station).
[98] http://www.apc.maxwell.af.mil/text/theory/intro.htm. Accessed 26/3/04. It is important to note that these officers were two of the founders of Pan American Airways – see Chapter 7 for more information on this.

Mitchell also knew both Douhet and Trenchard, and it seems feasible that their theories were disseminated by him to others in the US aviation field. As Boyne comments,

> "While many of Mitchell's ideas derived from Trenchard and Douhet originally, and later also from his staff, he was able to do more than just articulate those ideas. He successfully campaigned them, even at the ultimate cost of his own career."[99]

Perhaps Mitchell's greatest legacy was this public 'campaigning' for aviation. His ship-sinking antics, testimony to Senate Committees, and 1925 court-martial for insubordination all served to catapult Mitchell into the public arena and gave him the perfect platform from which to eulogise air power.[100] There is a deal of evidence that Mitchell was an important figure in the development of airmindedness in the interwar US.[101]

Thus, this section has sought to analyse the ideas of the three main air power theorists of the interwar period. Douhet's bombing of civilian populations, Trenchard's 'morale bombing', and Mitchell's air superiority have been scrutinised to show how they impacted upon wider US aviation circles. Perhaps the most important achievement of these men was that they were the first to attempt to discern strategic roles for aircraft, roles that would influence the characteristics of future aircraft design and use (analysis of which can be found in Chapters 5 and 6). The following section continues this chapters focus on aviation theories but takes a different approach, looking at the work of two recent writers who have concentrated on theorising the role and importance of the location of airfields.

3.4 Airfield theories

The key contention of this thesis is that the deployment of aircraft across the Pacific allowed the US to materialise and territorialise this space as its own. One of the key facets required to prove this argument is analysis (which will be undertaken in chapters 5-7) of the reasons for the identification of certain locations for airfield construction. This section will analyse the work of two men – Eric Bergerud and

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[99] Walter J. Boyne. (2003). *Op cit.* p. 149.
[100] Walter J. Boyne. (2003). *Ibid.* Pp. 147-149. Ashbrook Lincoln. (1951). *Op cit.* p. 146.
[101] For more information on the concept of airmindedness and how it was manifested in the interwar US see, Joseph J. Corn. (2001). *Op cit.*

Jerold Brown – who have recently published books that attempt to theorise these issues.[102]

I argue that the positioning of airfields across a territory is of significance in that territory's ability not only to defend itself and project its power out from its own borders, but also to be able to develop economically, and culturally.[103] Thus, there is a link between air power theory and airfields, because the direction taken by the former will inevitably affect the number and location of the latter. Possession of such 'airfields' – such as aircraft carrier decks, and flying boat harbours, as well as strips of land – had important implications for the materialisation of the US's technogeopolitical project in the interwar Pacific.

3.4.1 Jerold Brown – airfield planning criteria

In 1990, Jerold Brown published his book 'Where Eagles Land' in which he analysed the "planning and development of US Army Airfields 1910-1941."[104] In the introductory chapter, Brown set out to establish the various criteria that he argued influenced the construction of US military airfields.[105] He split these into two main categories (covering technological and geographical issues) and discussed how these two interacted and effected each other. Brown also weaves comment on the vagaries of the US political establishment through his work, analysing the extent to which personalities and budgets impacted on the development of airfields throughout the period in question. As alluded to above, there is evidence that links the works of the air power theorists discussed earlier, to the practical aviation politics of the period. This understanding of the political impact of airfield construction is important for it will be argued in later chapters, that this connection was well established in the interwar US. Brown begins by identifying six geographical factors that influence the construction of airfields by the US military during the interwar period: size, configuration, weather, topography, utilities, and infrastructure.[106] These can be

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[102] Eric Bergerud. Fire in the Sky: The air war in the South Pacific. (2000. Westview Press. Boulder). Jerold Brown. (1990). *Op cit.*

[103] For more information on wider debates concerning the location of military establishments and their implications see, Rachel Woodward. (2004). *Op cit. Passim.* See also, David E. Omissi. (1990). *Op cit.* p. 88.

[104] Jerold Brown. (1990). *Op cit.*

[105] Jerold Brown. (1990). *Ibid.*

[106] Jerold Brown. (1990). *Ibid.* Ch 1. Pp. 1-13.

subdivided into three groups: physical factors, human agency factors, and technological factors (which could act to affect both of the other two factors).

The first two physical factors identified by Brown – the size and configuration of airfields – are related and can be discussed together. In the early days of aviation, planes were small and only needed a short runway. "Early fields were often as small as ten acres. Cow pastures, fair grounds, race tracks, parade fields, and polo grounds often doubled as landing fields."[107] The ability of early aircraft to use any relatively flat area as an airfield meant that, as the above quote shows, airfields could spring up anywhere. As Omissi notes (with regard to the RAF's colonial operations),

> "The effective tactical radius of short-range aircraft could be extended by the construction of forward airstrips. These were patches of cleared and roughly level ground, usually occupied for only a short time."[108]

During this early period there was also little in the way of specialisation with regard to the configuration of airfields: the shape was irrelevant as all these planes needed was a 'field'. However, as aircraft technologies developed, and aircraft got larger and more complex so the size and shape of airfields also became a more complicated issue. Although the basic configuration of airfields altered little, the "square or circle [being] the most preferred", the size of fields changed radically.[109] Brown notes that "in the mid-twenties airfield designers considered 3,000 feet square - about 200 acres - adequate for a military airfield" but by the outbreak of World War Two "most Air Corps fields sprawled" over hundreds of acres.[110]

Obviously, this growth in airfield size affected where they could be sited. This brought into effect Brown's other physical factors. The first of these is topography. Brown notes that,

> "Topographically, a level, well-drained field with a natural grade not exceeding 2 per cent is most desirable. In the absence of such a natural field, the site selected should be conducive to easy preparation at minimum expense."[111]

Thus finding a suitable site for airfield construction was very restrictive. Airfield configuration can also be greatly affected by climatic conditions. The direction of the

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[107] Jerold Brown. (1990). *Ibid.* p. 2.
[108] David E. Omissi. (1990). *Op cit.* p. 97.
[109] Jerold Brown. (1990). *Op cit.* p. 3.
[110] Jerold Brown. (1990). *Ibid.* p. 2.
[111] Jerold Brown. (1990). *Ibid.* p. 3.

prevailing winds, the amount and type of precipitation, and the effects of the local topography on weather conditions can also play a role in affecting the feasibility of a site for airfield construction. As Omissi comments,

> "An airfield could be made useless by heavy rains which saturated its surface and bogged aircraft down or overturned them when they taxied or came in to land."[112]

The extant transport infrastructure of a region can also be important in determining the location selected for airfield construction. As Brown notes, "freight, fuel, and construction equipment must have easy access to the site during periods of preparation and operation."[113] One of the biggest problems faced by those attempting to build airfields across the Pacific was having to rely on a transport infrastructure that was relatively slow and irregular.[114] Similarly, airfields require a constant supply of power, water, and other utilities in order to function on a daily basis. Having to locate an airfield far from such services was difficult as normal operations could be compromised severely in such circumstances.[115] On islands across the Pacific where running water, sewerage systems and mains electricity could not be relied upon, the types of airfields that could be constructed was limited. Indeed, Pan Am found it necessary to construct electricity generators and water towers on each of its Pacific airfields at the very beginning of their building programmes.[116]

These factors show just how complicated the process of choosing an airfield location could be. As Brown notes, "airfields must be located in geographical areas where they can best serve the purpose for which they are intended."[117] Whilst this is true, all the factors listed above can impact upon airfield location.

Whilst these physical and human factors are important in determining the location of airfields, they can also be affected by technological developments in aviation.[118] As

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[112] David E. Omissi. (1990). *Op cit.* p. 101.
[113] Jerold Brown. (1990). *Op cit.* p. 4.
[114] Both civilian and military airfield projects in the Pacific were supported by US Navy and Coastguard ships who would deliver supplies as part of their normal patrol cruises.
[115] For an excellent analysis of these factors in operation see, David E. Omissi. (1990). *Op cit.* Ch. 5. Pp. 84-106.
[116] See Chapter 7 for more information on this.
[117] Jerold Brown. (1990). *Op cit.* p. 4.
[118] Jerold Brown. (1990). *Ibid.* p. 5.

aircraft have gotten larger so they need longer runways, constructed from better surfaces than the grassy fields of the early 1920's.[119] As Brown states,

> "the evolution of aircraft design and construction led to a demand for hard-surfaced runways... [with] increased load-bearing capacities of runways, taxiways, hardstands, and so forth."[120]

In addition to longer runways, more technologically advanced aircraft needed more complex maintenance and storage facilities, which in turn required a larger workforce to keep the planes airworthy. This affected the size of sites required for new airfields. As the number and complexity of ground facilities increased the amount of space required to house them also grew. Conversely, the increasing range of aircraft also meant that some early airfields became obsolete, and a degree of consolidation occurred. Better aviation technologies also allowed aircraft to cope better with poor weather conditions, thus reducing the importance of weather as an influencing factor. The advancement of other technologies was also impacting on airfield construction. For example, the development of heavy earth moving equipment reduced the importance of topography as an influencing factor. Likewise, advances in Radio Direction Finding equipment and early radar also allowed airfields to be constructed in more 'remote' locations.[121]

The main problem with Brown's argument is that he fails to take into account one of the major reasons why airfields are constructed, namely strategic reasons. Although physical, human and technological factors are all important in determining location, it is possible to find airfields constructed in places that fail to meet any of the criteria within these three groups. Nevertheless, these were built because of the overwhelming strategic importance of maintaining an aerial presence from that location.[122] It is these strategic reasons that would be influenced by the work of the air power theorists.

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[119] A contemporary example of this phenomenon is the new Airbus A-380, which has the longest take-off and landing distance of any commercial airliner. For more information see, www.airbus.com. Accessed May 2005.

[120] Jerold Brown. (1990). *Op cit.* p. 5.

[121] Jerold Brown. (1990). *Ibid.* Pp. 5-6.

[122] Indeed almost none of the Pacific airfields built during the interwar period were blessed with prefect physical, human, or technological advantages.

3.4.2 Eric Bergerud – strategic airfields

In his 2000 book 'Fire in the Sky', Bergerud seeks to define the key factors that made airfields strategically important to the US in the South Pacific air war during 1942-43.[123] Bergerud assesses the geopolitical and geostrategic importance of the positions of Japanese and US airfields on their island possessions, and the factors that influenced the strategic choices made by each air force. He identifies two main reasons why airfields were of such importance in the Pacific war: reasons that can be extrapolated to understand the importance of airfields across the Pacific throughout the interwar period.

Firstly, Bergerud identifies the key strategic position of airfields in the Pacific, arguing that "the strategic importance of the [South Pacific] theatre lay entirely in its geographic relationship to other areas."[124] This idea is key to understanding why the development of airfields was of such importance to the US. Throughout the interwar period the US became increasingly aware of the growing power of Japan within the Western Pacific.[125] By building and maintaining airfields on several islands across the Pacific the US could put itself in a strong strategic position, being able to dissuade Japanese aggression, and to further promote US military and commercial interests into the Western Pacific and Asia.[126] Although promulgated in various government and military documents, these airfields were, in my opinion, far too slow to appear and when the Japanese launched their surprise attack on Pearl Harbor, the US had pitifully few airfields in the region. Indeed, at the outbreak of World War Two the US only had three Navy and two Army airfields across the whole of the Pacific.[127] As Bergerud's book shows, this changed radically within the first twelve months of the war.

Bergerud's second factor is intrinsically linked to his first. He argues that,

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[123] Eric Bergerud. (2000). *Op cit.*
[124] Eric Bergerud. (2000). *Ibid.* p. 5.
[125] G. Wheeler. *The United States Navy and the Japanese "Enemy": 1919-31*, in Military Affairs,. 1957. p. 61.
[126] The commercial side of this was pioneered by Pan Am's transpacific routes inaugurated in the 1930's.
[127] M. Shettle. United States Naval Air Stations of World War II. (1997. Schaertel Publishing Co. Brownsville). *Passim.*

> "because there was nothing of inherent importance to attack or defend [in the South Pacific], the air bases themselves became the only strategic objects of importance. Almost all air, ground, and naval action that took place in the greater South Pacific area was directed at seizing air bases and places where air bases could be built."[128]

This idea, of airfields being important enough to be considered primary strategic targets, adds further weight to my argument that airfields are of huge significance to geostrategic positioning across the Pacific. As Bergerud states,

> "If one side was dominant in the air over the ocean or the little ports sustaining its jungle bases, it could prevent amphibious invasion and allow friendly supply to sustain power. If it lost that dominance, its own bases would be cut off and rendered useless and the garrison doomed to gross hardship and possible starvation. Also, if air dominance was lost, it proved impossible to prevent an enemy force from taking an unoccupied or poorly defended area of the coast or moving overland for short distances. In either case, the object was the seizure of an enemy air base or the construction of a new one. Both sides learned the process quickly, and each attempted to strangle the other when possessing superior strength."[129]

Whilst the recognition of the importance of airfields here is significant in relation to understanding the US's perception of the Pacific as US space, Bergerud's comments on the mutually constitutive relationship between the air, sea, and land components of military and civilian forces are also of relevance. He argues that,

> "Obviously a symbiotic relationship existed between the forces of sea, land, and air. Despite the tremendous importance of air transport in the South Pacific, most supplies and all amphibious assaults were seaborne. Bases, because they would occupy land, had to be seized and defended by ground forces. Because Japan's central harbor and air base were at the same place (Rabaul), it proved possible for fast Japanese warships to slip through the reach of the Allied air forces and engage in ferocious surface battles at night. Yet ultimately if one side held air superiority over any patch of water during daylight, it was the warship that was on the defensive. The aircraft carrier engagements are fine illustrations of this point, but in the South Pacific land bases provided more decisive evidence. The cover of night was never total, and both navies paid a heavy price when attacked from the air. Thus without land forces there would have been no air bases to begin with. Without sea power it was not possible to sustain the flow of supplies required to keep aircraft

[128] Eric Bergerud. (2000). *Op cit.* p. 6.
[129] Eric Bergerud. (2000). *Ibid.* p. 7.

fighting and garrisons supported. Without air cover, warships were in deadly peril, merchant ships could not operate, and armies could not survive. It is impossible to say that one type of war – land, sea, or air – was the most important."[130]

Thus, Bergerud's framework provides ample justification to investigate the significance of airfields to US geostrategic perceptions of the Pacific during the interwar period. However, his book is limited to analysis of the military airfields of the Pacific and my research extends to include the development of civil aviation, and its facilities, across the Pacific. It will become clear that the links between civil and military aviation in the Pacific were close, and that the position of commercial bases often had military importance, thus Bergerud's position can be extended to analyse the positioning of civil airfields also. A second point to note is that Bergerud concentrates on land strips rather than Aircraft Carriers in his framework. In my opinion this is an oversight and in this thesis the 'place' of the Aircraft Carrier as a 'mobile island' in the geostrategic significance of airfields in the Pacific will be analysed in more detail.

3.5 Conclusions

This chapter has sought to develop an understanding of the multi-faceted concept of air power. After some introductory and contextual comments in section 3.1., the following section sought to detail the characteristics of air power. Its strengths – for example, its speed, flexibility, reach, and ubiquity – can all be identified as being important tools used by military and commercial enterprises to project power across space. Although section 3.2. also identified a number of weaknesses that have affected air power's abilities, I have argued that many of these have been mitigated by what Towle calls the "lens of technology", thus reducing the problems caused by limited range, impermanence, and a growing dependence on ground facilities.[131] This section has also discussed the effects that these strengths and weaknesses can have on aviation planning and deployment, something which in following chapters I will argue occurred in the US's technogeopolitical project.

[130] Eric Bergerud. (2000). *Ibid.* p. 7.
[131] Philip Towle. The Distinctive Characteristics of Air Power, in Andrew Lambert & Arthur Williamson. (1996). *Op cit.* p. 9.

Section 3.3 analysed the theories of the three most influential interwar airpower theorists; Mitchell, Douhet, and Trenchard. It detailed and discussed not only their views on the potential uses of military aviation – from Douhet's desire to attack centres of population, Trenchard's pursuit of 'morale' bombing, and Mitchell's campaign for an independent air force enacted through publicity stunts to show air powers strengths – but in section 3.3.4, it also sought to analyse the influence of these on the US in the interwar period. In highlighting the differences and similarities between these three men, and their views on the two strands of airpower theory (air superiority and strategic bombing), this section endeavoured to provide a degree of understanding of the formal air power debates that were evident in the interwar period.

Linked to this was section 3.4 in which the works of two modern airfield theorists – Brown, and Bergerud – were examined. I argue that the links between air power and airfields theories must be recognised, especially when considering their development in the interwar US. This thesis will show that Bergerud's concept of the strategic importance of airfield locations is correct. Thus, it can be argued that Brown and Bergerud's works provide tangible examples of formal air power theorising being translated into practical air power strategies. Therefore I argue that an examination of the interwar air power theories of 'strategic bombing' and 'air superiority' must both be understood with reference to the location and construction of both military and civilian airfields across the Pacific (which will be illustrated in the following four chapters).

The following chapter begins the empirical research of this thesis by undertaking analysis of a number of Acts of Congress, government appointed boards, international treaties, and military committees, that all relate to the deployment of aircraft across the Pacific, to establish how the US used these legal documents as part of its technogeopolitical project to materialise the Pacific as US space.

Chapter 4

Treaties, Committees, and Projects: how the US Government's bureaucrats territorialised the Pacific as US space

4.1 Introduction

This chapter seeks to analyse a number of international treaties, Acts of Congress, US Governmental Committees and other official bureaucracies that established the US's geopolitical perceptions of the Pacific during the interwar period.[1] This analysis is vitally important because the argument that geopolitics and aviation existed in a mutually constituted realm has its basis in the premise that the existence of these 'perceptions' directed the US to materialise and territorialise the Pacific as US space. Furthermore, the US Government's policies and perspectives that deal with US military planning and surveying (analysed in chapters 5 and 6), are grounded in the various treaties and government sanctioned inquiries undertaken during the inter-war period.[2] Therefore, this chapter will assess the importance of these four 'agents' – International Treaties, Acts of Congress, Government Committees, and Government Projects.

These examples allow an understanding of how this national level of bureaucracy was involved in the technogeopolitical territorialisation of the Pacific during the interwar period. I argue that these 'agents' constituted a definite legal project, which was part of the larger technogeopolitical project. This secondary project was key to the functioning of the larger project because it created a solid legal basis upon which the US government could add its surveys, empirical projects, and war plans creating an overall framework of entities that coalesced to materialise the Pacific as US space. Furthermore, in conceiving of the documents that follow as parts of such a coherent legal framework, it is possible to develop an understanding of how they fed into, and were constituent parts of, an increasing awareness within the US government of the significance of air power to the perceptions of the Pacific.

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[1] This chapter does not attempt to analyse all the treaties, Acts of Congress, or Committees that were drawn up in the US during the interwar period. Instead, it focuses on those documents that are of specific relevance to the key premise of this thesis.

[2] See Chapter 5 on War Plan Orange, and Chapter 6 on Surveys for more detail.

This chapter provides new perspectives on some well-known documents, and perhaps more significantly it offers these same perspectives on a number of less well-researched documents. For example, whilst there have been many books, articles, and chapters written on the Washington and London Naval treaties (see sections 4.2.2 and 4.2.4) very little work has been carried out on some of the other documents analysed here.[3] However, none of this prior analysis has linked these documents and suggested that they existed as processes and mechanisms through which the US could achieve their aim. Thus, this new perspective understands these Acts of Congress, Government Committees, International Treaties, and the like, as existing within the bounds of a wider technogeopolitical project. I argue that the documents analysed here are inter-linked not only with each other, but also with many other facets of this project.

Section 4.2 will examine a number of international treaties and conferences of the interwar period that specifically affected aviation and its 'place' in the Pacific region. The following section (4.3) will assess several Acts of Congress, and a number of reports compiled by Committees and Boards created by the US President to report on specific facets of what I call technogeopolitical issues. Following this, section 4.4 will seek to examine and analyse the Line Island Project – a major initiative of a US Government department during the interwar period, and which, it will be argued, had a direct impact on territorialising the Pacific as US space. Finally, this chapter will conclude (in section 4.5) with a discussion of how the documents analysed here provide a wider context for the specific case studies of US aviation in the Pacific that will be analysed in the following three chapters.

4.2 International Treaties

In the aftermath of the First World War, many countries desired to implement multinational disarmament, and arms limitation agreements.[4] The interwar period

[3] Examples of analysis of these two treaties can be found in, Roger Dingman. Power in the Pacific: the origins of naval arms limitation, 1914-1922. (1976. University of Chicago Press. Chicago). Thomas H. Buckley. The United States and the Washington Conference, 1921-1922. (1970. University of Tennessee Press. Knoxville). Stephen Roskill. Naval Policy between the Wars. (1968. Walker and Co. New York). George W. Baer. (1994). *Op cit.*

[4] Roger Dingman. (1976.). *Op cit. Passim.*

witnessed a plethora of arms limitation and reduction conferences and treaties.[5] This section will analyse four conferences and treaties that impacted upon the US's capacity to territorialise the Pacific through military infrastructure and deployments. It will discuss their effects, and how the US circumvented their restrictions in pursuit of materialising the Pacific. The documents discussed and analysed in the following sub-sections are: the 1898 Treaty of Paris, the 1922 Washington Naval Treaty, the Pan American Convention on Air Navigation of 1928, and the 1930 London Naval Treaty. Whilst all these treaties dealt with different issues, each had significant repercussions for the US in its attempt to project power across the Pacific.

4.2.1 The Treaty of Paris (1898)

Although the Treaty of Paris was signed two decades before the interwar period covered in this thesis, its importance to my arguments cannot be ignored. Signed by the US and Spain and formally ending the 1898 Spanish-American War, this treaty established a formal US presence in the Western Pacific.[6] During the war, the American commander Admiral Dewey famously sailed his fleet into Manila Bay and 'took' the Philippines for the US.[7] In this treaty, Dewey's claim was officially recognised, with Spain "relinquish[ing] all claim[s] of sovereignty" to Cuba, Porto Rica, Guam, and the Philippines.[8] Arguably, all the US's future policies in the Pacific have their origins in the Paris Treaty, because it required the US to begin to relinquish its isolationist stance and develop geopolitical perceptions and understandings of the Pacific as US space. The following sub-section examines a Treaty, that, I argue, was of great significance in determining how the US sought to territorialise this space two decades later.

4.2.2 The Washington Naval Treaty (1922)

This sub-section will analyse the 1922 Washington Naval Treaty (WNT). Arguably one of the most important documents relating to the US and the Pacific, the Treaty

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[5] Roger Dingman. (1976). *Ibid.* The two main naval arms limitation treaties were the Washington Naval Treaty (1922) and the London Naval Treaty (1930), both of which are analysed in this Chapter. One of the most notable treaties of this type was the Versailles Treaty (1919) which included sections limiting various types and numbers of armaments. See, http://www.yale.edu/lawweb/avalon/imt/menu.htm. Accessed April 2005.

[6] US Congress. A Treaty of Peace between the United States and Spain. (10th December 1898). 55th Congress. Session III. Document 62. Part 1.

[7] George Baer. (1994). *Op cit.* Pp. 30-32.

[8] US Congress. (10th December 1898). *Op cit.* http://elsinore.cis.yale.edu/lawweb/avalon/diplomacy/spain/sp1898.htm. Accessed 19th June 2002.

for the Limitation of Naval Armament (as it was officially known) was signed by the US, UK, Japan, Italy, and France at the Washington Naval Conference in February 1922.[9] The Treaty set out to prevent a post-First World War naval arms race by limiting the size and types of ships that each signatory nation could deploy.[10] Importantly, in the context of this thesis, it also included a section that prohibited further military expansion in the Pacific. This sub-section will discuss the reasons behind the Conference, and analyse the sections of the Treaty that specifically influenced the US's position in the Pacific.

The international mood in the years immediately following the First World War was passionately anti-war, with organisations such as the League of Nations spearheading a drive to limit the production and procurement of military armaments, in an attempt to make another world war impossible.[11] The US returned to its traditional isolationist stance, even shunning the League, until the election of President Harding in 1920. Harding whilst agreeing with the arms race fears that motivated the League of Nations, declined to make the US a member of the organisation. However, he set about organising the Washington Naval Conference: a naval arms limitation conference of which the US would be part.[12] Beginning on 21st November 1921 the Conference ran until 6th February 1922 and witnessed several bilateral and multilateral arms limitation agreements.[13]

The WNT had two major elements that influenced US power in the Pacific. The first dealt with the numbers, types, and sizes of ships that each country would be allowed in its Navy. Of specific importance to this thesis were the sections that detailed the

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[9] Washington Naval Treaty. http://www.metalab.unc.edu/pha/pre-war/1922/nav_lim.html. Accessed 24th June 1999. *Passim*. For a detailed analysis of this treaty see, Thomas H. Buckley. (1970). *Op cit.* Roger Dingman. (1976). *Op cit.* Stephen Roskill. (1968). *Op cit.*

[10] Washington Naval Treaty. http://www.metalab.unc.edu/pha/pre-war/1922/nav_lim.html. Accessed 24th June 1999. *Passim*. The role played by the naval arms race that occurred between the UK and Germany as a precursor to the First World War was well known, and the prevention of another such race was seen as being of great importance to the preservation of peace in the immediate post-war years.

[11] For more information on the League of Nations see http://www.yale.edu.lawweb.avalon.lon.html. Accessed 19th June 2002. Gary B. Ostrower. The League of Nations: From 1919-1929. (1997. Avery Publishing Group. London).

[12] Roger Dingman. (1976). *Op cit.* p. 140. An excellent example of Harding's stance regarding the international 'community' can be found in his inaugural Presidential address from March 4th 1921. http://www.yale.edu/lawweb/avalon/presiden/inaug/harding.htm. Accessed 29th March 2005.

[13] Documents relating to the Conference on the Limitation of Armament. http://www.metalab.unc.edu/pha/pre-war/1922/nav_lim.html. Accessed 24th June 1999. p. 1.

aircraft carrier complements that the US and Japanese navies would be allocated. Article VII stipulated that

> "The total tonnage for aircraft carriers of each of the Contracting Powers shall not exceed in standard displacements for the United States 135,000 tons (137,160 metric tons); for the British Empire 135,000 tons (137,160 metric tons)...for Japan 81,000 tons (82,296 metric tons)."[14]

Thus the US, UK, and Japan entered into what became known as the 5:5:3 ratio, restricting their navies in terms of both total and individual ship size in proportion to each other.[15] The 5:5:3 ratio meant that the US would still have a numerical advantage in warships over Japan, however naval strategists argued that this would be negated by the effect of distance. Thus, any confrontation with the Japanese fought in the Western Pacific would be in effect between two equally matched navies. With further regard to naval aviation, the treaty specified that

> "no aircraft carriers exceeding 27,000 tons (27,432 metric tons) standard displacement shall be acquired by, or constructed for or within the jurisdiction of, any of the Contracting Powers."[16]

Thus, the US Navy was forced to construct aircraft carriers that fell within these limits, and also had to incorporate such ships into a Navy with a maximum total weight, as specified by the 5:5:3 ratio. In reality, this meant that the Navy had to decide how to divide its allocated tonnage, and in an organisation still dominated by battleship enthusiasts new technologies like aircraft carriers were bound to lose out to more tried and tested forms of sea power.[17] This desire to retain battleship supremacy meant that the US Navy had few aircraft carriers during the interwar period. This hindered the Navy's power projection capabilities, and led to it having to rely on other forms of non-carrier based aircraft (specifically long-range patrol flying boats) to project US air power.[18]

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[14] Washington Naval Treaty. Article VII.
http://www.metalab.unc.edu/pha/pre-war/1922/nav_lim.html. Accessed 24th June 1999. p. 1.
[15] Washington Naval Treaty. Article IV.
http://www.metalab.unc.edu/pha/pre-war/1922/nav_lim.html. Accessed 24th June 1999. p. 1.
David Hamer. (1998). *Op cit.* p. 25.
[16] Washington Naval Treaty. Article IX.
http://www.metalab.unc.edu/pha/pre-war/1922/nav_lim.html. Accessed 24th June 1999. p. 1.
[17] For more information on the Battleship versus Aircraft Carrier debate see, David Hamer. (1998). *Op cit.* Pp. 20-54.
[18] For more information on the planning for, and deployment of patrol flying boats see Chapters 5-7.

The second part of the treaty, significant here, is Article XIX, which dealt with the future militarization of the Pacific. This article set out the following restrictions:

> "The United States, the British Empire, and Japan agree that the status quo at the time of the signing of the present Treaty, with regard to fortifications and naval bases, shall be maintained in their respective territories and possessions specified hereunder."[19]

The territories listed for the US were,

> "The insular possessions which the United States now holds or may hereafter acquire in the Pacific Ocean, except (a) those adjacent to the coast of the United States, Alaska and the Panama Canal Zone, not including the Aleutian Islands, and (b) the Hawaiian Islands."[20]

Put simply, this meant that for the fourteen year maximum duration of the WNT the US would be unable to build any new military facilities, or expand any existing bases anywhere across the Pacific with the exception of Hawaii. Thus, the US Government agreed to keep its bases in the Philippines and Guam at their 1922 levels until the end of 1936 (when the treaty was due to expire).[21] As the following chapters will demonstrate, this resulted in the US Government having to rely on non-military aviation developments to materialise US power across the Pacific.[22]

Whilst President Harding had been the architect of the Treaty the US military had not been in favour of it.[23] Roskill notes that the US military's General Board had argued that the key to maintaining stability in the Pacific was to increase the number of US ships and to build new fortifications in the Philippines and Guam, and extend those already in place in Hawaii.[24] However, Harding disagreed and signed the treaty, and the US Navy was left to bear the brunt of its outcome.

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[19] Washington Naval Treaty. Article XIX. http://www.metalab.unc.edu/pha/pre-war/1922/nav_lim.html. Accessed 24th June 1999.
[20] Washington Naval Treaty. Article XIX. http://www.metalab.unc.edu/pha/pre-war/1922/nav_lim.html. Accessed 24th June 1999.
[21] Article XXIII established the 31st December 1936 as the expiry date for the Treaty. Washington Naval Treaty. Article XXIII. http://www.metalab.unc.edu/pha/pre-war/1922/nav_lim.html. Accessed 24th June 1999.
[22] This argument will be developed in more detail in Chapter 7.
[23] George W. Baer. (1994). *Op cit.* p. 93. Edward Miller. War Plan Orange: the US strategy to defeat Japan, 1897-1945. (1991. Naval Institute Press. Annapolis). p. 11.
[24] Stephen Roskill. (1968). *Op cit.* p. 95.

For the following fourteen years, the Navy was unable to build new facilities to keep up to date with advances in many realms of military technologies. Therefore, (as will be argued in Chapter 7), the Navy developed links with commercial aviation in order to establish new aviation facilities across the Pacific that could be used by the military. It was not until 1936 that the US military could develop new bases anywhere across the Pacific overtly, except Hawaii. This curtailed the US military's ability to project US power and territorialise the Pacific in traditional ways. It can be argued that the WNT forced the US to look to less obvious ways of materialising the Pacific, including aircraft carriers (although they too were restricted) and the use of commercial facilities.

4.2.3 The Pan American Convention on Air Navigation (1928)

The Sixth Pan American Conference, which brought together delegations from twenty-one North, Central, and South American governments, was held in Havana, Cuba, in 1928.[25] Although a different sort of multilateral agreement, this also impacted on the US's ability to project power out from its territorial borders. One of the many documents negotiated there was the Pan American Convention (PAC) or "Aerial Treaty" which set out rules of air navigation for the American continents.[26] Whilst similar in certain respects to the WNT (in that both were multilateral agreements) the PAC was very different in that it favoured one country above all other signatories: the United States. As Butler highlights, the PAC contained four major tenets, which taken together gave the US unprecedented access to the airspace over the Western – or American – hemisphere.[27] This sub-section will analyse these tenets and seek to explain the aerial power that they gave to the US.

According to Butler, the PAC was in many ways very similar in content to the aerial sections of the Versailles Treaty – which had included stipulations covering sovereignty of the air and freedom of passage through airspace.[28] Whilst Articles I and IV of the PAC also guaranteed these rights, the document's other articles

[25] David Butler. (2001). *Op cit.* p. 654. I have been unable to find any other sources that discuss this treaty, which I argue indicates a lack of previous academic analysis of this field.
[26] David Butler. (2001). *Ibid.* p. 651.
[27] David Butler. (2001). *Ibid.* p. 651.
[28] For information on the aerial navigation clauses in the Versailles Treaty see http://www.yale.edu/lawweb/avaln/imt/partxi.html. Accessed 18th July 2002.

"outlined the technical requirements and qualifications of aircraft of member nations" in a way that specifically favoured the US.[29] For example, Butler notes that,

> "the technical stipulations outlined in the Havana [PAC] treaty were sufficiently stringent to enable Pan American Airways dominance of the hemisphere since most of the 37 articles highlighted requirements from which only the technologically advanced US could immediately meet and thus immediately reap the benefits."[30]

This quote shows how the US sought to use its technological dominance in aviation in order to place itself in a position of supremacy vis-à-vis its southern neighbours. I argue that this context prompted the US Government to develop a relationship with Pan Am as its "chosen instrument" for projecting US influence right across the Western Hemisphere using aviation (as will be illustrated in Chapter 7).[31] Indeed Butler comments upon this very point, noting that

> "the US in this treaty set the stage for a single US airline, Pan American Airways, to dominate international aviation in the Western Hemisphere as the US's chosen instrument all-the-while excluding the aircraft of other nations. Clearly the US used the Havana convention to let nations both in the Western Hemisphere and in Europe know that it would not tolerate infringement on its sphere of influence."[32]

Thus, the PAC placed the US in a position of hegemony with regard to aviation in the western hemisphere and gave the US Government a mandate to charge Pan Am with being its 'chosen instrument'. Indeed I argue that Pan Am became a tool with which the US would lay claim to the Pacific by way of the airline's transpacific route, inaugurated in 1935.[33]

This sub-section has examined an international treaty (the Pan American Convention) that greatly benefited the US in terms of its ability to use aviation as a tool to project its power abroad. The following sub-section returns to the naval arms limitation genre discussed in section 4.2.2, and examines further limitations placed on naval aviation, in contrast to the 'freedoms' granted to US commercial aviation in the PAC.

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[29] David Butler. (2001). *Op cit.* p. 651.
[30] David Butler. (2001). *Ibid.* . p. 651.
[31] The concept of Pan Am being the US's 'chosen instrument' is discussed in Marylin Bender & Selig Altschul. The Chosen Instrument: Pam Am, Juan Trippe, the rise and fall of an American Entrepreneur. (1982. Simon & Schuster. New York).
[32] David Butler. (2001). *Op cit.* p. 652.
[33] A detailed analysis of Pan Am's transpacific routes, and its relationship with the US Government can be found in Chapter 7.

4.2.4 The London Naval Treaty (1930)

This sub-section will analyse the 1930 London Naval Treaty (LNT), which sought to put the finishing touches to the WNT signed eight years previously. Its importance here is in its articles concerned with aircraft carriers. This sub-section will discuss these, in light of the position of the US Navy in the Pacific after this agreement was signed.

The first major development in the LNT was a redefinition of the term 'aircraft carrier' from that stipulated in the WNT. The 1922 treaty had defined an aircraft carrier as,

> "a vessel of war with a displacement in excess of 10,000 tons (10,160 metric tons) standard displacement designed for the specific and exclusive purpose of carrying aircraft. It must be so constructed that aircraft can be launched therefrom and land thereon".[34]

This meant that any ships under 10,000 tons constructed as an aircraft carrier were completely exempted from the WNT restrictions. However, by 1930 this potential loophole had been closed as the LNT sought to redefine aircraft carriers as,

> "any surface vessel of war, whatever its displacement, designed for the specific and exclusive purpose of carrying aircraft and so constructed that aircraft can be launched therefrom and landed thereon."[35]

Thus, a ship of any size specifically constructed as an aircraft carrier was now subject to the total tonnage limits set out in the WNT. However, other ships such as cruisers or seaplane tenders (that had either been converted for aircraft use after commissioning, or only had planes moored alongside) had been exempt from restriction under the WNT and remained so under the new treaty.[36]

> "The fitting on a landing-on or flying-off platform or deck on a capital ship, cruiser or destroyer, provided such vessel was not designed or adapted exclusively as an aircraft carrier, shall not cause any vessel so fitted to be charged against or classified in the category of aircraft carriers"[37]

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[34] Washington Naval Treaty. Article XX. Part 4. http://www.metalab.unc.edu/pha/pre-war/1922/nav_lim.html. Accessed 24th June 1999.
[35] London Naval Treaty. Article III. http://www.archives.gov.au. Accessed 1st November 2004.
[36] See section 4.2.2 for more information on Aircraft Carrier restrictions in WNT.
[37] London Naval Treaty. Article III. http://www.archives.gov.au. Accessed 1st November 2004.

This was important for the US's continuing policy of using naval aviation to project its power across the Pacific, because these exemptions allowed the US Navy to deploy as many seaplanes, and flying boats, and tenders as possible. During the interwar period seaplanes had the largest operating radius of any aircraft (typically over 1000 miles) and thus provided a very effective power projection tool for the US. Put simply, these aircraft could cover a greater area per flight than any other aircraft, which added to the perception of US visibility across the Pacific.[38] In Chapter 6 a number of US Navy surveys will be analysed that were specifically tasked with identifying locations across the Pacific that could be used as possible seaplane and tender harbours, thus illustrating the importance of this Treaty to the US's ability to use aircraft to territorialise the Pacific.

However, the LNT did affect the US Navy elsewhere by making the definition of an aircraft carrier much more rigorous, and further restricting their construction by setting lower tonnage limits for ships qualifying as aircraft carriers. This meant that the US was less free to build new carriers, as it was now forced to include any aircraft carrying ships under 10,000 tons in that category. However, the exclusion of seaplane tenders and multi-use ships adapted for aircraft usage did allow the US some leeway, especially given the centrality of seaplanes to US Pacific deployment strategies.[39]

4.2.5 Conclusions

This section has examined four international treaties that affected the ability of the US to territorialise the Pacific. Whilst the WNT and the LNT served to affect the materiel that the US could deploy across the Pacific, they did not totally stymie the perception that the Pacific was US space. Indeed, the PAC shows the extent to which the US was beginning to understand the potential of aviation as a power projection tool. However, perhaps the most important article in any of these four treaties is Article XIX of the WNT. Its restrictions upon military base construction across the Pacific would prove to be one of the key catalysts that triggered the technogeopolitical project that this thesis describes. The following section will

[38] See section 5.7 for more information on the best known of the US's long range flying boats, the Consolidated Catalina.

[39] See Chapters 5 & 6 for more information on the role of seaplanes in US Pacific military power projection strategies.

examine a number of US Government reports and Acts of Congress and seeks to argue how they are evidential of the existence of a desire, within sections of the US Government, to negotiate their way around the limitations of the WNT by developing viable strategies to materialise and territorialise the Pacific as US space.

4.3 US Government Acts and Boards

During the interwar period a large number of aviation, and Pacific, related Acts of Congress and Governmental Boards were enacted. This section will examine those most pertinent to developing an understanding of how the US acted through such processes and mechanisms to territorialise the Pacific. The first and second sub-sections will cover the commercial sector detailing the 1926 Air Commerce Act and the 1928 Foreign Air Mail Act, which helped establish the rules and regulations of the growing air-mail industry. The third, fourth and fifth sub-sections will move into the military sector and analyse the reports of two Government appointed Committees, and an Act of Congress. The 1935 River and Harbor Act led to the compilation of a number of reports concerned with developing seaplane facilities on US Pacific islands. Meanwhile, the 1923 Rodman Board and the 1938 Hepburn Board examined the state of the Navy's shore establishments. Their reports give invaluable insights into the relative importance of the Pacific as a US space in comparison to the rest of the US and the Atlantic.

4.3.1 The Air Commerce Act (1926)

The 1926 Air Commerce Act was designed to "encourage and regulate the use of aircraft in commerce, and for other purposes."[40] It states that "it shall be the duty of the Secretary of Commerce to foster air commerce in accordance with the provisions of this act" thus specifically detailing the Department of Commerce with the task of developing the,

> "transportation in whole or in part by aircraft of persons or property for hire, navigation of aircraft in furtherance of a business, or navigation of aircraft from one place to another for operation in the conduct of a business"[41]

This act gave the Depertment of Commerce a whole raft of powers, to both promote and regulate air commerce, including the ability to develop navigation and

[40] US Congress. An Act to encourage and regulate the use of aircraft in commerce, and for other purposes. (20th May 1926). Sixty-Ninth Congress. Session I. p. 568.
[41] US Congress. (20th May 1926). *Ibid.* Pp. 568-9.

meteorological services, investigate aviation accidents, control the issuance of aircraft registration documents, and examine both "airmen" and aviation facilities for "airworthiness".[42] So that the Commerce Department could adequately carry out these new tasks, the Act also allowed for the appointment of an "additional Assistant Secretary of Commerce" whose responsibility would be to "aid the Secretary of Commerce in fostering air commerce".[43] This was important because it provided official recognition of the growing importance of commercial aviation as a tool of power projection.

One of the most interesting sections of this Act states that,

> "Nothing in this Act shall be construed to prevent the Secretary of War from designating routes in the navigable airspace as military airways and prescribing rules and regulations for the use thereof on routes which do not conform to civil airways established hereunder"[44]

Significantly, this shows that the military had priority over US airspace, thus indicating that whilst the Act was intended to develop civil aviation, the US government was careful to give precedence to its military aviation needs. Another, interesting, and related section defines the US's 'air space'.

> "the Government of the United States has, to the exclusion of all foreign nations, complete sovereignty of the airspace over the lands and waters of the United States, including the Canal Zone. Aircraft a part of the armed forces of any foreign nation shall not be navigated in the United States, including the Canal Zone, except in accordance with an authorisation granted by the Secretary of States...Foreign aircraft not a part of the armed forces of the foreign nation shall be navigated in the United States only if authorized as hereinafter in this section...If a foreign nation grants a similar privilege in respect of aircraft of the United States and/or airmen serving in connection therewith, the Secretary of Commerce may authorise aircraft registered under the law of the foreign nation and not a part of the armed forces thereof to be navigated in the United States."[45]

This quote is important as it defines the concept of reciprocity in international aviation that later became an important factor in influencing the trans-oceanic routes

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[42] US Congress. (20th May 1926). *Ibid.* p. 569.
[43] US Congress. (20th May 1926). *Ibid.* p. 573.
[44] US Congress. (20th May 1926). *Ibid.* p. 571.
[45] US Congress. (20th May 1926). *Ibid.* p. 572.

chosen by Pan American Airways.[46] Further to this Act, the following sub-section will examine a specific strand within commercial aviation (the air mail) by analysing the Foreign Air Mail Act of 1928 and attempting to develop an understanding in the context of this thesis.

4.3.2 The Foreign Air Mail Act (1928)

I argue that the 1928 Foreign Air Mail Act is of particular importance to understanding how the US acted to allow companies, such as Pan Am, the ability to territorialise the Pacific. It stated that,

> "the Postmaster General is authorised to enter into contracts for air-mail service on routes...between the United States or possessions or Territories of the United States and foreign countries for the transportation of mails of the United States and its possessions or Territories both ways over the routes."[47]

Thus, this act gave the Postmaster General the authority to develop air mail routes between the US and foreign countries. This ability could be used to identify commercially important routes that the US wished to exploit, and also strategically significant routes that the US was unable to develop by military means.[48] According to the act, any airline with a US operating licence could win the tender to run these routes. However, in reality, this equality of opportunity did not occur. During the decade between this Act's inception and the beginning of the Second World War, a number of Foreign Air Mail (FAM) routes were drawn up and contracts were put out to tender by the USPO. All of the FAM's were won by one company – Pan Am. This strongly suggests that this company was a key component of the US's technogeopolitical project to use aviation to project power out from its territory.

The two Acts analysed in sections 4.3.1 and 4.3.2 both sought to accelerate the development of transoceanic commercial air services, which would be of specific significance in territorialising the Pacific. They are also important as the mechanisms that actively ensured Pan Am's establishment as the US Government's 'chosen

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[46] See Chapter 7 for more information on Pan Am and its place in transpacific aviation.

[47] US Congress. An Act to enable the Postmaster General to make contracts for the transportation of mails by air from possessions or Territories of the United States to foreign countries and to the United States and between such possessions or Territories, and to authorise him to make contracts with private individuals and corporations for the conveyance of mails by air in foreign countries. (2nd March 1929). Seventieth Congress. Session II. p. 1449.

[48] See section 4.2 for more information on the restriction placed on the US military vis-à-vis Pacific power projection.

instrument' for transpacific aviation.[49] The following sub-section will also analyse documents that aimed to encourage and regulate the aviation industry. It argues that the US Government pursued these ends as part of a wider project to develop the power projection capabilities of aviation.

4.3.3 The Rodman Board (1923)

This sub-section (and the two that follow it) moves the analysis from Acts of Congress that dealt with civil aviation to Acts and US Government appointed Boards concerned with military aviation and its potential role in the Pacific. An understanding of how these Acts and Boards perceived the US's Pacific geopolitics, helps contextualise the US Government's subsequent strategies to materialise and territorialise the Pacific.

The "Special Board on Shore Establishments" known commonly as the Rodman Board - after its chair Admiral Hugh Rodman - was established on 27th September 1922, with a remit to make "recommendations concerning the shore establishments of the Navy".[50] This report is specifically important in developing an understanding of how the Navy perceived its place in the world, and of relevance here, its place in the Pacific. The Board argued that "the successful operation of the fleet is dependent upon adequate shore bases and stations."[51] If, in the context of the unique geography of the Pacific, the success or otherwise of the US Navy was predicated upon having enough shore facilities, then providing a realistic naval presence in the Pacific with its mere handful of potential island base sites (which it could not improve due to the WNT restrictions), and its mere handful of aircraft carriers (again hampered by the WNT), would be difficult.

Of equal importance are the Board's comments regarding naval aviation. In 1922 this branch of the Navy was still perceived as somewhat of an unknown quantity. Advocates of naval aviation looked to reports such as the Rodman Board's, to bolster

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[49] Marylin Bender & Selig Altschul. (1982). *Op cit.*

[50] Admiral Hugh Rodman et al. Report of the Special Board on Shore Establishments. (15th January 1923). NARA DC. RG. 38. Office of the Chief of Naval Operations. Shore Station Development Board. Box 15. p. 1577. Shore establishments are any navy facilities based on land rather than at sea, and therefore the term covers a vast range of bases including dry docks, naval air stations, ammunition testing ranges, naval hospital and many more.

[51] Admiral Hugh Rodman et al. (15th January 1923). *Ibid.* p. 1582.

their case for increased spending on, and integration of, naval aviation as a frontline combat tool. They were not disappointed.[52] The report stated that,

> "Rapid advances are being made in aviation as a naval offensive and defensive arm, and such advances may be expected to continue. The experiences of the recent war indicate that in the event of hostilities there will be great expansion if the naval air forces, including the naval air stations."[53]

Thus, these two elements; namely developments in aviation, and the particular geography of the Pacific, need to be considered in concert in order to determine the importance of the Rodman Board to the US's technogeopolitical project.

The stated "mission of naval aircraft", according to the Rodman Board, was to operate from "mobile floating bases or from naval air stations on shore."[54] From these sites naval aircraft were to function "as an arm of the Fleet", to undertake "overseas scouting", to deploy "against enemy establishments", to "protect coastal sea communications", and to "engage enemy vessels."[55] In the Pacific, naval aviation was primarily required for scouting operations. At this point it is necessary to note that, in 1923, the US Navy had only one 'experimental' Aircraft Carrier, the USS *Langley*, and therefore all naval aviation was based at shore stations known as Naval Air Stations (NAS). Thus, the Board's recommendations for NAS could radically affect the US's technogeopolitical position in the Pacific. The Board proposed that NAS should be built at Alameda, California, and Sand Point, Washington.[56] Furthermore, the existing NAS at Pearl Harbor, Hawaii, and San Diego, California, should be "completely developed".[57]

These recommendations demonstrate the existence of US perceptions that the Pacific was a US space over which the US Navy should project its presence and power. Given the relative speed and mobility of aircraft as compared to a battle ship of the same period, the development of new NAS would allow this power projection to be

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[52] For an insight into how naval aviation's advocates sought to achieve this see, Clark G. Reynolds. *John H. Towers, the Morrow Board, and the Reform of the Navy's Aviation*, in Military Affairs. 1988. Vol. 52/2. Pp. 78-84.
[53] Admiral Hugh Rodman et al. (15th January 1923). *Op cit.* p. 1587.
[54] Admiral Hugh Rodman et al. (15th January 1923). *Ibid.* p. 1586.
[55] Admiral Hugh Rodman et al. (15th January 1923). *Ibid.* Pp. 1586-1587.
[56] Admiral Hugh Rodman et al. (15th January 1923). *Ibid.* p. 1587.
[57] Admiral Hugh Rodman et al. (15th January 1923). *Ibid.* p. 1588.

maintained and expanded easily and flexibly.[58] Perhaps the most telling section of the Board's report is that which lists the order in which "existing naval air stations should be reduced in activity or made inoperative" if budget restrictions ever necessitated such cut backs.[59] Of the ten extant NAS, Pearl Harbor is listed as the penultimate site to be affected.[60] Given the location of this NAS, and its reliance on an expensive and lengthy supply line by ship from the mainland, its positioning at the end of this list surely shows the geostrategic importance placed upon maintaining a naval aviation presence in Hawaii even in 1923.[61]

These examples show that the potential of aviation to project US power across the Pacific was understood as early as 1923. Even though the Rodman Board preceded the deployment, within the US Navy, of aircraft with the ranges needed to utilise Hawaii to its full geopolitical extent, it acknowledges that this Pacific island would be vital to US interests across the Pacific. Therefore, the Rodman Board is important because it shows that the US desired the means to materialise the Pacific as US space through the use of aviation, even before the technologies existed to realise these wishes. A second document relating to the military's desire to use aviation to project power across the Pacific is the 1935 River and Harbor Act, which will be analysed in the following sub-section.

4.3.3 The River and Harbor Act (1935)

This sub-section investigates the significance of the innocuous sounding River and Harbor Act of 1935. By shedding light on its military usage this sub-section seeks to provide further evidence of the link between the military and civilian sections of the US Government, and the administration's desire to circumvent the WNT treaty restrictions limiting military development across the Pacific.

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[58] See Chapter 5 for more information on the relative speeds of aircraft and ships in the interwar period.
[59] Admiral Hugh Rodman et al. (15th January 1923). *Op cit.* p. 1588.
[60] The full list of NAS was: "Chatham, Mass...Cape May, N.J...Rockaway, Long Island...Anacostia, D.C. Pensacola, Fla...Hampton Roads, Va...San Diego, Calif...Lakehurst, N. J...Pearl Harbor, Hawaii...Coco Solo, Canal Zone." Admiral Hugh Rodman et al. (15th January 1923). *Ibid.* p. 1588.
[61] It must be remembered that the first successful flight from the US West Coast to Hawaii did not take place until 1927, and thus all supplies had to be 'shipped' by sea from the West Coast to Pearl Harbor. See Chapter 1 for more information on early West Coast-Hawaii flights.

Enacted in August 1935, the River and Harbor Act authorised works to be carried out under the "direction of the Secretary of War" to improve "rivers, harbors and other waterways" identified as being of potential importance to national defense.[62] This Act allowed the US Army's Chief of Engineers to examine and survey a number of locations on US Pacific islands with a view to recommending improvements that would enable their use for military deployments. Of specific interest to this research are the reports submitted by the Chief of Engineers concerning Wake Island, and Welles Harbor on Midway Island.[63] Both reports detail the existing harbor topography of their respective subjects, and interestingly both also note the presence of Pan American Airways' air facilities at each location. For example, the report on Wake Island comments that,

> "Wake Island is a United States naval reservation. It is not occupied by the Navy Department but is now being developed under permit by the Pan American Airways Co. as an intermediate base for its recently inaugurated seaplane service to the Orient."[64]

Further to this, and of specific relevance to an argument extended throughout this thesis – that Pan Am acted in some respects as a 'chosen instrument' of the US Government – the report on Welles Harbor, Midway recommends that,

> "the proposed channel of entry into the inner harbor of the federally owned Midway Island will provide a usable harbor for medium size craft in this isolated locality and aid materially the development of a reliable trans-Pacific air service."[65]

This quote provides evidence of the extent to which the development of Pan Am's transpacific service was inter-linked with the US Government's wider technogeopolitical project because of it's obvious use of the "trans-Pacific air

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[62] http://www.ccrh.org/comm/moses/primary/riveract.html. Accessed 18th November 2004. p. 1.

[63] US Congress. A letter from the Chief of Engineers, United States Army, dated June 30, 1936, transmitting a report, together with accompanying papers and illustrations, on a preliminary examination and survey of Welles Harbor, Midway Island authorised by the River and Harbor Act approved August 30, 1935. 75th Congress. 1st Session. Document No. 49.
US Congress. A letter from the Chief of Engineers, United States Army, dated June 30, 1936, transmitting a report, together with accompanying papers and illustrations, on a preliminary examination and survey of Wake Island authorised by the River and Harbor Act approved August 30, 1935. 75th Congress. 1st Session. Document No. 84.

[64] US Congress. A letter from the Chief of Engineers, United States Army, dated June 30, 1936, transmitting a report, together with accompanying papers and illustrations, on a preliminary examination and survey of Wake Island authorised by the River and Harbor Act approved August 30, 1935. 75th Congress. 1st Session. Document No. 84. p. 2.

[65] US Congress. A letter from the Chief of Engineers, United States Army, dated June 30, 1936, transmitting a report, together with accompanying papers and illustrations, on a preliminary examination and survey of Welles Harbor, Midway Island authorised by the River and Harbor Act approved August 30, 1935. 75th Congress. 1st Session. Document No. 49. p. 3.

service" as a convenient reason to develop the harbor at Midway for military use. Indeed the same report goes on to state that,

> "The division engineer [who visited Midway] concurs in the view that improvement of Midway Island is warranted in the interests of fostering aerial navigation and of national defense"[66]

and whilst the report notes that the Navy had failed to request "provision of a seaplane harbor" this can be understood in terms of the WNT's restrictions on militarising the Pacific (as discussed in section 4.2.2), which were still in effect when the report was drawn up.[67]

The reports on Midway and Wake islands, gathered by the US Army's Chief of Engineers under the auspices of the River and Harbor Act, suggest the existence of a link between the US Government, its military, and Pan Am. Further, this Act reinforces the argument that the US Government sought to use a number of strategies – with legislation at their heart – to enable it to use aviation as an effective tool to materialise its latent sense of the Pacific as US space. The following sub-section details another Government Board that sought to further this project through aviation.

4.3.5 The Hepburn Board (1938)

On 3rd January 1939 the Committee on Naval Affairs published its "Report on need of additional naval bases on the coasts of the United States, its territories, and possessions."[68] This was chaired by Rear Admiral Arthur J. Hepburn, USN, and became more commonly known as the Hepburn Board Report.[69] The Report was the result of a Congressional Act passed on 17th May 1838 that ordered that,

> "The Secretary of the Navy is hereby authorised and directed to appoint a board of not less than five officers to investigate to investigate and report upon the need, for

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[66] US Congress. A letter from the Chief of Engineers, United States Army, dated June 30, 1936, transmitting a report, together with accompanying papers and illustrations, on a preliminary examination and survey of Welles Harbor, Midway Island authorised by the River and Harbor Act approved August 30, 1935. 75th Congress. 1st Session. Document No. 49. p. 6.

[67] US Congress. A letter from the Chief of Engineers, United States Army, dated June 30, 1936, transmitting a report, together with accompanying papers and illustrations, on a preliminary examination and survey of Welles Harbor, Midway Island authorised by the River and Harbor Act approved August 30, 1935. 75th Congress. 1st Session. Document No. 49. p. 6. See section 4.2.2 for more information on the WNT.

[68] US Congress. Report on need of additional naval bases to defend the coasts of the United States, its territories and possessions. (3rd January 1939). 76th Congress. 1st Session. Document 65. p. 1.

[69] US Congress. (3rd January 1939). *Ibid.* p. 1.

purposes of national defense, for the establishment of additional submarine, destroyer, mine, and naval air bases on the coasts of the United States, its territories and possessions."[70]

The recommendations of this report formed the backbone of the expansion of naval aviation in the Pacific region in the immediate pre-war period, and is of central importance to understanding the increasingly role of aviation in the perception of the Pacific as US space in the 1930's.

Any reading of the Hepburn Report's recommendations regarding Pacific region air bases must take into consideration the size and composition of the Pacific Fleet (specifically its aviation complement), and the strategic priorities of the US Navy's Pacific war plans (known as War Plan Orange or WPO).[71] Thus, it can be argued that the Hepburn Report forms part of a larger technogeopolitical understanding of the Pacific as US military space. For example, the Report notes that "a few of [its] recommendations for additional facilities" pertain specifically to "fleet training as a whole in its tactical and strategical aspects", which it claims is the "paramount activity of the fleet in time of peace."[72] The islands of Wake and Johnston are specifically highlighted as needing to be developed in order to allow the Pacific Fleet to conduct fleet training in realistic environs. This shows the importance that the Board attached to the need for the US Navy to train on and off small Pacific island airfields, which were (by the end of the interwar period) at the heart of WPO strategy.[73]

With specific regard to aviation, the Report details the reasons why additional shore-based facilities were required so that naval aviation could function as an integrated and modern force within the US Navy. The report notes that, "existing shore establishments have failed to keep pace with the requirements of the number of planes authorised by the act of 1936."[74] Furthermore, it states that every naval ship or

[70] US Congress. (3rd January 1939). *Ibid.* p. 39.
[71] See Chapter 5 for more information on War Plan Orange
[72] US Congress. (3rd January 1939). *Op cit.* p. 3.
[73] US Congress. (3rd January 1939). *Ibid.* p. 3. Chapter 5 concentrates on analysing the aviation component of War Plan Orange.
[74] US Congress. (3rd January 1939). *Ibid.* p. 4.

aircraft, of whatever type, is dependent upon shore-based facilities for its maintenance and support facilities.[75]

> "Since no naval plane contains living conditions beyond the bare necessities during flight, every [air] base or station [requires] mechanical equipment [and] living quarters for both the flying crews and the ground crews of the planes it is designed to support".[76]

Thus, the inability of the extant shore bases to cope with the increasing numbers of aircraft meant that the Navy was unable to utilise all its aircraft. This limited its effectiveness, and ability to project power. This is directly related to Bergerud's comments (discussed in Chapter 3) regarding the importance of developing airfields in strategically important locations.[77] I argue that the Hepburn Board's members were aware of this problem and, given the deteriorating diplomatic situation with Japan during this period, were specifically concerned with developing additional air bases in the Pacific region that would ensure that the Navy could utilise its growing air fleet there. Indeed, the Report notes that,

> "The need for...naval air bases is primarily caused by requirements of maintenance and training of carrier planes...The carrier is a floating aerodrome of limited capacity...Its function is to transport planes to the sea areas of active fleet operations and there operate them in accordance with the definite plan of fleet action in effect at the moment. The types of operation which may be required, as well as the types of planes employed, are many, and the exercises designed for training in these various kinds of operation are accordingly numerous and varied. It would be possible to accomplish only a small part of the necessary training required if carrier planes were restricted to the use of the carrier itself...Carrier's planes are, therefore, for a large part of the time in a shore-based status, and a landing field and other shore facilities are necessary."[78]

Therefore, the Hepburn Board considered additional air bases as necessary not only to accommodate the increasing numbers of naval aircraft, but also as central to the efficient operation of carrier-borne aircraft within the US Fleet. Given that the war plans for the Pacific region were increasingly integrating carrier air operations, the need for more shore-based facilities to support carrier squadrons in the Pacific was of

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[75] US Congress. (3rd January 1939). *Ibid.* p. 8.
[76] US Congress. (3rd January 1939). *Ibid.* p. 8.
[77] Eric Bergerud. (2000). *Op cit.* Pp. 5-7.
[78] US Congress. (3rd January 1939). *Op cit.* Pp. 8-9.

prime importance.[79] These comments show that the US's strategic position across the Pacific was a central factor in influencing the Hepburn Board's report, a view also evidenced by the following quote from the report which states that,

> "the location and number of major and secondary air bases are determined by three principal considerations...the total number of planes to be maintained...[the] requirements of training...[and] strategical considerations."[80]

Naval air base construction on the Pacific coast had also been relatively slow throughout the interwar years (due at least in part to the WNT restrictions discussed in section 4.2.2), and it seems almost inconceivable that in 1939, just two years before the attack on Pearl Harbor, the US had only three operational naval air bases to provide protection to hundreds of miles of coastline and thousands of miles of territorial waters across the Pacific.

> "With the completion of Alameda Air Station, now building, there will be three major air bases on the Pacific coast of the United States, namely, San Diego, Alameda, and Seattle (Sand Point)."[81]

For each of these three Pacific Coast air bases (depicted in Fig. 4.3.2) the Report stipulated the number and type of air squadrons that were to be deployed. San Diego was considered the central carrier squadron facility, with the Board recommending development of facilities for four carrier groups, as compared to the development of two groups at Alameda, and one at Seattle.[82] The Board also recommended that San Diego be the location for the only fleet marine force group on the West coast, reinforcing the pre-eminence of NAS San Diego.[83] In addition to these three major air bases, the Board recommended the development of two auxiliary air fields at the fleet air base San Pedro, and on San Clemente Island, both in southern California.[84]

In addition, the Pacific Coast's air bases were reliant on Atlantic Coast stations to provide maintenance facilities for their aircraft. In the Report, the Board recognised the need for increased facilities to meet the growing number of planes within the Navy's inventory. However, it failed to acknowledge the need for the Pacific coast to

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[79] See Chapter 5 for more information on US Pacific war planning.
[80] US Congress. (3rd January 1939). *Op cit.* p. 9.
[81] US Congress. (3rd January 1939). *Ibid.* p. 18.
[82] US Congress. (3rd January 1939). *Ibid.* Pp. 18-19.
[83] US Congress. (3rd January 1939). *Ibid.* p. 18.
[84] US Congress. (3rd January 1939). *Ibid.* p. 19.

be self-sufficient and instead expanded overhaul facilities on the East coast, thus continuing the Pacific air bases reliance on them. This shows a major failure of the Board to appreciate that the Pacific Coast's aircraft complement might be involved in combat operations that would require local overhaul facilities. It seems paradoxical that whilst the Board was advocating increased air facilities in the Pacific region because of a perceived threat from the Japanese, it compromised their combat efficiency because of the time needed to transport planes to the East coast to be overhauled.

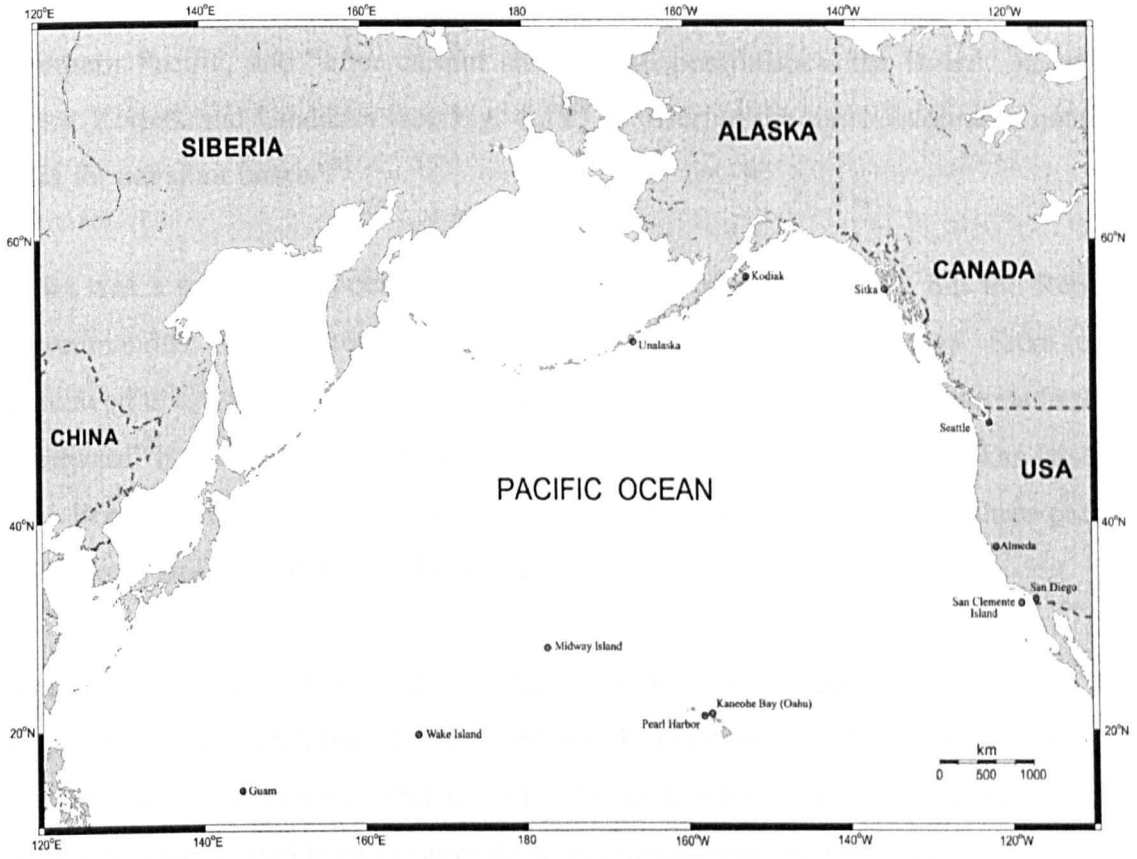

Fig. 4.3.2. Hepburn Board Report NAS.[85]

The Board also addressed the need for additional air bases to the North, and across the Mid Pacific.[86] The Report highlighted the "essential" need for "naval air bases in the Alaskan area…in time of war."[87] Further, it noted that "from a strategic point of view, the area of greatest importance is in the Aleutian chain of islands."[88] This shows that the Board was cognizant of the extant naval war plans (which

[85] John Garner. Map showing the NAS discussed in the 1938 Hepburn Board Report. (2005. Geography Department. University of Hull).
[86] US Congress. (3rd January 1939). *Ibid.* Pp. 20-28.
[87] US Congress. (3rd January 1939). *Ibid.* p. 20.
[88] US Congress. (3rd January 1939). *Ibid.* p. 20.

increasingly viewed Alaska and the Aleutians as being geostrategically important), and the increasing perception of Japan as a hostile power with the ability to attack the US across the Northern Pacific.[89] To this end, the Board investigated several potential Aleutian island bases but concluded that the inclement weather in the region would prevent effective aerial operations being conducted.[90] This is an interesting conclusion given the evidence presented in the Alaskan surveys analysed in Chapter 6 (which, in 1932, identified numerous sites for the construction of airfields, or seaplane anchorages along the Aleutian chain). Instead, it was decided to develop new and existing naval air facilities in Alaska to cover the Aleutians and the Northern Pacific, and "after careful study of all possibilities, the Board...selected Sitka, Kodiak and Unalaska [see Fig. 4.3.2] as offering the most favourable natural sites for naval air bases."[91]

Sitka was a small base operating half a squadron of patrol planes, but the Report recommended that it should be expanded to house a full squadron. Sitka was perceived to be an excellent "intermediate station between Seattle and stations farther westward" but was not deemed suitable to become the Navy's major Alaskan base.[92] The Board decided that this was to be Kodiak, to which they assigned three patrol squadrons, and more importantly, aircraft overhaul facilities.[93]

The recommendation of an overhaul facility for Kodiak is significant as it shows the importance with which the US Navy perceived the threat from Japan in the Northern Pacific and the Aleutians. The presence of an overhaul facility at Kodiak would reduce the turnaround time for aircraft, thus keeping more planes available to protect the vulnerable Aleutian chain. The third base recommended for Alaska at Unalaska, was deemed by the Board "the westernmost point at which a base could be

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[89] See Chapter 5 for more information on US Pacific war plans. During the Second World War the Japanese attempted and successfully prosecuted at least one invasion in the Aleutians. It is possible that the Board, as a civilian body might not have been privy to some of the top-secret military plans for war in the Pacific. Thus, its acknowledgement of the growing strategic importance of Alaska points to it having access to at least some of these.

[90] See Chapter 6 for more information on military surveys of the Aleutians. US Congress. (3rd January 1939). *Op cit.* p. 21.

[91] US Congress. (3rd January 1939). *Ibid.* p. 21.

[92] US Congress. (3rd January 1939). *Ibid.* p. 21.

[93] US Congress. (3rd January 1939). *Ibid.* p. 22.

maintained in time of peace."[94] Although weather conditions were unfavourable for air operations at Unalaska the Board considered it a strategic necessity to develop a small patrol plane base as far along the Aleutian chain as possible. It argued that facilities for any potential Pacific war needed to be built before the conflict, given the problems of distance and conditions that would be encountered in any such development.[95]

Clearly, the Hepburn Board's recommendations for Alaskan air facilities were coloured by their identification of Japan as a potential enemy in the region (in a similar vein to the comments made in the Alaska surveys analysed in Chapter 5). Given Japan's proximity to the Aleutian chain, the Board recommended the construction of defensive facilities in locations that would normally have been passed over (because of poor flying conditions).[96] It also made the region's naval air forces self sufficient with the development of overhaul facilities at Kodiak. Given that the Board allocated East Coast overhaul facilities for the West Coast airfields, it is unlikely that it was influenced by arguments of distance and efficiency in its decision to construct overhaul facilities for the Northern Pacific in Alaska. This suggests that they assumed the Northern Pacific would not be attacked in isolation, meaning that the extant overhaul facilities would be too far away, and too busy, to turn 'Alaskan' planes around with enough speed to give the US an advantage in the region.

The importance of air control over the mid Pacific was also a high priority to the Hepburn Board. The Report notes that,

> "so long as the United States retains command of the sea between Hawaii and the mainland, the island of Oahu may be considered practically impregnable against hostile occupation...In this defence the functions of naval aircraft have in recent years rapidly developed into outstanding importance in fleet operations."[97]

In order to further shore up these defences, the Board recommended the development of a number of naval air facilities in Hawaii and on four US Pacific island possessions. The Navy's main base in Hawaii was at Pearl Harbor, where it not only

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[94] US Congress. (3rd January 1939). *Ibid.* p. 22.
[95] US Congress. (3rd January 1939). *Ibid.* p. 23.
[96] This action again reinforces Bergerud's comments on the importance of locating airfields strategically, rather than perhaps more practically. Eric Bergerud. (2000). *Op cit.* p. 5.
[97] US Congress. (3rd January 1939). *Op cit.* p. 23.

had a large dock complex but also had a "major naval air base" located in the middle of the harbour on Ford Island."[98] The Board also recommended the construction of a seaplane facility at Kaneohe Bay "situated on the east coast of Oahu."[99] This base (see Fig. 4.3.2) would become the primary patrol plane facility in the Pacific – being able to accommodate five patrol plane squadrons, thus taking pressure off the congested Ford Island base. As the Report states,

> "The development of Kaneohe is visualised as an adjunct to the station at Pearl Harbor. Under conditions of normal operation in peacetime, squadrons would utilise Kaneohe Bay for training purposes for short periods of time. In wartime, however, it is considered that the congestion in Pearl Harbor would necessitate using Kaneohe Bay as the main [seaplane] operating area."[100]

Further west across the Pacific the Board identified the islands of Midway, Wake, and Guam as requiring naval air facilities (see Fig. 4.3.2). Pan Am had first proved the viability of air facilities here when they inaugurated their central Pacific route through these islands in 1935. Whilst the US Navy showed little public interest in the project, at least one naval officer went on each of Pan Am's survey trips, thus showing that the Navy was interested in the potential of these islands for aviation use.[101]

With regard to Midway, the Report stated that "from a strategic point of view, an air base at Midway Island is second in importance only to Pearl Harbor."[102] Thus, the Board recommended that Midway be developed as a "secondary naval air base" with "facilities for two patrol plane squadrons."[103] The Board's recommendations for Wake followed the same format, although it suggested developing facilities to service only one patrol plane squadron.[104] On Guam the Board noted that there was a complete lack of competent defensive facilities, and recommended a massive fleet base development, including air facilities, which would act as a forward defensive position for Hawaii and the Philippines.[105] Perhaps of greatest significance was the exclusion of construction of land-based aviation facilities in the Report's

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[98] US Congress. (3rd January 1939). *Ibid.* p. 23.
[99] US Congress. (3rd January 1939). *Ibid.* p. 25.
[100] US Congress. (3rd January 1939). *Ibid.* p. 25.
[101] See Chapter 7 for more information on this.
[102] US Congress. (3rd January 1939). *Op cit.* p. 25.
[103] US Congress. (3rd January 1939). *Ibid.* p. 25.
[104] US Congress. (3rd January 1939). *Ibid.* p. 26.
[105] US Congress. (3rd January 1939). *Ibid.* Pp. 27-28.

recommendations, as this prevented the Navy deploying either fighters or bombers to these Central Pacific islands. However, the Report's obvious desire to expand the Navy's patrol plane deployment to these islands is evidential of an understanding of the power projection capabilities of these craft (as will be discussed in Chapter 5), and is thus in keeping with the wider governmental project to develop processes and mechanisms by which the US could territorialise the Pacific as US space.

Elsewhere in its considerations of the Pacific, the Board commented that,

> "In addition to Midway and Wake, other United States islands in the Pacific are of strategic value to serve as patrol-plane bases in support of fleet operations and the defense of Hawaii. These are Johnston Island, Palmyra Island, Canton Island, and Rose Island. It is not considered necessary that these islands have permanent shore facilities. It is necessary that each be developed to permit tender-based patrol-plane operations."[106]

Interestingly, at the end of the Report the Board lists fifteen sites that it states should be completed as early as possible. Of these, ten are in the Pacific region, and include all the facilities on the Pacific Island territories identified above.[107]

The Hepburn Board Report is important because it set the tone for the development of naval air facilities in the Pacific in the immediate pre-war period. The establishment of a self-sufficient naval air complement in Alaska and the Aleutians confirms the importance the Board ascribed to the Northern Pacific front. The outbreak of war in the Pacific in December 1941 radically changed the US Navy's need for air facilities across the Pacific, and the loss of Midway, Wake, and Guam, led to a reassessment of the aviation potential of some of the islands passed over for development by the Hepburn Board. Thus, within months of the war's start, the US Navy's aircraft were routinely flying along Pan Am's Southern Route (see Chapter 7) via Palmyra Island and Canton Island amongst others, south across the Pacific to Australasia.[108]

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[106]US Congress. (3rd January 1939). *Ibid.* p. 26.

[107]US Congress. (3rd January 1939). *Ibid.* p. 35. The ten Pacific facilities on this list are: Seattle, Sitka, Kodiak, Ford Island, Kaneohe Bay, Midway, Wake, Johnston, Palmyra, and Guam.

[108] See Chapter 7 for more information on these lesser known islands, that were used by Pan Am on their Australasia route. For more information on the Naval Air Transport Service – the wartime section that flew Pan Am's planes along Pan Am's Pacific routes see, James Lee. Operation Lifeline: the history and development of the NATS. (1947. Ziff Davis Publishing Co. New York). Reginald M. Cleveland. Air Transport and the War. (1946. Harper & Bros. New York).

The Hepburn Board failed to provide for the adequate defense of the central Pacific islands that would be Japan's primary targets, and overlooked developing air facilities along what would become the vital route to Australasia. It did however, advocate investing in air facilities in the continental US that functioned as training bases for the aviation complements of the carrier groups that would form the vanguard of the US's advance across the Pacific.

4.3.6 Conclusions

This section has analysed five US Government Boards or Acts of Congress, all concerned with developing aviation in order to further the administration's goal of territorialising and materialising the Pacific as US space. The Air Mail Acts set the scene, giving the Post Office the ability to control foreign air mail contracts, and thus allowing the development of Pan Am as a 'chosen instrument' with firm financial and Governmental backing. The River and Harbor Act was another attempt to circumvent the restrictions of the WNT – again by using the transpacific air service as a convenient reason to develop better facilities at the geostrategically important islands of Midway and Wake. Finally, the Rodman and Hepburn Boards both showed the importance of developing good shore establishments, and their importance in the wider US Pacific power projection context. The following section will detail and analyse an aviation project, developed and undertaken by the US Department of Commerce in the 1930's, that sought to construct airfields across the Pacific. I suggest that this project offered similar power projection capabilities to the Pan Am facilities discussed in Chapter 7.

4.4 The Line Island Project (1935-1937)

The Line Island Project (LIP) was concerned with developing aviation facilities on several Pacific islands. It is of specific importance to this thesis as it can be argued to be perhaps the single largest manifestation of the US Government's aim to use non-military aviation to circumvent the WNT restrictions. The Line Islands are a group of atolls and small islands that stretch for up to two thousand miles south and west from Kingman Reef, which lies approximately 1000 miles southeast of Hawaii (see Fig.

4.4.1). They include the islands of Palmyra, Washington, Jarvis, Howland, and Baker which had all been claimed as US territories by the 1930's.[109]

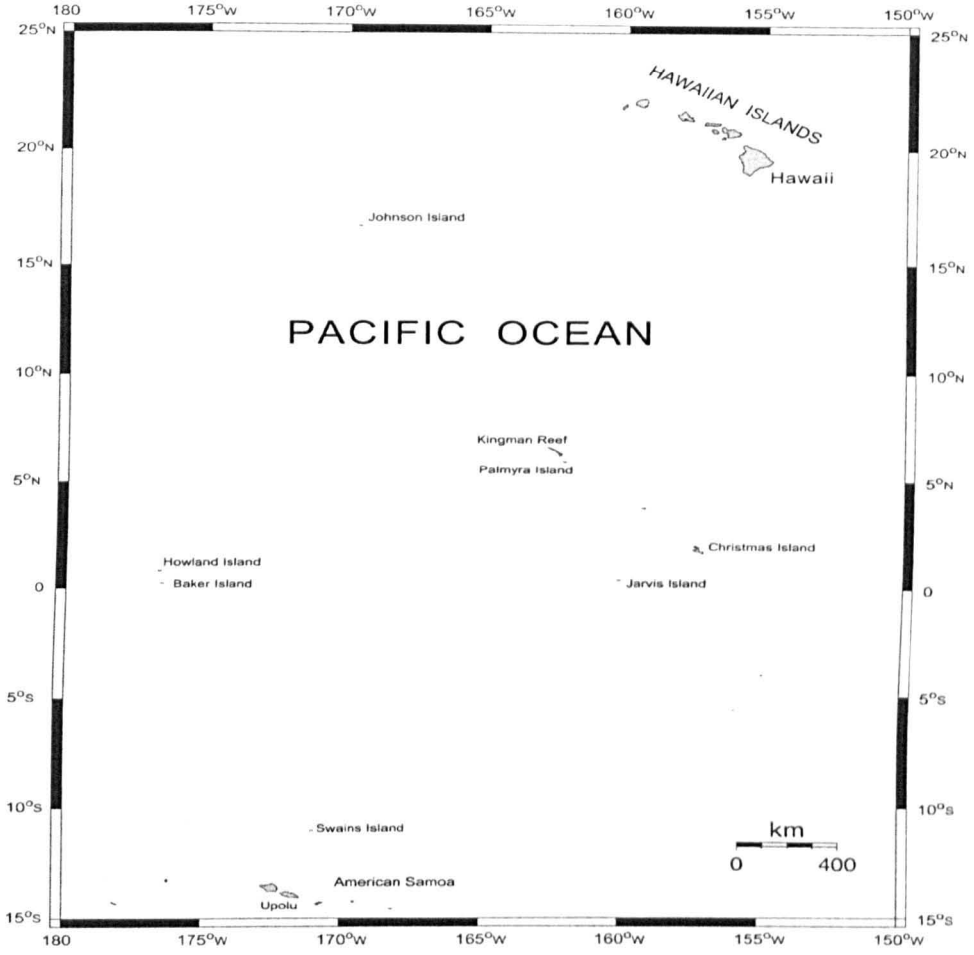

Fig. 4.4.1. Map of the Line Islands[110]

The LIP allows us an invaluable insight into the lengths that the Roosevelt administration were prepared to go to in order to achieve a sense of power projection and control across the Pacific. Thus, this section will examine the development of the LIP and set it in the wider context of US governmental processes that territorialised the Pacific as US space.

The origins of the LIP lie in a US Navy survey carried out by the USS *Astoria* in the summer of 1934.[111] This immediate link with the my arguments (also reiterated in

[109] Most of these islands had been claimed by US whaling ships in the 19th century. See, S Whittemore Boggs. (1938). *Op cit.* Pp. 177-192. However, Roosevelt requested the verification of claims of sovereignty over Pacific islands (because of a number of disputes) resulting in the production of, S. Whittemore Boggs. Bases for American claims to Pacific Islands. (1937). NARA CP. RG 38. Strategic Plans, WPD. Miscellaneous Subject File. Box. 65.

[110] John Garner. Map of the Line Islands. (2005. Geography Department. University of Hull).

[111] Deck Log of the USS Astoria. (1934). NARA DC. Accessed 21st May 2003. http://www.multied.co/Navy/cruiser/Astoria2.html. Accessed 18th May 2003.

Chapter 7) concerning the interaction of different interest groups (such as the US Government, the military, and commercial concerns) in developing aviation mechanisms with which to project US power across the Pacific.[112] The USS *Astoria*, a US Navy cruiser equipped with seaplanes, spent three months sailing through the South Pacific stopping at numerous islands including American Samoa, Palmyra, and the British-claimed Christmas Island.[113] The *Astoria's* seaplanes were used to make aerial observations and to take photographs of these islands and Commander Hamilton V. Bryan led several landing parties.[114] Bryan's reports on Howland, Baker, and Jarvis are especially interesting and show a depth of knowledge of transpacific aviation that suggest he was aware of the implications of his work. For example, in his report on Baker Island, Bryan mentions that in 1928 the island was considered as a possible emergency landing site by Charles Kingsford-Smith on his transpacific flight.[115] Further, he also recognised the potential of Baker noting that it could be considered "sufficient for emergency landings of land planes" and that "these landing areas can easily be extended with minimum labor" to make viable permanent landing facilities.[116] Bryan also highlighted the aviation potential of Howland Island noting that is could be considered a "potential stepping stone for aircraft" on future transpacific flights.[117]

The real importance of Commander Bryan's reports lies in where they ended up. Less than four months after their submission the Secretary of the Bureau of Commerce (which included the Bureau of Air Commerce) wrote the following letter to the Secretary of the Navy.

> "Admiral Block has discussed with me the matter of this Departments cooperation with regard to the colonisation of Jarvis, Howland, and Baker Islands. The matter of determining their value in connection with a transoceanic air service between Hawaii and Australia was also discussed...It is suggested that Commander Miller of the Air Navigation Division of the Bureau of Air Commerce be detailed to make all

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[112] For more information on this see the comments in Chapter Six that deal with the US Government and military's involvement in Pan Am's transpacific air routes.
[113] Deck Log of the USS Astoria. (1934). *Op cit.*
[114] Deck Log of the USS Astoria. (1934). *Op cit.*
[115] Commander H. V. Bryan. Report on Baker Island. (7th September 1934). NARA CP. RG 237. FAA. Box 03. CAA – Records of the Superintendent of Airways. For more information of Kingsford-Smith's flight see Chapter 1.
[116] Commander H. V. Bryan.. (7th September 1934). *Ibid.*
[117] Commander H. V. Bryan. Report on Howland Island. (7th September 1934). NARA CP. RG 237. FAA. Box 03. CAA – Records of the Superintendent of Airways.

arrangements for a study as to the practicability of the use of these islands for landing land planes as well as their possible use for a sea plane base."[118]

It was within Miller's files at the Bureau of Air Commerce that I found the copies of Bryan's reports, thus suggesting a degree of interaction between the Navy and the Bureau of Commerce, which is further evidenced by the above quote.

Miller and his survey team set sail for Howland, Baker, and Jarvis in March 1935 aboard the US Coast Guard vessel USS *Itasca* to determine their potential "as land and sea plane bases".[119] During the course of the following two years, Miller and his team conducted several survey trips producing five 'aeronautical reports' coving Palmyra, Howland, Baker, Jarvis, Swains, Tutuila (American Samoa), Johnston, Kingman Reef, and Upolu. A secondary, but potentially as important, task of the LIP was to 'colonise' the islands of Howland, Baker, and Jarvis, and by doing so ensure US sovereignty of these tiny islands. Thus Miller's party included "nine people to place on the Islands" arranged by the Bureau of Commerce and tasked with building permanent facilities on each island and conducting thorough meteorological, geological, and ecological studies.[120] These 'colonists' and their permanently occupied scientific stations removed any questions of the island's sovereignty.

An example of the work Miller and his team undertook is the report he wrote on Jarvis Island. First visited on 25th March 1935, Miller describes Jarvis as being situated,

> "to the south of the Hawaiian Group and to the north east of US Samoa a position which is strategically located for aeronautical use at such time the Hawaiian – Australian airlane is under consideration. The only use that this island could be advantageously utilised is for some form of aeronautical activity. If this island is not used for a division or refuelling point, it could be considered for a radio station site, for weather reporting or said station to be utilised as a homing device at times which it becomes necessary to use the directional radio compass in cases of emergency."[121]

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[118] Secretary of Commerce. Letter to the Secretary of the Navy. (5th January 1935). NARA CP. RG 237. FAA. Box. 03. CAA – Records of the Superintendent of Airways.
[119] Secretary of Commerce. Travel Authorisation for W. T. Miller. (23rd January 1935). NARA CP. RG 237. FAA. Box. 01. CAA – Records of the Superintendent of Airways.
[120] Secretary of Commerce. Letter to the Secretary of War. (23rd January 1935). NARA CP. RG 237. FAA. Box. 01. CAA – Records of the Superintendent of Airways.
[121] William T. Miller. Aeronautical Report – Islands of the South Seas, Jarvis Island. (27th March 1935). p. 1. NARA CP. RG 237. FAA. Box. 03. CAA – Records of the Superintendent of Airways.

This quote clearly shows the geostrategic nature of Miller's surveys, and his understanding of the potential of aviation as a tool to exert 'control' over the Pacific. His commentary moves seamlessly from a basic geographical location to a technogeopolitical argument for the development of aviation facilities on Jarvis. Indeed, Miller was so certain of the potential of Jarvis as a site for the construction of a strategically located airfield that he included the following sketch map (Fig. 4.4.2) in his report.

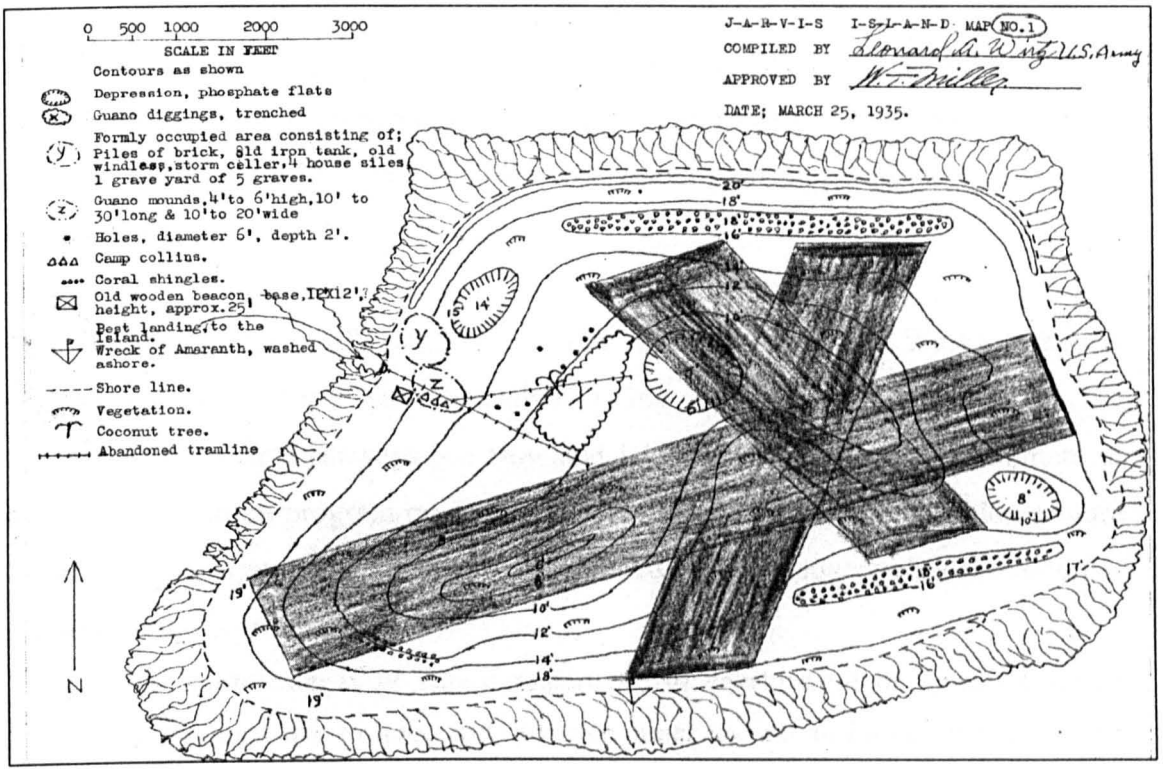

Fig 4.4.2. Map of potential runways on Jarvis Island[122]

Miller comments that,

> "The attached map of the island has indicated thereon the possibilities for a runway airport of sufficient size to accommodate the operation of modern aircraft...Jarvis Island can be utilised for an excellent land plane base."[123]

Whilst Jarvis definitely had potential, in Miller's opinion the most promising island visited was Howland, which he first surveyed on 30th March 1935. Unfortunately, his report is missing from the archives. However, there can be little doubt about the strategic and commercial importance of Miller's work, especially with regard to this

[122] Leonard Wirtz. Jarvis Island Map No. 1. (25th March 1935), in William T. Miller. (27th March 1935). *Ibid.*.
[123] William T. Miller. (27th March 1935). *Ibid.* p. 3.

island. Fourteen months after the submission of Miller's first LIP reports President Roosevelt formally claimed authority over the islands.[124]

> "By virtue of and pursuant to the authority vested in me...as President of the United States, it is ordered that Jarvis Island...Baker Island...and Howland Island...a[re] hereby, reserved, set aside, and placed under the control and jurisdiction of the Secretary of the Interior for administrative purposes."[125]

This claim of sovereignty is important for two reasons: first, it shows that Roosevelt was prepared to act to formally strengthen the US's territorial position in the region; and second, it shows that Roosevelt was aware of the potential of commercial aviation as a mechanism with which the US could project power across the South Pacific through the establishment of a commercial air route to Australasia.[126] Indeed, after the LIP had run its course, Miller was tasked with preparing a report on the feasibility of such a route.[127]

Furthermore, Miller's LIP reports led the US Government's Works Progress Administration to issue (in December 1936) a project application for the "construction of three runways [on Howland Island] forming basic development in Airport construction program on proposed route to the Antipodes."[128] Adding more evidence to the argument that the LIP was imbued with technogeopolitical overtones, the application noted that,

> "this construction is of utmost importance to development of Trans-Pacific air transportation due to large areas of open water and no anchorage available – for emergency and land plane operation."[129]

Construction of the airfield began less than one month after receipt of the application, on 27th January 1937. This again provides evidence of the importance with which the US Government perceived the project – and its wider significance as part of a process to territorialise the Pacific.

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[124] Franklin D. Roosevelt. Executive Order No. 7369. (13th May 1936). NARA CP. RG 237. FAA. Box. 03. CAA – Records of the Superintendent of Airways.
[125] Franklin D. Roosevelt. (13th May 1936). *Ibid.*
[126] For more information on the US – Australasia air route see Chapter 7.
[127] William T. Miller. Report on Investigation of a Proposed San Francisco-Honolulu-Australasia Air Mail Route. (1937). NARA CP. RG 237. FAA. Box. 03. CAA – Records of the Superintendent of Airways.
[128] Bureau of Air Commerce. Project Application. (31st December 1936) p. 1. NARA CP. RG 237. FAA. Box. 01. CAA – Records of the Superintendent of Airways.
[129] Bureau of Air Commerce. (31st December 1936) *Ibid.* p. 2.

The LIP is of specific importance in this thesis because it illustrates the desire of the US Government to use a variety of processes to enable aviation to materialise US control over the Pacific. The deliberate identification of islands that were still effected by the restrictions of Article XIX of the WNT again reinforces the argument that the US used commercial aviation to circumvent these limitations. Furthermore, the Bureau of Commerce's vision to use the LIP over a long term was demonstrated by the search for land plane bases, because by the latter part of the interwar period it was becoming obvious that seaplanes and flying boats would soon become obsolete as land plane technologies advanced. Finally, the LIP provides further evidence of a technogeopolitical project. As with Pan Am's transpacific routes, it was one of the key mechanisms through which the US Government sought to use aviation to project power across this region.

4.5 Conclusions

The aim of this chapter has been to detail a number of International Treaties, US Government Acts, Boards, and projects, that were integral to the US's wider project of developing and implementing processes and mechanisms to materialise and territorialise the Pacific. Section 4.2 examined the international treaties by which the US was bound, and specifically the WNT, which firmly restricted military infrastructure development across the Pacific. This led to a need for the US to find a non-military way in which to develop adequate aviation facilities on strategically important islands. It will be argued Chapter 7 that Pan American Airways was deliberately cultivated by the US administration to fulfil this role and circumvent the WNT limitations. The PAC was also examined because it exemplified the growing importance ascribed to aviation, as a power projection tool, by the US.

The following section, 4.3, analysed a number of Acts of Congress and Government appointed Boards that addressed different aspects of aviation and the Pacific. This section once again highlighted the links between the Government and the commercial aviation sector, and the military and commercial sectors. More specifically, the Air Commerce Act, and Foreign Air Mail Act served as examples of how the US Government increasingly sought to encourage and regulate the commercial aviation industry. Further to this, these documents show how this intervention can be seen as part of a wider attempt to develop commercial

transpacific routes, subsidised by the Government, in order to develop commercial aviation facilities that would be viable for military use whilst not jeopardising the stipulations contained within the WNT. This section introduced the concept of Pan Am as a 'chosen instrument', a contention that is advanced in more detail in Chapter 7.

Section 4.3 also examined three military aviation related documents – two Boards and one Act of Congress – that dealt with the issues of aviation 'shore station' development across the Pacific. The 1923 Rodman and 1938 Hepburn Boards showed the extent to which the importance of aviation – as a tool with which to develop US power projection capabilities across the Pacific – had advanced during the interwar period. The 1935 River and Harbor Act once again returned to the idea that the US Government had to be, to an extent, underhand in its development of aviation facilities in the WNT region. This Act's stated aim to survey rivers and harbors for development potential hides one of its true aims – the desire to survey islands covered by the WNT to ascertain their potential as military facilities. Once again, this document brings together two strands that run throughout this research, that of the limitations of the WNT, and the role of Pan Am in circumventing these.

Section 4.4 analysed the Line Island Project – perhaps the most important evidence given here of the US Government's desire to use aviation to materialise and territorialise the Pacific. The locations chosen, and the involvement of military officials again provides evidence of a link between the military and civilian arms of the US Government. It can be argued that this collaboration had its roots in the WNT discussed in section 4.2.2. Indeed, it can be argued that the LIP was in many ways a similar project to the transpacific routes developed by Pan Am: not only because of their overt similarity regarding the construction of Pacific aviation facilities, but more importantly because of their covert links to the US military, and its desire to use aviation to project power across the Pacific.

Thus, this chapter had analysed and explained the significance of a number of international treaties, US Government Acts, and Boards, all of which were important as processes and mechanisms in the US's technogeopolitical project. The following chapter will investigate the development of the US Navy's Pacific war plans (WPO)

in the interwar period, and the specific place of aircraft within them. It will seek to argue that as aviation technologies advanced, so the US Navy sought to integrate aviation into WPO and thus plan for the projection of US power across the Pacific through the deployment of long-range patrol aircraft and Aircraft Carriers.

Chapter 5

War Plan Orange: US Navy planning for a Pacific war and the role of aircraft therein

5.1 Introduction

This chapter will seek to argue that developments in aviation during the interwar period allowed military planners to plan for the deployment of increasing numbers and types of aircraft for combat in the Pacific. It argues that, from a technogeopolitical perspective, the deployment of these aircraft increased the US's power projection throughout the region greatly because a squadron of aircraft could cover a greater area than a comparable number of ships.[1] This chapter will use examples from the US Navy's Pacific war plans (known as War Plan Orange) to show how the Navy's planners increasingly recognised the importance of aviation, and specifically patrol planes.

Contextually, there has been little work carried out in contemporary human geography that is comparable to what will be attempted in this chapter. The link between geography and the military (as has been commented on in Chapter 1) that can be traced back to the early modern 'empire' period.[2] However, in contemporary geography acknowledgement of this has tended to be manifested in, what could be considered, realist understandings of geography – as a descriptor of the terrain over which battles were fought – rather than the more nuanced and critical understandings sought in this thesis. Recently however, attempts have been made to reconceptualise military geography. Amongst these is Rachel Woodward's 2004 book entitled 'Military Geographies'.[3] In the first chapter, Woodward comments on this lack of research into, and knowledge of, these geographies, noting that,

> "geographies constituted and expressed by the material practices of military activities and the discursive strategies of militarism...have received far less sustained scholarly attention than conflicts themselves."[4]

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[1] See Chapter 3. for more information on the strengths of aircraft.
[2] For more information on this link see, David Livingstone. (1992). *Op cit.* Pp. 216-259.
[3] Rachel Woodward. (2004). *Op cit.*
[4] Rachel Woodward. (2004). *Ibid.* Pp. 4-5.

This chapter will attempt to add to this new paradigm by analysing, not the war in the Pacific itself, but the "discursive strategies" textualised in War Plan Orange (WPO) that provided the plans by which that war was eventually fought.[5] Thus, this chapter adopts an overtly 'critical geopolitical' approach.

With specific relevance to this chapter, only one book has been written on the US's Pacific war planning: Edward Miller's 1991 volume 'War Plan Orange: The US strategy to defeat Japan, 1897-1945'. [6] This book is, without doubt, a highly detailed analysis of US war planning for the Pacific – and for this reason will be referred to throughout this chapter – but is not a geographical work. Instead it focuses on the specificity of the plans, and does not attempt to understand the wider issues – specifically the role played by developments in aviation – of how WPO territorialised the Pacific as US space. Whilst, as will be detailed in Chapter 6, there has been a growth in recent years of interest in re-examining and problematising documents from what might be termed 'colonial surveys' (see, for example Godlewska and Smith's excellent edited volume 'Geography and Empire') little work has been undertaken on the types of planning documents that will be analysed in this chapter.[7] Thus, this chapter will fill this gap, by undertaking a geographical, and geopolitical analysis of the US Navy's major Pacific war planning documents of the interwar period – War Plan Orange.

This chapter is divided into eight sections with this introductory section, 5.1, forming the first. The second section, 5.2, will introduce the US Navy's Pacific war plans, detailing their structure, raison d'étre, and giving an insight into the planners themselves, in order to establish the context for the rest of the chapter. Section 5.3 will seek to analyse the war plans of the 1920's, assessing these formative attempts to integrate naval aviation into the Pacific war plans. The following section, 5.4, will take the form of a case study of the 1934 War Plan, 'The Royal Road' – one of the first to exploit aircraft deliberately with its focus on an island-hopping strategy that included airfield seizure and construction. Section 5.5 will seek to analyse the evolution of aircraft carriers in the US Navy, and assess their importance to the

[5] Rachel Woodward. (2004). *Ibid.* p. 4.
[6] Edward S. Miller. (1991). *Op cit.*
[7] Anne Godlewska and Neil Smith. (Eds.). (1994). *Op cit.*

deployment of aircraft in WPO. A second case study will be discussed in section 5.6, that will analyse the development, in the late interwar period, of the Advanced Fleet Air Bases, and argue that these came about precisely because of advances in aviation and their effects on naval war planning. Section 5.7 will analyse the development of the aviation technologies alluded to in the preceding section, with a discussion of the development of the Consolidated Catalina aircraft. The concluding section, 5.8, will aim to draw together the arguments and examples discussed in the preceding sections, and outline how advances in aviation during the interwar period allowed naval war planners to deploy aircraft to materialise US perceptions of the Pacific.

5.2 Naval War Planning for the Pacific

This thesis adopts a technogeopolitical standpoint to argue that a recursive relationship existed between geopolitics and aviation throughout the interwar period (1918-1941) realised through a technogeopolitical project. This chapter will examine this premise as it occurred within the military realm by analysing the United States Navy's plans for fighting a war in the Pacific. A group of naval planners, based in the Navy's War Plans Division, developed these plans during the interwar period. The plans are known as the Orange plans, because Japan was given the colour-code designation 'Orange' by the US military.[8] In any assessment of how aviation and geopolitics acted together to affect materialisations of the US's perception of the Pacific as US space, an analysis of War Plan Orange (WPO) is vital because it provides primary evidence of how the US viewed their strategic remit across the Pacific.

During the first four decades of the Twentieth Century, the US Navy's planners (all serving US Navy officers) examined possible strategies and tactics that the US Navy could employ if, and when, Japan declared war on the US.[9] As Edward Miller, in his seminal work on WPO, states,

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[8] The War Plans Division (WPD) was part of the Office of the Chief of Naval Operations, and thus at the very heart of the Navy's bureaucracy. Every country included in these plans was given a colour designation for security reasons. The USA was Blue, the UK was Red, and Japan was Orange, thus the war plans concerning conflict with Japan became known as the Orange plans. See, Louis Morton. *War Plan Orange: evolution of a strategy*, in World Politics. 1950. Vol. 11. No. 2. p. 221.

[9] Louis Morton. (1950). *Ibid.* Pp. 221-223.

> "The geopolitical premises of the plan held that, in spite of historically friendly relations, a war would erupt someday between the United States and Japan, a war in which neither could rely on the help of allies."[10]

The plans to fight such a conflict were altered and amended throughout the interwar period, as changing US Government policies, military strategies, and technologies influenced the Navy's viewpoint of a Pacific war.[11] Therefore, these plans provide cogent chronological evidence of the existence of a relationship, between advances in aviation technologies and geopolitical practicalities, which allowed the Pacific to become increasingly materialised and territorialised as US space. This occurred with the construction of airfields across the region, and by the increasing focus, within WPO, on the potential of aircraft as 'tools' within such a plan.[12] Thus, this chapter explores WPO as an exemplifier of the relationship between aviation and geopolitics in the interwar period. This gives contextual underpinning to the remainder of the chapter, which will examine how WPO evolved, and discusses how aviation developments influenced it.

5.2.1 The Structure of War Plan Orange

This sub-section will detail the structure of WPO using a three phase concept developed by Miller.[13] In his book on WPO, he states that the "distance and geography [of the Pacific] dictated a three-phase contest."[14] In this quote, Miller is referring to the Eastern Pacific basing of the US Navy, which left the western Pacific largely at the mercy of the Japanese, and to the vast stretches of open ocean in between. Thus, in order to mount any form of military operation the most important consideration was the supply line.[15] With only a few small islands dotted across more than 5000 miles of ocean, constructing a viable plan for fighting a Pacific war was much more complicated than for any other oceanic region. Thus, as Miller posits, the

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[10] Edward Miller. (1991). *Op cit.* p. 3.

[11] An example of this is the Treaty on the Limitation of Naval Armament, which is discussed in section 5.3 of this chapter.

[12] The Surveys chapter gives further information on the significance of the construction of airfields.

[13] Edward Miller. (1991). *Op cit.*

[14] Edward Miller. (1991). *Ibid.* p. 4.

[15] A supply line is key to a successful military campaign. It takes the form of a secure route from the front line back to the home depots. This allows supplies of weapons, ammunition, personnel, and other sundries to be continually available at the front line. Obviously such a line relies on having intermediate bases at which to store goods, because a short line, or a collection of such is easier to protect than a single long line. Given the geography of the Pacific the need to secure islands to act as intermediate bases was crucial. For more information on the importance of naval command of the sea, and the importance of supply lines see, Julian Corbett. Some Principles of Maritime Strategy. (1911). in, David Jablonsky (Ed.). (1999). *Op cit. Passim.*

form and structure of WPO would be dictated by issues of "distance and geography."[16]

Phase I of WPO reluctantly acknowledged that "Japan would seize the lightly defended American outposts" of Guam and the Philippines, in the first few days of war.[17] As Miller argues, "the US Navy, concentrated at home ports [in the Eastern Pacific] would be unable to prevent these takeovers" due to the distances involved in traversing the Pacific from Hawaii to the Philippines.[18] Thus Phase I of WPO was concerned primarily with planning the complex mobilisation timetable that would prepare the USN to begin offensive actions against Japan.

In Phase II these offensive actions were detailed. As Miller states, American

> "expeditions spearheaded by superior naval and air power would steam westward. Intense but small-scale battles would procure Japanese islands of the central Pacific. Advanced naval and air bases would be established and supply line secured."[19]

This quote clearly shows a link between aviation and geopolitics, with its inclusion of air power as a tool required, in connection with the procurement of island air bases, in order to attack Orange successfully. With specific reference to the potential importance of Pacific islands, Miller also comments that in Phase II,

> "Amphibious shock troops supported by sea and air power would crunch through Japanese-held islands of Micronesia. Advanced fleet bases would be constructed in the Marshall and Caroline islands and the southern Philippines. The Marianas might also be seized as air bases."[20]

Once again, this quote identifies the immutable connections between the geostrategic potential of specific Pacific islands and aviation as a technology capable of realising that potential. This chapter is concerned with examining this process as it occurred within the development of WPO.

Phase III of WPO would follow up this 'island hopping' strategy with the imposition of a total blockade of Orange's home islands.

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[16] Edward Miller. (1991). *Op cit.* p. 4.
[17] Edward Miller. (1991). *Ibid.* p. 4.
[18] Edward Miller. (1991). *Ibid.* p. 4.
[19] Edward Miller. (1991). *Ibid.* p. 4.
[20] Edward Miller. (1991). *Ibid.* p. 5. For more information on the USN surveys of potential island bases see Chapter 6.

> "In the war's third phase Japan's insularity would prove fatal. American forces would advance northward through islands paralleling the cost of Asia to establish new bases for economic warfare. They would choke off all of Japan's imports and ravage its industries and cities through air bombardment until it sued for peace."[21]

Understanding the overall structure of WPO is important because whilst much of the content of WPO evolved during the interwar period, its structure remained constant. This consistency of focus and direction reinforces the argument espoused in this thesis – that the US perception of the Pacific as US space did not change during this time, rather developments in aviation allowed this extant perception to be increasingly realised and materialised. One of the most important facets of the structure of WPO is its spatial element, and thus the constancy of this structure shows a constancy of spatial perception. Therefore, whilst the Navy's planners perceptions of the Pacific as US space remained fixed within these spatial parameters, developments in aviation and geostrategic concerns served to influence their views on how the Navy could best be deployed to counter an Orange threat. Thus, as the previous quotes in this sub-section indicate, WPO was a strategy heavily predicated on the ability to use technologies to overcome the geographical 'problems' of the Pacific and to make the best use of the islands scattered across it in order to defeat Orange.

The following sections will analyse the development of WPO from the perspective of the incorporation of naval aviation. This is important as the emergence of air power as a front line instrument within WPO arguably points towards the Navy's increasing sense of the Pacific as US space.

5.3 WPO in the 1920's

This section seeks to analyse the versions of WPO that were produced during the first decade of the interwar period. However, it is first necessary to understand the nomenclature system of these plans. WPO documents were assigned code numbers, with different phases of WPO being allocated different numbers. These numbers began with WPL (which stands for 'War Plan') and ended with a number designation. For example, the first major interwar Orange plan, which dealt with

[21] Edward Miller. (1991). *Ibid.* p. 4.

phase one mobilisation, was WPL-8.[22] WPL-8 and its early interwar counterparts are important because they were the first that incorporated aviation as a viable technology.[23]

A key consequence of the outbreak of the First World War was an immediate acceleration of advances in military aviation, which the Navy's war planners needed to understand and incorporate into Orange planning.

> "World War I affected the planning of a Blue-Orange conflict in many ways; expansion of fleets and merchant marines by both antagonists, the proving of submarines and aircraft, and especially the Japanese annexation of Micronesia, where those attrition weapons might offset America's naval dominance and cause its defeat."[24]

However, the first Orange plans of the interwar period were at best, optimistic about future abilities, and at worst, sheer fantasy. In his discussion of Orange planning, the respected American historian Louis Morton notes that, the ability to "execute [the 1925] plan was far beyond the capabilities of either the Navy or the Army."[25] This argument is further reiterated in comments made by Miller in connection with another version of WPO. He states that, "The 1922 plan...identified the need for air power over the beachheads but could not explain how to get it there."[26] This gap between what was being planned and what was feasible in reality was even identified by some involved in the creation of these plans. For example, in 1925 Brigadier General H. A. Drum wrote to the Assistant Chief of Staff of the War Plans Department stating that,

> "attention is invited to the fact that the [Army] Air Service requirements for the forces to be concentrated in the first thirty days are 1,160 officers, 7,674 enlisted men and 434 airplanes – requirements in personnel and materiel which cannot be met in the time imposed even under the most favourable conditions."[27]

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[22] Dept of Navy. War Plans Division. WPL-8. Vol. I. Basic Readiness Plan. (25th June 1923). NARA CP. RG 38. Strategic Plans, WPD. WPL Series.
[23] See Appendix A for a table outlining the revisions of WPL.
[24] Edward Miller. (1991). *Op cit.* p. 109.
[25] Louis Morton. *American and Allied Strategy in the Far East*, in Military Review. (c. 1949). p. 23.
[26] Edward Miller. (1991). *Op cit.* Pp. 120-121.
[27] Brigadier General H. A. Drum (Assistant Chief of Staff, War Department General Staff). Memorandum to Assistant Chief of Staff War Plans Division. (18th July 1925). NARA CP. RG 165. WPO (1991-1 – 1991-9). p. 2.

Geopolitically, these early plans are important because they highlight my premise that the US's perception of the Pacific as US space was fixed by the interwar period. Indeed, an assessment of the US-Japanese situation, issued in 1922, clearly shows these perceptions by stating that, "in the event of a war with Japan, it appears probable that it will arise through a flagrant violation of our rights in the Far East."[28] Thus, as early as 1922, the US Navy believed that it had 'rights' across the Pacific.[29] A further example, in the 1923 version of WPL-8, discusses battles being fought in the Western Pacific. This indicates that, only five years after the First World War and the ending of American international neutrality, the US was so confident of its power in this region that the Central and Eastern Pacific were perceived as 'safe' American space. The identification of Hawaii as the primary staging post for the commencement of hostilities against Japan, in WPL-8, further reinforces this viewpoint.[30]

With respect to aviation, the main problem in these early plans concerns a huge gap between the numbers of aircraft and Aircraft Carriers detailed in the plans and the actual numbers of craft in service with the US Navy. For example, the 1923 version of WPL-8 calls for the deployment of the USS *Saratoga* in the Battle Fleet. However, at this time the *Saratoga* was four years from completion.[31] This time lag is important for two reasons. Firstly, it shows the lack of reality in this plan, but secondly, it shows that Navy planners were becoming aware of naval aviation's potential to project US power across the Pacific. Thus, there was an evident desire to develop strategic roles for aircraft, even though in reality the Navy's aviation complement was woefully lacking (see Fig. 5.5.1 for more details on this time lag). Indeed, the Navy's Orange planners were forced to rely, for much of the 1920's, on the USS *Langley* for their ship-based aviation complement. The *Langley* was a converted collier, constructed to test the potential of carrier aviation.[32] As such it had

[28] Secretary, War Plans Division. Estimate of the Situation Blue-Orange. (1st September 1922). NARA CP. RG 38. Strategic Plans, WPD. Miscellaneous Subject File. Box. 64. p. 2.
[29] These 'rights' probably originated in the US Open Door policy for trading with China.
[30] Dept of Navy. War Plans Division. (25th June 1923). *Op cit.* p. 18.
[31] The USS *Saratoga* was commissioned on the 16th November 1927. See Appendix B.
[32] George W. Baer. (1993). *Op cit.* p. 140.

none of the assets available in a purpose-built carrier, and was all but incapable of acting as a frontline ship.[33] As Miller notes,

> "for overwhelming airpower [planners] would have to rely on the experimental carrier *Langley*, floatplanes aboard gunships, and 300 seaplanes carried on converted tenders."[34]

Again, this shows that whilst the US Navy was slow to build Aircraft Carriers (in comparison, the Royal Navy had four carriers in service by 1925), the Orange war planners had already begun to understand the potential of aviation and desired to incorporate it into WPO in any way possible.[35] However, the most important part of this quote is that concerning seaplanes. Throughout the interwar period these aircraft were at the forefront, both literally and metaphorically, of the US Navy aviation section's effectiveness as a 'tool' to territorialise the Pacific.[36]

From a geostrategic perspective, the role of aviation in these early interwar Orange plans is important. The main problem facing the planners was how to design a viable Phase II strategy, which called for the US Fleet to engage and defeat Japanese forces in the Western Pacific, forcing a retreat that would allow Phase III operations (economic and military blockading of Japan) to begin. Planners recognised that Japan would attempt to extend its empire by invading numerous Western Pacific islands as well as fortifying its Mandated islands (gained from Germany in World War One), which US forces would have to neutralise on their voyage westward. Thus, the possibility of developing airfields on some of these islands was mooted. Several WPO documents of the early 1920's discuss using aircraft in operations to take islands in the Mandates.[37] Major Pete Ellis was one of those planners who, in 1922, advocated the incorporation of aircraft into WPO, considering them a vital tool in capturing and securing the Mandates.[38] As Miller notes,

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[33] The main problem with the *Langley* was its lack of speed. As a converted collier its engine was not of the same specification as combat ships of the US Fleet. This meant that for the *Langley* to accompany the Fleet, it either had to trail behind, risking attack as a sitting duck, or the Fleet had to slow down in order that the *Langley* could keep pace. Both these scenarios impeded the Fleet's ability to maintain an effective combat formation. For more information see Norman Friedman. US Aircraft Carriers: an illustrated design history. (1983. Naval Institute Press. Annapolis).

[34] Edward Miller. (1991). *Op cit.* p. 127.

[35] These were HMS *Argus*, HMS *Eagle*, HMS *Hermes*, and HMS *Furious*. http://www.naval-histoy.net/WW2BritishShipsAircraftCarriers.htm. Accessed. 19th July 2004.

[36] See section 5.7 for more information on how the potential of seaplanes to fulfil this role was realised.

[37] See Chapter 6 for details of US Navy surveys of central Pacific islands for use as airfields.

[38] Edward Miller. (1991). *Op cit* Pp. 115-119.

> "[Major] Ellis's description of the method of assaulting an armed atoll like Eniwetok was a military classic. Following an aerial reconnaissance, troopships would arrive in the lee of the island under cover of darkness and offload at dawn...Air strikes – from where he did not say – and naval bombardment from ships on the flanks of the transports would keep enemy troops pinned to one or two fortified islets...Forty-eight land planes would be essential to the defenses [of a captured Eniwetok]."[39]

This quote shows that aviation was being viewed as a useful tool, not only to aid capture of islands, but also to defend them once taken. However, as Miller alludes, these plans were flawed because they contained no details of where such aircraft could come from, thus reinforcing the view that many of these plans were untenable. For example, land-based planes of 1922 did not have the range to fly the 2725 miles from Hawaii to Eniwetok, and therefore would have to have been shipped in crates to the Mandates for construction there.[40] In the 1923 version of WPL-8, however, the desire to use aircraft was further developed with the inclusion of a strategy to deploy land-based aircraft to island airfields across the Pacific. This strategy would make US territorialisations of the Pacific as US space real. The following quote, from WPL-8, shows the extent to which Orange planners had developed their understanding of the need to make US perceptions of the Pacific as US tangible by locating aircraft in key positions.

> "The location and mission of naval stations, and the necessity for the establishment of new naval stations, are dependent upon considerations of strategy, which are in turn dependent upon existing national and naval policies...A system of outlying naval and commercial bases, suitably distributed, developed and defended, is one of the most important elements of national strength."[41]

In fact, the ability of the US Navy to construct such facilities in the Pacific had been severely curtailed by the 1922 Washington Naval Treaty.[42] However, this quote shows that even in the early interwar period naval planners still considered them important. Indeed the inclusion of commercial bases in the previous quote is indicative of just how important these facilities were deemed to be, because

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[39] Edward Miller. (1991). *Ibid.* Pp. 117-119.
[40] The distance from Hawaii to Eniwetok is approximately 2725 miles. In 1922 the US Army's longest ranged aircraft, the Martin MB-1 had a range of only 560 miles. See. Michael J. H. Taylor. Warplanes of the World, 1918-1939. (1981. Ian Allan Ltd. London). p. 91.
[41] Dept of Navy. War Plans Division.. (25th June 1923). *Op cit.* Appendix E. p. 1.
[42] For more detail on the Washington Naval Treaty see Chapter 4.

commercial bases, beyond the WNT's remit, could be built across the Pacific. The Navy's encouragement of certain commercial enterprises to construct such facilities can be seen as part of a wider plan to develop airfields in strategically important locations, again highlighting the recursive relationship between aviation and geopolitics.[43]

War planning in the 1920's was, as has been argued in this section, more optimistic than realistic. Whilst the potential of aviation had been spotted by some, the gap between the available technology and the roles planners envisaged for aircraft was huge, thus undermining the viability of much of this early planning. However, that the potential of aviation had begun to be acknowledged at all indicates that planners were aware of the US's perception of the Pacific. Moreover, this was compounded when they increasingly included aircraft, as tools to materialise and territorialise this space in a more flexible way than ships alone could accomplish. The next section uses a case study from the 1930's to demonstrate how an understanding of the potential of aviation developed during this decade, and how the gap between what was planned and what was feasible was reduced due to developments in aviation and geostrategic understandings of the Pacific as US space.

5.4 Case Study One: The Royal Road (1934)

In the preceding section, I argued that the role of aviation in WPO plans was far from realistic or feasible. However, as developments in aviation and its related technologies continued through the 1930's, so the US Navy's war planners used WPO to develop increasingly viable strategies to utilise aviation as a tool in territorializing the Pacific. This section examines how this occurred, with reference to aircraft and airfields. The 1934 version of WPO (known as The Royal Road) is used to demonstrate the existence of a recursive relationship between aviation and geopolitics in WPO.[44]

At the heart of WPO planning was the need to develop a viable strategy for Phase II, which called for the US to deploy its forces into the Western Pacific taking control of

[43] For a more detailed analysis of the importance of commercial airfields across the Pacific see Chapter 7.
[44] Commander C. W. Magruder, War Plans Division. Plan O-1 Orange: The Royal Road. (1st July 1934). NARA CP. RG 38. Strategic Plans, WPD. Miscellaneous Subject File. Box. 64.

Japanese held territories and forcing Orange forces into retreat. For much of the 1920's this phase of operations had provided the planners with their biggest problems (as noted in section 5.3) but by the early 1930's a possible solution had been developed. Two schools of thought existed amongst WPO planners concerning Phase II.[45] One advocated pushing the fleet across the Pacific quickly to engage Japanese forces before they had chance to fortify their positions. The other promoted a slower 'island hopping' strategy in which several Pacific islands would be taken and developed as intermediate bases. The development of aviation as a potential frontline tool during the interwar period allowed this second strategy to gain the ascendancy in WPO planning during the 1930's.

As Miller notes, "the concept of using Micronesia as a naval highway had appeared in studies of momentary havens as early as 1907."[46] However, one of the main weaknesses of such a plan had been a reticence, amongst planners, to deploy sufficient forces (mainly ships in the pre-First World War versions) to ensure that such way-stations could be adequately defended from Orange counterattacks. However, the Micronesia idea did not completely disappear,[47] and in 1933 the War Plans Department of the US Navy issued a "tentative fleet plan" which included "a hint of the Mandate as a primary theater."[48] Issued a year later, the 1934 version of WPO – The Royal Road – expanded this focus on the Mandates.[49] It is an excellent example of how advances in aviation influenced the geostrategic perceptions of the US's war planners. A key strategic aim of Phase II of WPO was to liberate the Philippines, thus beginning a northward offensive that would push Orange forces back to their home islands. One way of doing this would be to capture a number of the Japanese held Mandates en-route, thus providing a shorter supply line for the US Fleet, as well as locations for airfield development. As the following quote, from the 'Royal Road' shows, the potential importance of aviation was beginning to be understood, by the mid-1930's.

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[45] For more information on this See, Edward Miller. (1991). *Op cit. Passim.*
[46] Edward Miller. (1991). *Ibid.* p. 186.
[47] See Chapter 6 for information on interwar surveys of Micronesian islands from the point of view of developing airfields, and seaplane moorings.
[48] Edward Miller. (1991). *Op cit.* p. 187.
[49] Commander C. W. Magruder, War Plans Division. (1st July 1934). *Op cit.* It is assumed that this plan was given the name 'Royal Road' in reference to its proposal to use captured islands in the Mandates to ensure an all-Blue 'path' from Hawaii to the Western Pacific.

> "The great importance of the Mandated Islands, in a Pacific war, is their position. They are without resources to support military operations and do not usually lend themselves to easy defense. They contain many possible anchorages and sites for advanced bases reaching to the eastward from the Philippines for 3,000 miles. In the possession of BLUE they would serve to strengthen his supply line...The position of the many possible seaplane bases make feasible an easy air route from MARSHALLS to Southern Philippines to up through MARIANAS and BONINS to ORANGE Main Islands...If the war "takes to the air" on a large scale, these positions will be of incalculable value to the side that holds them."[50]

The plan espoused in the 'Royal Road' called for a staged advance across the Pacific that had a number of objectives.

> "(a) to eject ORANGE from Marshalls and Eastern Carolines and to establish a base in that area preparatory to further operations against the Middle Carolines. (b) to eject ORANGE from Middle Caroline area, and to establish a base at TRUK preparatory to further operations to the westward. (c) to advance from TRUK to Southern Philippines and establish a base at DUMANQUILAS. (d) to eject ORANGE from Western Carolines and to hold PELEWS for own use; all in order to establish at the earliest practicable date the BLUE fleet in Western Pacific in strength superior to Orange."[51]

Fig. 5.4.1., taken from Miller, illustrates how this advance would occur.

With regard to aviation, the Royal Road is important because it provides evidence of the roles US war planners envisaged for aircraft, both as attacking forces alongside ships, and in defensive and reconnaissance roles (thus freeing up ships for other tasks). In an attacking role, the planners sought to deploy three Aircraft Carriers with the fleet on mobilisation (M) day, and another one fifteen days later.[52] These would be the USS *Lexington*, USS *Saratoga*, USS *Ranger*, and the USS *Langley*.[53] Whilst the *Langley* was definitely the poor relation in this group, the four carriers were together capable of carrying approximately 90 fighters (for use against aircraft), 54 torpedo bombers (for use against ships), and 36 bombers (for use against ground

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[50] Commander C. W. Magruder, War Plans Division. (1st July 1934). *Ibid.* p. 18. Emphasis in original.
[51] Commander C. W. Magruder, War Plans Division. (1st July 1934). *Ibid.* Pp. 88-89. Emphasis in original.
[52] Commander C. W. Magruder, War Plans Division. (1st July 1934). *Op cit.* p. 30.
[53] CNO. Basic War Organisation, US Fleet, Appendix B, WPL-8. (18th August 1934). NARA CP. RG 38. Strategic Plans, WPD. WPL Series. p. 15.

targets), that could be involved with the first wave of attacks on Orange positions in the Mandates.[54] Importantly, these ships could also launch a total of 69 scouting aircraft, thus providing long range reconnaissance capabilities as well as a huge amount of air cover, which was key to the projection of power across the Pacific.[55] This compares to approximately 118 front line ships that could be mobilised at the same time.[56] The size of this air force clearly shows that WPO planners understood the potential of aviation as a frontline tool to impose their perspective of the Pacific as US space.

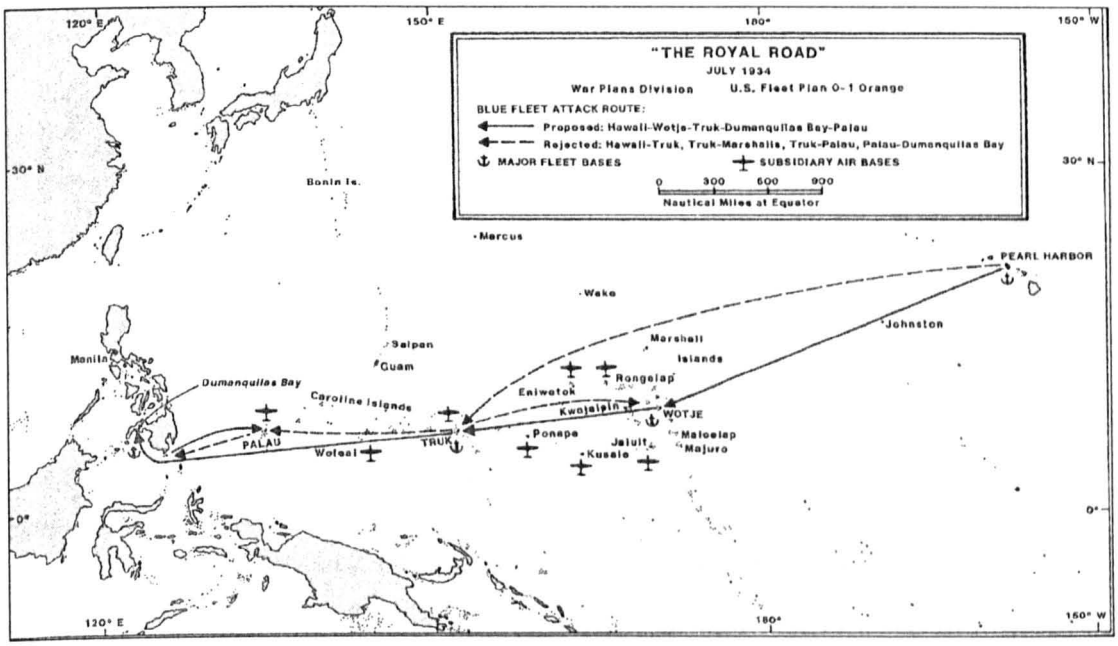

Fig. 5.4.1 Miller's Royal Road Map.[57]

An analysis of the 'Royal Road' shows that the planners envisaged the seizure and construction of landing fields or sea plane bases on at least five islands across the Mandates.[58] The locations of these islands, Wotje, Truk, Pelews, Jaluit, and Ponape, (as well as several others that are mentioned as possible subsidiary air bases) exemplify how US war planners perceived aviation as a tool to territorialise the Pacific.[59] Indeed, these islands will also be discussed in Chapter 6 because of their inclusion in a number of US Navy surveys. As Fig. 5.4.1. shows, these islands form a

[54] CNO. (18th August 1934). *Ibid.* Pp. 16-18.
[55] CNO. (18th August 1934). *Ibid.* p. 17.
[56] CNO. Change No. One – WPL 15. (15/7/1932). NARA CP. RG 38. Strategic Plans, WPD. WPL Series. Box. 15. Table Aa 30-1.
[57] Edward Miller. (1991). *Op cit.* p. 192.
[58] Commander C. W. Magruder, War Plans Division. (1st July 1934). *Op cit.* Pp. 79-83.
[59] Commander C. W. Magruder, War Plans Division. (1st July 1934). *Ibid.* Pp. 79-83.

chain stretching across the central Pacific, from which US Navy aircraft would be able to provide air support over a much greater range than ships could.[60] The following map (Fig. 5.4.2), taken from the Royal Road, also shows that the planners understood the advantages of using long range aircraft in these power projection roles.[61]

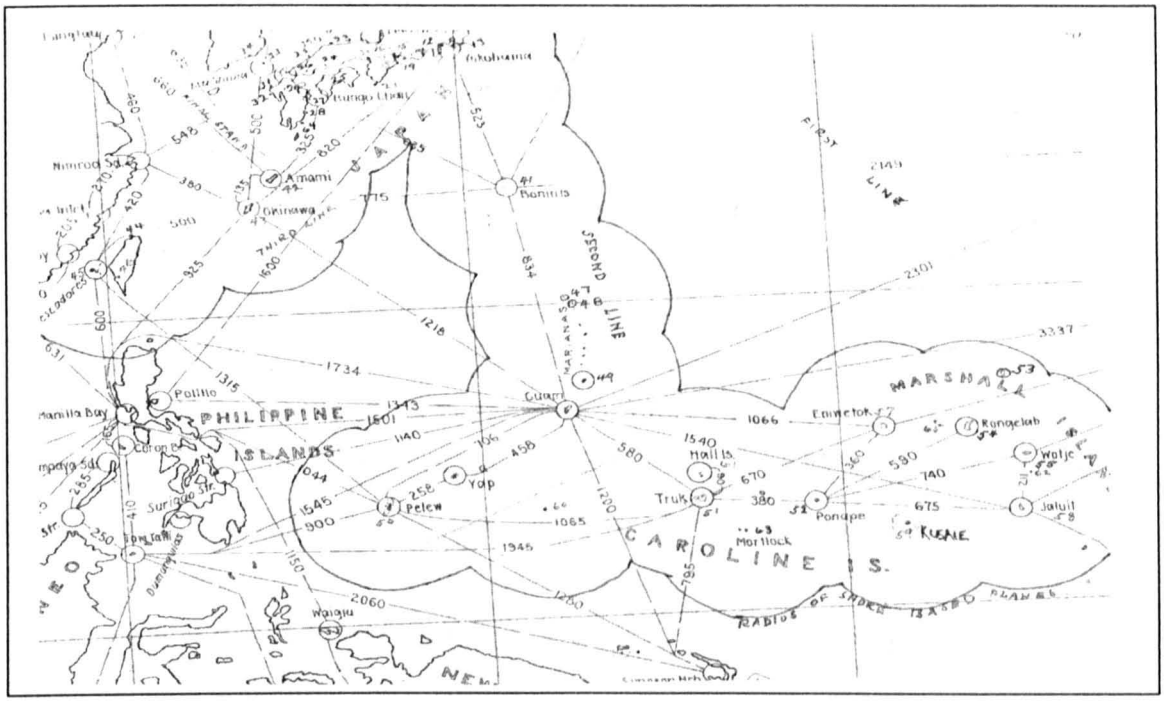

Fig. 5.4.2. Royal Road Chart showing shore plane radii[62]

Thus, the Royal Road demonstrates how WPO planning had progressed in the second decade of the interwar period. The inclusion of a large ship-borne aircraft contingent, in concert with plans to construct several airfields and seaplane facilities in key strategic locations, shows that planners understood the key front line potential of aviation. Whilst in previous versions of WPO aircraft had been peripheral to the plans, the use of aircraft at every stage of the Royal Road plan indicates a deeper understanding of the growing relationship between geopolitics and aviation. The following section will look in more depth at Aircraft Carriers, because, during the 1930's, they became ever more present in WPO, as evidenced by their status in the Royal Road.

[60] The average speed of a cruiser was only 20 kph, whereas an aircraft could fly at an average speed of 150 mph, to a range of approximately 1500 miles.
[61] Commander C. W. Magruder, War Plans Division. (1st July 1934). *Op cit.* Chart A.
[62] Commander C. W. Magruder, War Plans Division. (1st July 1934). *Ibid.* Chart A.

5.5 Aircraft carriers

Sections 5.3 and 5.4 have both included comments concerning the incorporation and deployment of ship-borne aircraft in WPO. This section seeks to analyse the evolution of the aircraft carrier and its roles within WPO in order to understand the extent to which planners perceived ship-borne aircraft as tools with which to materialise and territorialise the Pacific as US space. At the heart of WPO was a belief that the US Navy and the Japanese Navy would be involved in one massive sea battle that would decide who won control of the sea. The development of the aircraft carrier altered the rules of this game. As Miller argues, a carrier,

> "could hurl its air wing as a single salvo of "pulsed power" and sink an enemy carrier or battleship. The side that fired its squadrons soonest might even destroy the enemy carriers before they launched their strikes, an "unanswered salvo" enabling it to escape harm from the skies altogether. Studies in the 1930's indicated that a lesser fleet, perhaps of two-thirds the opponent's strength, could win a sea-air battle.[63]

This quote shows how important a well deployed carrier force could be, and the potential it had to affect the reality of the US's perception of the Pacific. However, the development of aircraft carriers in the US Navy began two decades before the studies mentioned in Miller's quote above and it is necessary to begin any analysis of carrier aviation with these early carriers.

On 14th November 1910 Eugene Ely made the first take off of an aircraft from a US naval vessel, the light cruiser USS *Birmingham*.[64] For the next decade, naval aviation in the US developed in a haphazard fashion, always at the mercy of the naval establishment, populated by many who were sceptical of naval aviation's potential.[65] However, the First World War, and more specifically the developments in aircraft carrier technology made by the Royal Navy, inspired proponents of aviation within the US Navy to push for more funding.[66] This resulted in the 1919 decision to refit the collier USS *Jupiter* as an experimental carrier, renamed USS *Langley*.[67] The

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[63] Edward Miller. (1991). *Op cit.* p. 175.
[64] Richard Humble. Aircraft Carriers: the illustrated history. (1982. Michael Joseph. London) Pp. 11-12. See also, Naval Historical Center. United States Naval Aviation, 1910-1995. http://www.nhc.navy.mil. Accessed 2001. Part 1. p. 3.
[65] David Hamer. (1999) *Op cit.* p. 27.
[66] Scot MacDonald. *Evolution of Aircraft Carriers: Decisions out of Jutland*, in Naval Aviation News. March 1962. *Passim.*
[67] Scot MacDonald. *Evolution of Aircraft Carriers: Langley, Lex and Sara*, in Naval Aviation News. May 1962. p. 16.

Langley became the US's first operational carrier on 30th March 1922.[68] The commissioning of the *Langley* changed the perspective of the Navy's war planners and gave them the opportunity to include ship-borne aircraft in WPO. From this point onwards, all versions of WPO contained Aircraft Carriers, and their aircraft complement, thus indicating their perceived importance as a tool to territorialise the Pacific as US space.

In section 5.3 I commented on the 'reality gap' in WPO's of the 1920's between the number and types of aircraft listed for deployment, and the actual numbers of craft available for such usage. This gap existed perhaps most prominently with regard to Aircraft Carriers. The following table (Fig. 5.5.1) lists the date that each Carrier first appeared in WPL-8, and the date that the ship actually entered service.

Name of Carrier	Date of first WPL-8 inclusion	Date commissioned
Langley (CV 1)	1923	20th March 1922
Lexington (CV 2)	1932	14th December 1927
Saratoga (CV 3)	1923	16th November 1927
Ranger (CV 4)	1932	4th June 1934
Yorktown (CV 5)	1934	30th September 1937
Enterprise (CV 6)	1934	12th May 1938

Fig. 5.5.1. Carriers - WPL inclusion and commissioning dates[69]

The discrepancies in this table are obvious and show that whilst planners were relatively quick to include Aircraft Carriers in WPO, the actual deployment of such forces was much later. In fact only two of the six ships listed, the *Langley* and the *Lexington* were in active service prior to their inclusion in WPL-8. This however shows that planners were beginning to understand the potential of aircraft to territorialise the Pacific because they included them in their plan. This leads to the question of why this reality gap existed.

The answer to this question lies in the reasons why planners sought to deploy Aircraft Carriers in WPO. As section 5.4 has demonstrated, US war planners were

[68] See Appendix B for a list of US Aircraft Carriers of the interwar period.
[69] Dates of first WPL-8 inclusion of Aircraft Carriers, from WPL-8 (several versions). NARA CP. RG 38. Strategic Plans, WPD. WPL Series.
Commissioning dates from http://www.chinfo.navy.mil/navpalib/ships/carriers/cv-list1.html. Accessed 9th June 1999.

conscious of the importance of gaining airfields in the central and western Pacific from which to launch aircraft against Orange forces, and to provide defense and reconnaissance capabilities. By the mid-1930's the planners had come to realise that Aircraft Carriers could be perceived as being 'mobile islands' with the same capabilities as mid-ocean atolls, but with the important advantage of flexibility of location. This mobility was a huge asset. For example, in the 1935 version of WPL-8 six aircraft carriers were scheduled for deployment at the outbreak of hostilities.[70] Even excluding the *Langley* (because of its inability to keep pace with the fleet) these carriers could deploy 72 bombers, 108 fighters, 96 reconnaissance/bombers, 72 torpedo bombers, and 36 fighter bombers.[71] Thus, when the USS *Enterprise* entered service (according to the 1935 WPL-8 planning) the US Navy would have been able to deploy five aircraft carriers carrying a total of 314 combat planes anywhere across the Pacific. Moreover, the ability to move and reposition these forces allowed the US to project its power wherever it was needed. It was this manoeuvrability that the planners wished to exploit. Their enthusiasm for the options offered by Aircraft Carriers guaranteed their inclusion in the plans, and lay behind the reason why this reality gap existed. This example shows the extent to which developments in aviation allowed the US to deploy its carrier forces in ways that would territorialise the Pacific as US space.

This section has highlighted the importance of the development of Aircraft Carriers, in the deployment of aircraft in WPO. It has shown the planners desire to use these ships to enable them to project US airpower across the Pacific. The following case study will exemplify how this understanding of the importance of aviation continued to develop in the later interwar period when advances in aviation technologies allowed planners to deploy aircraft to fulfil even more front line power projection tasks in WPO.

5.6 Case Study Two: Advanced Fleet Air Bases

In this section the development of US Navy war planners' understandings of aviation's potential to project power across the Pacific will be assessed further by

[70] CNO. Basic War Organisation, US Fleet, Appendix B, WPL-8. (6th June 1935). NARA CP. RG 38. Strategic Plans, WPD. WPL Series.
[71] CNO. (6th June 1935). *Ibid.*. Pp. 16-18.

analysing the introduction of Advanced Fleet Air Bases (AFAB) into WPO. Although aircraft had been included in WPO for several years it was not until 1938 that air bases, as independent entities rather than as part of larger fleet bases, were specifically planned.[72] This development gives a clear indication of the growing importance of aviation in connection with US territorialisations of the Pacific. This section will seek to analyse the AFAB plans as evidence of how WPO planners developed strategies to deploy aircraft, and construct airfields, in order to use aviation's inherent power projection capabilities flexibly and efficiently in WPO.

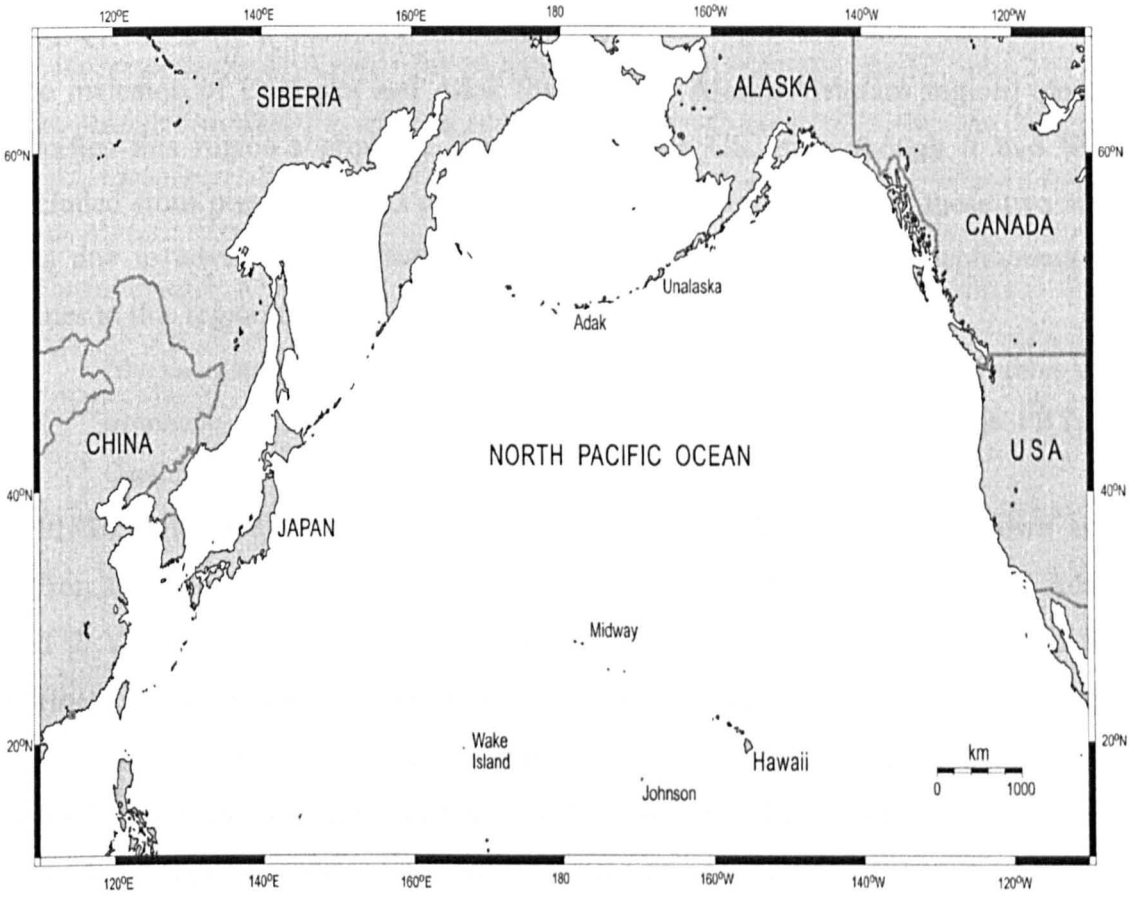

Fig. 5.6.1. Map showing the five AFAB sites.[73]

The 1938 version of WPL-16 includes the following paragraph, which, for the first time, detailed specific airfields to be constructed as part of WPO.[74]

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[72] Dept of Navy. War Plans Division. WPL-16 (Change 6) Appendix VII. (23rd April 1938). NARA CP. RG 38. Strategic Plans, WPD. WPL Series. Box 18.

[73] John Garner. Map showing the five AFAB sites. (2005. Department of Geography. University of Hull).

[74] Whilst airfield construction had been included in previous versions of WPO these had always been part of larger multi-purpose bases. The AFAB were the first specific single purpose air bases to be planned.

> "For earliest establishment...Five Advanced Fleet Air Bases, each consisting primarily of limited operating and defense facilities to serve as detached operating bases for patrol planes and, in certain cases, as way stations for aircraft en route to the Operating Forces in advanced areas."[75]

The five sites chosen for the AFAB were, Unalaska, Adak, Midway, Johnston, and Wake.[76] The locations of these five bases (shown in Fig. 5.6.1) is of particular importance in assessing the importance of aviation to geopolitical materialisations of the Pacific as US space because they give a clear indication of the extent to which the WPO planners perceived the Pacific as US space.

The inclusion of Unalaska and Adak (both in the Alaska/Aleutians region) clearly signifies this region's growing importance to the US, even though it had been excluded from previous WPO planning. Moreover, the inclusion of these two sites was due to advances in aviation technologies which allowed the deployment of planes to this region for the first time in the late 1930's. As Miller states,

> "the daunting problem of operating seaplanes from ice-bound Alaskan harbors was overcome when amphibious flying boats with retractable wheels [the PBY-5A Catalina] were successfully demonstrated [in 1939]."[77]

WPL-16 called for the deployment of one 12 patrol plane squadron (known as a VPron after the US Navy's use of VP as its designation for patrol planes) to Adak, and 2 VProns to Unalaska. This indicates that the Navy's planners viewed the northern Pacific as a region over which they could now project air power, and where aircraft could realise the US's perception of the Pacific. Indeed, the construction plans for these two sites give further weight to this perception, with specifications for 13 and 26 seaplane moorings designated for the two sites respectively. This signified that planners wished these AFAB to be in constant use, forming a permanent northern Pacific presence.[78]

The other three AFAB sites in the central Pacific, at the strategically important islands of Midway, Wake, and Johnston, are also evidential of the potential accorded

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[75] Dept of Navy. War Plans Division. (23rd April 1938). *Op cit.* p. 2.
[76] Chief BuDocks. Memorandum to CNO: Specifications for Advanced Fleet Air Bases. (12th January 1939). NARA DC. RG 80. Office of the Secretary of the Navy. Formerly Secret Correspondence. Box. 234. p. 4.
[77] Edward Miller. (1991). *Op cit.* p. 43.
[78] Chief BuDocks. General Specifications Advance Fleet Air Bases. (12th January 1939). NARA DC. RG 8. Office of the Secretary of the Navy. Formerly Secret Correspondence. Box. 234. p. 2.

to aviation, because deploying aircraft to these locations would give the US Navy the ability to provide constant and expansive power projection across the Pacific. Interestingly, the plans call for the Navy to use the Pan American Airways facilities on both Wake and Midway as part of the AFAB programme. This adds further weight to the argument that Pan Am's transpacific route was linked to US Governmental plans for the materialisation of the Pacific.[79] These three sites were amongst those most sought after by Orange forces due to their strategic locations. This argument is reinforced by the deployment plans for these AFAB. According to WPL-16, two VProns were to be deployed to Midway, one VPron was destined for Johnston, with three VProns designated for Wake.[80] Thus, taking Wake as an example, there would be 36 patrol planes constantly deployed to this tiny Pacific island, from where the US Navy could operate non-stop patrol flights to a radius of up to 2500 miles in all directions.[81] Given this number of aircraft, their optimal range and speed, the AFAB at Wake can be argued to have significantly more ability to project power across this region of the Pacific than a US Navy Aircraft Carrier, or flotilla of ships.[82]

This section has sought to show how the incorporation of aviation into WPO was part of a wider relationship between geopolitics and aviation that allowed the latter to render a US presence across the Pacific during the late interwar period. The development of AFAB is particularly important because of its direct link to advances in aviation. The following section will examine one specific aircraft that was central to the development of AFAB and the deployment of aircraft as tools to project US power across the Pacific.

5.7 The Consolidated Catalina (PBY)

The aircraft that allowed the development of the AFAB's was the patrol plane. These aircraft were usually flying boats or seaplanes, because the US had little need to patrol over land areas, but a significant need to patrol over water. Thus, it made sense to build patrol planes that could land on water. As Miller notes,

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[79] This argument is developed in more detail in the Chapter 7.
[80] Dept of Navy. War Plans Division. (23rd April 1938). *Op cit.* p. 77.
[81] This distance is the operating range of a PBY-5A. See Roscoe Creed. PBY: The Catalina Flying Boat. (1985. Naval Institute Press. Annapolis). Appendix B.
[82] Based on ships in the US fleet in 1938. Whilst an Aircraft Carrier had more than 36 planes, they had less range than the Patrol Planes designated for deployment to the AFAB.

> "The United States needed planes that could fly to Hawaii and the Mandate and concentrate rapidly anywhere in the Pacific. Speed, altitude, ruggedness, and armament were important but the vital characteristic for ocean reconnaissance was range. Planes capable of flying a thousand-mile radius could survey ten to twenty times the area that small shipborne types could. The only aircraft suited to the task before World War II were flying boats, known in the navy as VP's."[83]

The Consolidated Catalina PBY-5A, was the flying boat that was perhaps of the most significant importance to the US Navy in the Pacific.[84] It was the fifth variant of the Catalina type and the first to have completely amphibious capabilities. As mentioned in the second of Miller's quote in section 5.6. This meant it was capable of taking off and landing on both land and sea, as demonstrated by Figs. 5.7.1. and 5.7.2.

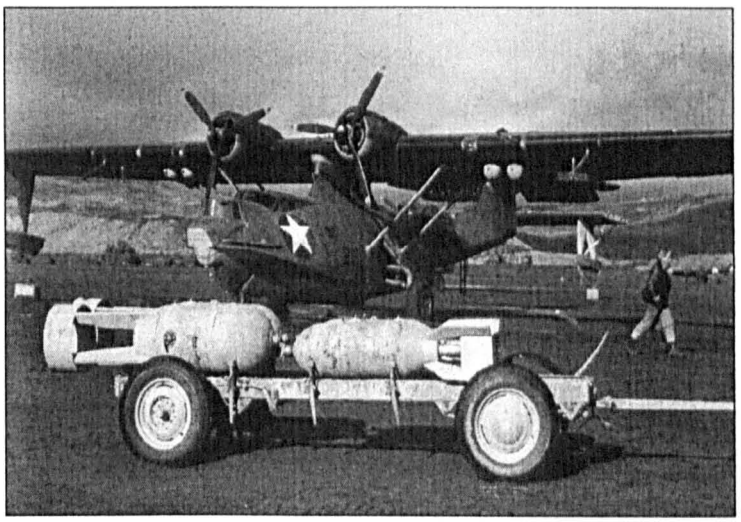

Fig. 5.7.1. A PBY-5A Consolidated Catalina showing its land plane capability[85]

This amphibious ability gave US Navy war planners a single aircraft that, for the first time, could be deployed anywhere across the Pacific. This removed the need for planning for certain aircraft for certain environments, thus giving WPO planners huge flexibility. This was not the PBY's only strength. Unlike ship-borne aircraft, these patrol planes had huge ranges. The PBY-5A could patrol an area of up to 2545 miles, which coupled with a maximum speed of 180mph, indicates why US naval war planners began to recognise its capabilities.[86]

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[83] Edward Miller. (1991). *Op cit.* p. 175.
[84] For more information on the PBY see, Roscoe Creed. (1985). *Op cit. Passim.*
[85] Consolidated Catalina. http://www/pby.com. Accessed 1st December 2004.
[86] Roscoe Creed. (1985). *Op cit.* Appendix B.

Fig. 5.7.2. A PBY-5A Consolidated Catalina moored to a Seaplane Tender[87]

Rear Admiral John Towers, Chief of the Navy's Bureau of Aeronautics during the 1930's, thought the development of such aircraft of vital importance to US power projection. In a statement made in 1939 he argued in favour of the contention at the heart of this chapter, when he stated that the PBY's,

> "are capable of long-range scouting [which] relieves us from building vast numbers of surface vessels for the purpose. They can be used effectively also for bombing or torpedoing hostile vessels. Their advent has had an enormous effect on naval strategy and tactics. Their long range and high speed [has] in effect greatly reduced the sea areas in which enemy surface vessels can operate without fear of detection and destruction from shore-based aircraft."[88]

Thus, the construction of the five AFAB's discussed in section 5.6., each with a minimum of 12 patrol planes of the PBY Catalina type, would provide the US with significant power projection abilities across the Pacific.

This section has sought to illustrate the power projection potential of US Navy patrol planes of the interwar period by detailing the abilities of the Consolidated Catalina –

[87] Consolidated Catalina. http://www/pby.com. Accessed 1st December 2004.
[88] Roscoe Creed. (1985). *Op cit.* p. 48.

perhaps the best known of its type. The ability of these aircraft to land and take off at sea made them ideal for deployment across the Pacific, because they could be moored off any number of tiny Pacific islands and atolls. This ability, coupled with their huge ranges, allowed the US to deploy these aircraft anywhere across the Pacific, thus making them a visible manifestation of the US's desire to use aircraft to materialise and territorialise the Pacific as US space. The following, and final section, will draw a number of conclusions from this chapter.

5.8 Conclusions

This chapter has sought to assess the extent to which advances in aviation influenced developments in US naval war planning in the Pacific, through the designation of aircraft to roles that allowed a more flexible and widespread military presence across the Pacific. This has been accomplished by analysing how US naval war planners understood the potential of aircraft in WPO. Section 5.3 showed that whilst these planners saw the potential of aircraft early in the interwar period, the gap between their planning and the realities of aviation technologies prevented the inclusion of feasible aircraft deployments in WPO in the 1920's. However, planners had already begun to realise that seaplanes, and Aircraft Carriers, would be at the forefront of US military territorialisations of the Pacific. Section 5.4 used the 'Royal Road' to illustrate just how far planning had advanced by the mid-1930's, and how much the reality gap was being diminished by developments both in aviation technologies and in the planner's understandings of how to deploy them. Section 5.5 assessed the development of one of these aviation technologies, the Aircraft Carrier, and sought to understand its potential as a 'mobile island', equipped with an imposing strike force of aircraft, capable of deploying to any location. This mobility explains the desire of naval war planners to deploy these ships as early as possible in WPO operations. Section 5.6 formed the second case study, discussing the plans to construct five Advanced Fleet Air Bases across the Northern and Central Pacific, thus showing how the deployment of aircraft could affect the geostrategic perceptions of locations. Related to this, section 5.7 discussed the development of the Consolidated Catalina patrol plane, an example of the type of aircraft that altered the way that planners perceived the role of aviation in WPO.

These sections have sought to focus on different pieces of the story of aviation in WPO planning. When put together they form a picture detailing how and why aviation was such a key tool in the military materialisation and territorialisation of the Pacific as US space. Even in the 1920's, when reality gaps existed in WPO planning, the planners understood that the ability to deploy aircraft would immediately allow the US Navy to demonstrate power projection. As this reality gap diminished this capability was developed to an even greater extent, as has been evidenced by the two case studies (sections 5.4 and 5.6.). Both of these have sought to illustrate the development of the view, within naval war planning, of the ability of aircraft to territorialise the Pacific, in a much more flexible and manoeuvrable way, than ships could. Sections 5.5 and 5.7 have given an insight into the technological advances in aviation that allowed the planners to formulate plans such as the AFAB. Section 5.6 also highlighted how technological advances allowed the US Navy to militarise areas of the Pacific, specifically the Alaska/Aleutians region, in a way that had previously been impossible using ships. Therefore, I argue that advances in aviation worked in tandem with geopolitics to materialise and territorialise the Pacific as US space, through the evolving capability to deploy increasingly potent aircraft, and Aircraft Carriers, to geostrategically important locations across the whole of the Pacific during the interwar period. The following chapter will analyse a number of US Navy surveys that were undertaken during the interwar period, which identified sites, across the Pacific, suitable for the construction of aviation facilities (for both land and sea planes).

Chapter 6

US military surveys of potential 'airfields' across the Pacific

6.1 Introduction

This chapter further supports the arguments advanced in this thesis by analysing a number of surveys undertaken by the US Navy during the interwar period, all of which focused on identifying possible locations for the deployment of both land and sea planes across the Pacific.

In recent years, geographers have become increasingly interested in what may be termed the 'colonial survey'.[1] These surveys were carried out by a number of predominantly European colonial powers to increase their knowledge of foreign territories under their control. Books such as Smith and Godlewska's 'Geography and Empire' (1994) have sought to begin the process of problematising these documents in order to understand the part they played in the construction of what might be termed 'imperial geographies'.[2] Indeed, Atkinson, in his 2003 paper 'Geographical knowledge and scientific survey in the construction of Italian Libya' asserts that,

> "the roles of geography and their imbrication in modern imperial and colonial projects have been detailed and critiqued with increasing vigour in recent years by scholars from within Geography and without."[3]

These colonial surveys have taken a number of forms, but many have been undertaken by military parties, and have included quantifying territory, usually through measurement and the 'construction' of maps.[4] The role of the military in conducting these surveys is also of importance, and shall be commented upon in this chapter with reference to how such organisations perceived the world. Indeed, as

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[1] See, Anne Godlewska & Neil Smith (Eds.). (1994). *Op cit.* J. Schwartz & J. Ryan (Eds.) (2003). *Op cit.* David Livingstone. (1992). *Op cit.* M. Edney. Mapping and Empire: the geographical construction of British India, 1765-1843. (1997. University of Chicago Press. Chicago).

[2] Anne Godlewska & Neil Smith. (1994). *Op cit.*

[3] David Atkinson. *Geographical knowledge and scientific survey in the construction of Italian Libya*, in Modern Italy. 2003. Vol. 8 No. 1. p. 9.

[4] See, for example, David Atkinson. Arrows, Empires, and Ambitions in Africa: the geopolitical cartography of Fascist Italy, in J. Stone (Ed.) (1994). *Op cit.* Pp. 43-65. For comment on how such maps may be interpreted by modern geographers see, J. B. Harley. Deconstructing the Map, in T. Barnes & J. Duncan (Eds.) Writing Worlds. (1992. Routledge. London). Pp. 231-247.

David Livingstone argues in 'The Geographical Tradition', the development of 'professional' geography in the colonial period was undoubtedly interlinked with the military need to 'map' territory.[5] Many surveys have also included what might loosely be termed anthropology and ethnography through the inclusion of description and images of places and peoples.[6] The militaristic slant of some surveys must thus be understood in light of how the needs of the armed forces – with regards to maps and geographical knowledge – influenced how a nation perceived its spheres of influence and areas of power projection. This chapter shows how the US Navy surveyed the Pacific for aviation purposes as part of its technogeopolitical project. Perhaps unsurprisingly, its findings advanced the processes of materialising this geopolitical presence across the Pacific. It suggests that the US interwar interest in the Pacific was indeed part of an imperial project, and therefore the case studies analysed later in this chapter fall neatly into this 'colonial survey' niche.[7]

The US has a long history of undertaking surveys of the Pacific region, and thus the documents examined in this chapter are part of a wider tradition of surveying, and mapping 'unknown' areas to make them 'known' and as part of a process of claiming ownership of them. The earliest surveys undertaken by the Government of United States of America (in its post-War of Independence form) were to map and explore land to the west of the Alleghenies.[8] The most famous of these early expeditions was the 1803-1806 Lewis and Clarke Expedition (ordered by President Thomas Jefferson), which set out to explore and document the continental interior to the Pacific Coast.[9] From the Jeffersonian period onward, Americans seemed to have a persistent interest in exploring and mapping their continent, and moving the frontier westwards.[10] With regard to the Pacific, the first maps were drawn up by the whaling

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[5] David Livingstone. (1992). *Op cit.* Pp. 241-253.

[6] A number of examples of analysis of these sorts of surveys can be found in J. Schwartz & J. Ryan (Eds.) (2003). *Op cit. Passim.*

[7] For more information on the colonial survey see, David Livingstone. (1992). *Op cit.* Pp. 241-253. Michael J. Heffernan. An Imperial Utopia: French surveys of North Africa in the early colonial period, in J. Stone (Ed.) (1994). *Op cit.* Pp. 81- 107. Kathleen Stewart Lowe. Mapping a Sacred Geography: photographic surveys by the Royal Engineers in the Holy Land, 1864-68, in J. Schwartz & J. Ryan (Eds.) (2003). *Op cit.* Pp. 226-242.

[8] It was not until the Louisiana Purchase of 1803 that the United States expanded to encompass all its present day territory east of the Rockies. See, Stephen E. Ambrose. Undaunted Courage: the pioneering mission to explore America's wild frontier. (2003. Pocket Books. London). p. XIII.

[9] See, Stephen E. Ambrose. (2003). *Ibid. Passim.*

[10] Andro Linklater. Measuring America. (2003. HarperCollins. London). For more information on the importance of the concept of the American frontier see, Ray A. Billington (introduction). (1961). *Op*

fleets from Nantucket (as noted in Chapter 1).[11] In 1838, the US Navy embarked on its first major survey of the Pacific. Known as the South Seas Exploring Expedition, this survey lasted four years and greatly increased the US's knowledge of, and interest in, the Pacific.[12] More recently, in 'Negotiating Spaces: some photographic incidents in the Western Pacific, 1883-84' Elizabeth Edwards seeks to examine and analyse British surveys of the Pacific, arguing that,[13]

> "the Pacific became more closely delineated in spatial terms as the ocean was mapped, depths sounded and plotted, coastlines surveyed and passages charted...these maps and charts reproduced cultural taxonomic structures as material maps and concrete delineations, fixing both a shape and a name to a place, creating both discourse and order."[14]

Thus, the surveys examined and analysed in this chapter are part of a tradition of military surveying undertaken by the US and other countries to increase their knowledge of space and place from the specific viewpoint of defence and control. Furthermore, this chapter is part a more recent focus amongst geographers concerned with critically evaluating how these surveys were used to project power, materialise, and territorialise 'imperial' space.[15]

This chapter is divided into five sections. The first section (6.1) provides a discussion of current debates on the importance of historical surveys in contemporary geography, and introduces the surveying tradition in the United States. Section 6.2 forms the first of two empirical sections, each concentrating on surveys covering separate geographical areas of the Pacific, and analysing them to develop a clearer understanding of the extent to which aviation and geopolitics were interwoven in this technogeopolitical project. Section 6.4 analyses the War Plan Orange (WPO – see

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cit. Frederick Jackson Turner. The Significance of the Frontier in American History, in Roger Kasperson and Julian Minghi (Eds.).. (1970). *Op cit.* Pp. 132-139.

[11] For more information on the whalers trips into the Pacific, and their effects on American knowledge of the region see, Nathaniel Philbrick. (2001). *Op cit.* S. Whittemore Boggs. (1938). *Op cit.* Pp. 177-192.

[12] For more information on the expedition see, Nathanial Philbrick. (2004). *Op cit. Passim.* Further information on the pre-interwar period history of the US Navy in the Pacific can be found in, Robert E. Johnson. (1963). *Op cit. Passim.*

[13] Elizabeth Edwards. Negotiating Spaces: some photographic incidents in the Western Pacific, 1883-84, in J. Schwartz & J. Ryan (Eds.) (2003). *Op cit.* Pp. 261-279.

[14] Elizabeth Edwards. Negotiating Spaces: some photographic incidents in the Western Pacific, 1883-84, in J. Schwartz & J. Ryan (Eds.) (2003). *Ibid.* p. 264.

[15] See, for example, Anne Godlewska & Neil Smith (Eds.). (1994). *Op cit.*

Chapter 5) survey for possible "landing operations" in a war against Japan.[16] It develops an understanding of how the US Navy's War Plans Division viewed the potential of aviation, to territorialise the Pacific as US space. The final section (6.5) will conclude this chapter, drawing together the pertinent arguments elucidated in the previous sections, and making final comments concerning the importance of these surveys to the overall thesis.

6.2 Central Pacific Surveys

This section seeks to examine and analyse two surveys of islands across the Central Pacific carried out by the US Navy during the interwar period. The first of these surveys is the 'Study of certain Pacific Islands from a standpoint of facilities for sea and air craft fueling bases' which was published by the Office of the Chief of Naval Operations in 1927.[17] The second survey – undertaken by the War Plans Division in 1934 – examines Johnston and Midway Islands with a view to locating aviation facilities on them.[18] This section seeks to undertake a comparison of these two surveys and to show the extent to which geopolitical perspectives had developed during the intervening seven years.[19] As both surveys consider the aviation potential of these islands, this comparison also shows how aviation developments worked in concert with geopolitics to influence developing territorialisations of the Pacific.

6.2.1 The 1927 'Study of certain Pacific Islands from a standpoint of facilities for sea and air craft fueling bases'

Compiled by the Office of the Chief of Naval Operations, this survey was designed to,

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[16] Office of the Chief of Naval Operations. Basic Studies for Landing Operations in a Blue-Orange War. WPL-36. (8th October 1940). NARA CP. RG 38. Strategic Plans WPD. WPL Series. Boxes. 29-30. Office of the Chief of Naval Operations. Basic Studies for Landing Operations in a Blue-Orange War. WPL-37. (15th August 1941). NARA CP. RG 38. Strategic Plans WPD. WPL Series. Boxes. 29-30.

[17] Office of the Chief of Naval Operations. Study of certain Pacific Islands from a standpoint of facilities for sea and air craft fueling bases. (6th August 1927). NARA CP. RG 38. Strategic Plans WPD. Miscellaneous Subject File. Box. 66.

[18] Anonymous. Johnston Island. (c. 1934). NARA CP. RG 38. Strategic Plans, WPD. Miscellaneous Subject File. Box. 50.

[19] Although neither of these surveys was dated, the Midway Island survey includes maps that are dated 1934. Therefore it can be assumed that these surveys were compiled no earlier than 1934, and given that Pan Am surveyed Midway in 1935, an event not mentioned in this survey, 1934 is assumed to be the date of issue for these surveys.

"provide, in convenient form, salient information on the essential features of the islands included, with reference to their adaptability for use as fueling bases for surface craft or aircraft."[20]

The islands included in this survey (listed below in Figure 6.2.1) are significant because of the sheer number included, and from the perspective of this thesis, because of their locations.

Johnston Island	Ponape	Wotje	Lamotrek
Kingman Reef	Mortlocks (Nomoi)	Kwajalong	Woleai
Palmyra	Hall	Jaluit	Fais
Howland Island	Truk	Rongelab	Ulithi
Baker Island	Los Martires	Taongi	Ngulu
Wake Island	Satawal	Eniwetok	Pelews
Ujelang	Balete Bay		

Fig. 6.2.1. List of sites included in the 1927 survey [21]

Their geographic spread is evidential of a perception, held within the US Navy, of the extent of the Pacific that was regarded as US space – or more specifically space across which the US could project its power. The scale and relatively early date of this survey gives an indication of the extent to which the US Navy was aware of the potential impact that the technogeopolitical relationship could have, and how it could exploit aviation's geostrategic potential as much as possible. The following map (Fig. 6.2.2) shows the geographic spread of these islands, and gives an immediate sense of the potential for aviation to transform the US's perception of the Pacific as US space.

Included within these twenty-six islands are many of those that would be later surveyed by Pan American Airways for its transpacific routes (see Chapter 7), two of the islands of the Department of Commerce's Line Island Project (see Chapter 4), and interestingly, from a geopolitical perspective, several islands that were owned by Japan in 1927.[22] The inclusion of these islands – The Mandated Islands of the Marshall and Caroline groups – is important because it is evidential of a perception

[20] Office of the Chief of Naval Operations. (6th August 1927). *Op cit.* p. 2.
[21] Office of the Chief of Naval Operations. (6th August 1927). *Ibid.*
[22] Pan Am would survey Kingman Reef, Palmyra, and Wake Island. The islands numbered 7-13 belonged to the Marshall Islands group, and the islands numbered 14-26 belonged to the Caroline Islands Group, both of which had been taken by Japan from Germany during World War One.

within the US Navy that the Pacific was a US sphere of influence regardless of the fact that the Japanese held sovereignty over the these islands. In addition, this study gives further indication that the US Navy was aware of the potential geopolitical significance of locating aviation facilities across the Pacific, and had already began to identify which islands had the most geostrategic importance regardless of their sovereignty. This is evidenced by discussion of their potential as part of a transpacific air route.

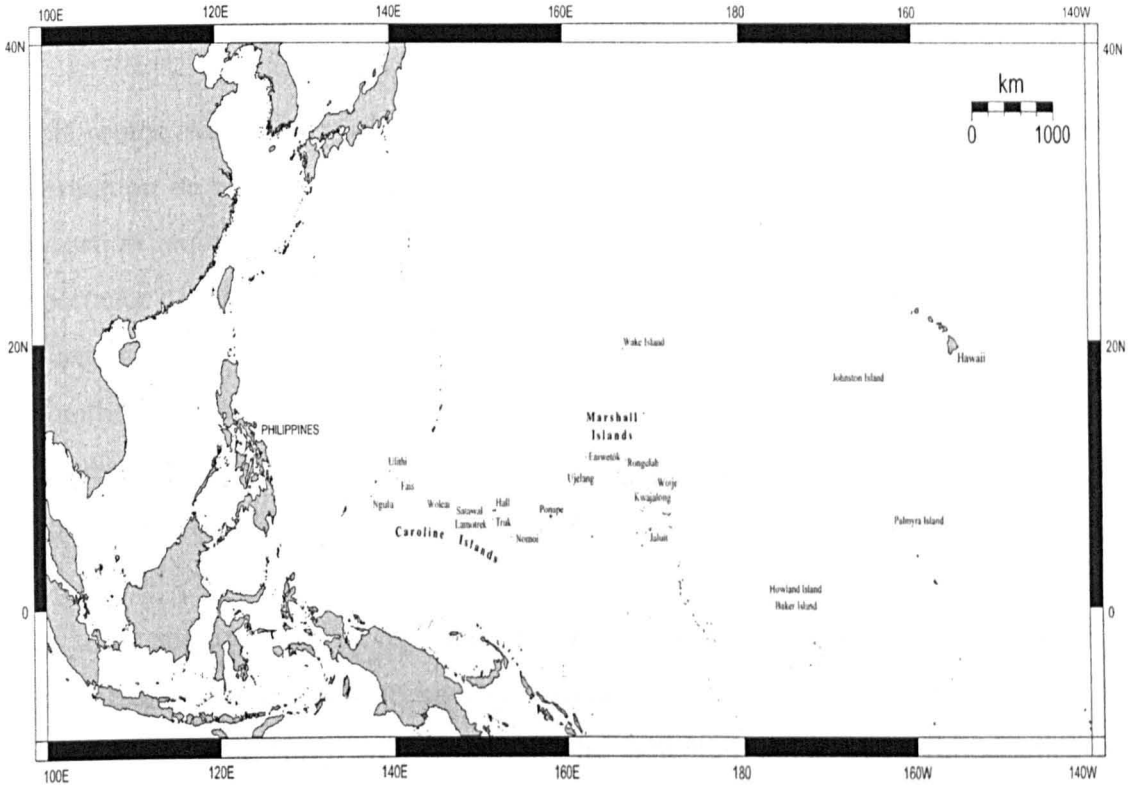

Fig. 6.2.2. Map showing sites included in the 1927 survey[23]

One of the most noteworthy aspects of this survey is the inclusion of details relating to the establishment of a seaplane route and a landplane route linking Pearl Harbor to the Philippines.[24] As Fig. 6.2.3 shows, the proposed route took the form of a series of short flights 'hopping' from island to island across the Central Pacific.[25] It has already been noted that 1927 witnessed the first flights from the US West Coast to Hawaii, and is infamous as the year of the Dole Air Race tragedy (discussed in

[23] John Garner. Map of sites included in 1927 Study of certain Pacific Islands from a standpoint of facilities for sea and air craft fueling bases. (2005. Geography Department. University of Hull)
[24] Office of the Chief of Naval Operations. (6th August 1927). *Op cit.* Pp. 34-35.
[25] Office of the Chief of Naval Operations. (6th August 1927). *Ibid.*

Chapter 1), thus it seems remarkable that in the same year the US Navy was considering developing an air route across the Pacific.[26] The Dole race showed, with tragic consequences, the technological limitations still facing advocates of transpacific aviation. Thus it must be assumed that the route detailed in this study indicates the US Navy's interest in territorialising the Pacific through aviation, rather than as an indication of what the Navy thought it could achieve with its current aircraft. However, this does not lessen the importance of this document, indeed, this part of the survey gives perhaps the best insight into the extent to which aviation's potential was influencing the geopolitical materialisation of the Pacific.

Such routes were not viable propositions in 1927, due to the lack of detailed information on many of the islands, and because aircraft with the range, speed and navigation equipment required for such journeys were rare.[27] However, the importance of these proposed routes is not lessened. They provide a stark example of the extent to which the US Navy understood the potential of aircraft to alter radically the enforceability of the US's perception of the Pacific as US space. Whilst it would take several weeks for a naval vessel to make this voyage, these plans show that an aircraft could carry out this journey in a matter of days.[28]

The sheer scale of this survey, and its forward looking nature, serve to show that even before the aviation technology existed to provide a reliable transpacific presence, the US Navy was aware of the potential geostrategic importance of aviation in the Central Pacific. This survey provides a clear link between geopolitical perceptions of the Pacific as US space, especially by its inclusion of Japanese held territories and the abilities of aviation to materialise these perceptions. The second Central Pacific survey, analysed below, illustrates how far this viewpoint had developed within the US Navy by the mid 1930's.

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[26] For more information of the first transpacific flight by Kingsford-Smith and the Dole Air Race see Chapter 1.

[27] The most important requirements for such aircraft was their ability to carry a large enough fuel load to lengthen their range to allow the distance between islands to be traversed safely. Obviously, such an large payload adversely affected the performance of aircraft, and thus the other main requirement of such aircraft was their ability to be able to get off the ground when fully laden.

[28] The maximum speed of the US Navy battleship USS *Arizona* (sunk at Pearl Harbor on 7th December 1941) was 23mph. A US Navy patrol aircraft of the same period had a speed of 150mph. http://www.arizonamemorial.org/shipsdata.html. Accessed 27th January 2005.

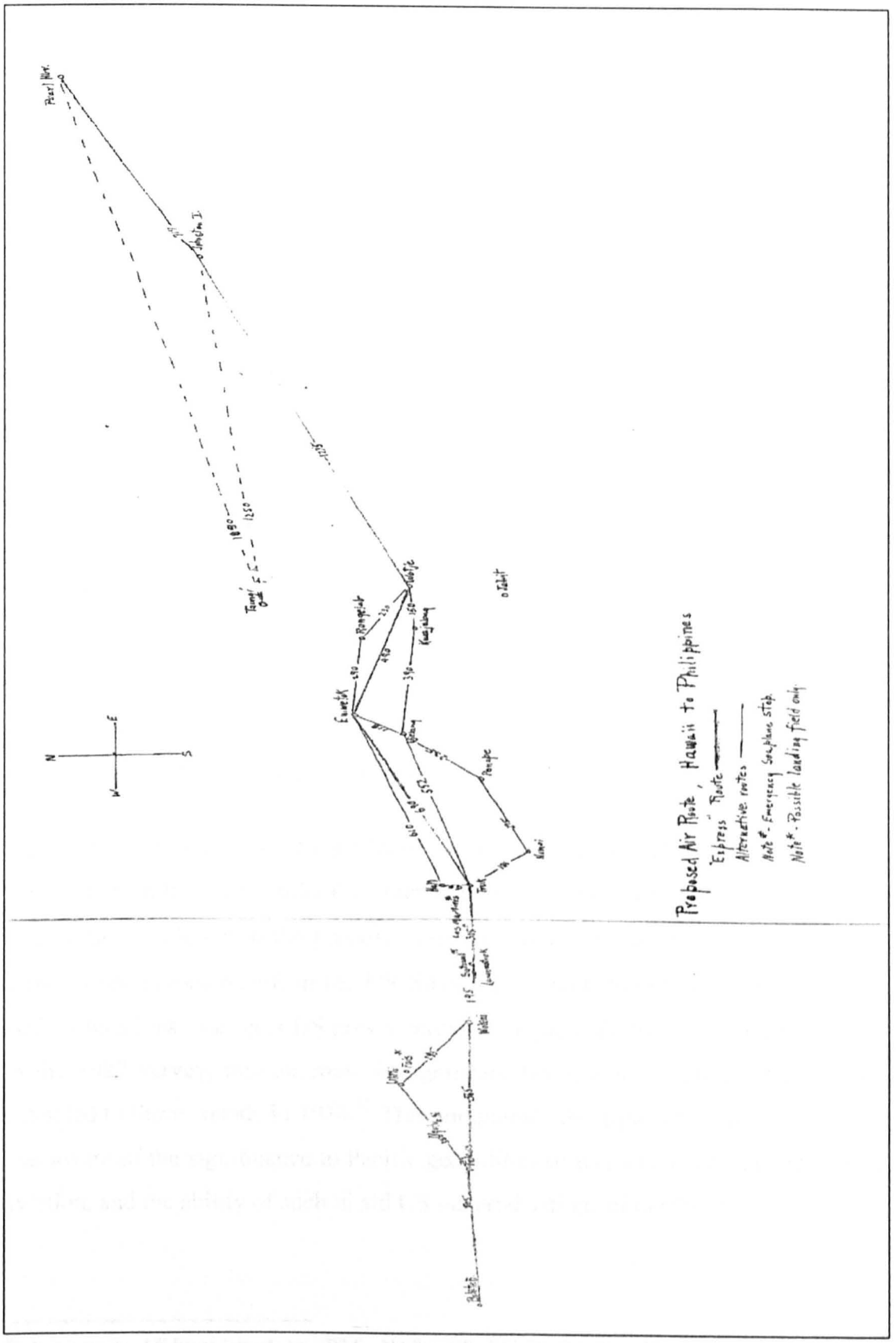

Fig. 6.2.3. Map of the proposed air route from the 1927 survey[29]

[29] Office of the Chief of Naval Operations. (6th August 1927). *Op cit.*

6.2.2 The 1934 'Johnston and Midway Island Surveys'

This section analyses a survey undertaken in 1934 on two of the islands – Johnston and Midway – included in the 1927 study (detailed in section 6.2.2). The emerging geostrategic importance of these two islands cannot be overestimated. Indeed this significance is noted in the survey, "The line – Midway, Johnston, Kingman Reef – forms a natural air defense for Honolulu."[30] Thus, this section seeks to analyse the potential strategic role that these islands could fulfil (especially from an aviation perspective) as identified by these two surveys. With regard to Johnston Island, the survey highlights its pivotal location in the Central Pacific by including a list (Fig. 6.2.4) of the "direct air line" distances between Johnston and a number of other potentially significant islands.[31]

Distances from Johnston Island to -	
Pearl Harbor	711 miles by direct air line
Taritari Island	1328
Utirik Island	1245
Kingman Reef	749
Howland Island	1049
Canton Island	1180

Fig. 6.2.4. List of the distances from Johnston Island given in the 1934 survey[32]

These islands include two of the islands– Kingman Reef and Howland Island – that were surveyed in 1927, whilst the other four are in close proximity to a number of other islands included in the proposed air route described in the 1927 survey. This shows a continuous belief, in the US Navy, of the potential of such air routes and airfield locations to project US power across the region. Further, in an identical way to the 1927 survey, this air route is significant because no commercial air routes extended to these islands in 1934.[33] This compounds the argument that the US Navy was aware of the significance to Pacific geopolitics of its recursive relationship with aviation, and the ability of such to aid US materialisations of the Pacific.

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[30] Anonymous. Midway Island. (c. 1934). NARA CP. RG 38. Strategic Plans WPD. Miscellaneous Subject File. Box. 50. p. 1.
[31] Anonymous. Johnston Island. (c. 1934). *Op cit.* p. 2.
[32] Anonymous. Johnston Island. (c. 1934). *Ibid.* p. 2.
[33] The first transpacific air route was opened in 1935. For more information on it see Chapter 7.

The second of the two islands surveyed in the 1934 document arguably provides the clearest evidence of the extent to which the US Navy viewed aviation as a potentially important tool to increase the enforceability of US perceptions of the Pacific as US space. Even the name Midway conjures up geopolitical and geostrategic imageries: an island located in the middle of the vast Pacific Ocean, the possession of which would allow its owner a visible presence in the Pacific. The deployment of aircraft to Midway would further extend this visibility because with only a few aircraft the US Navy would be able to control the sea for hundreds of miles in all directions. For example, the Consolidated P2Y-1 (pictured in Fig. 6.2.5) entered service with the US Navy in 1932. Originally built to have a range of 1180 miles, six modified P2Y-1 aircraft flew 2399 miles non-stop from San Francisco to Pearl Harbor on January 10th 1934.[34]

Fig. 6.2.5. Two P2Y-1 US Navy patrol planes in flight[35]

This flight showed how important these long-range patrol aircraft (designated as VP in the US Navy) could be in materialising and territorialising the Pacific. One single P2Y-1 could cover 140 miles per hour for up to 2400 miles.[36] Thus, a squadron – of 12 aircraft – deployed to either Johnston on Midway could cover a huge expanse of

[34] http://www.hq.nasa.gov/office/pao/History/Timeline/1930-34.html. Accessed 26th January 2005.
[35] Picture of two P2Y-1 planes. http://www.aero-web.org/specs/consolid/p2y-1.htm. Accessed 22nd March 2005.
[36] Michael Sharpe. Biplanes, Triplanes and Seaplanes. (2000. Barnes and Noble Books. New York). p. 120.

sea. Indeed, the power projection potential of these VP aircraft had already been recognised by the US Navy by 1934, with the Johnston and Midway Islands survey quoting the Commander of Aircraft, Base Force as stating that,

> "the strategic value of Midway Island warrants careful consideration being given to the steps necessary to make this point a semi-permanent operating base for [the] V.P. class of aircraft."[37]

This quote is significant because of the Commander's wish to deploy 'VP' aircraft to Midway rather than shorter range, but more heavily armed fighter aircraft. This again indicates that these surveys were more concerned with identifying sites for the location of aircraft that could be used to project power instead of aircraft that had a shorter range but more firepower. Thus, VP's with their long-range capability gave the US Navy the ability to 'control' a huge expanse of sea for minimum effort. The previous quote (by the Commander of Aircraft, Base Force) shows that even before transpacific aviation had begun, the US Navy was aware of the importance of projecting a presence, through the deployment of specific types of aircraft, across the Pacific. The Navy was so convinced of the geostrategic importance of Midway that three maps (Fig. 6.2.6. – Fig. 6.2.8.) detailing possible facilities for the deployment of both land and sea planes were included in this survey.

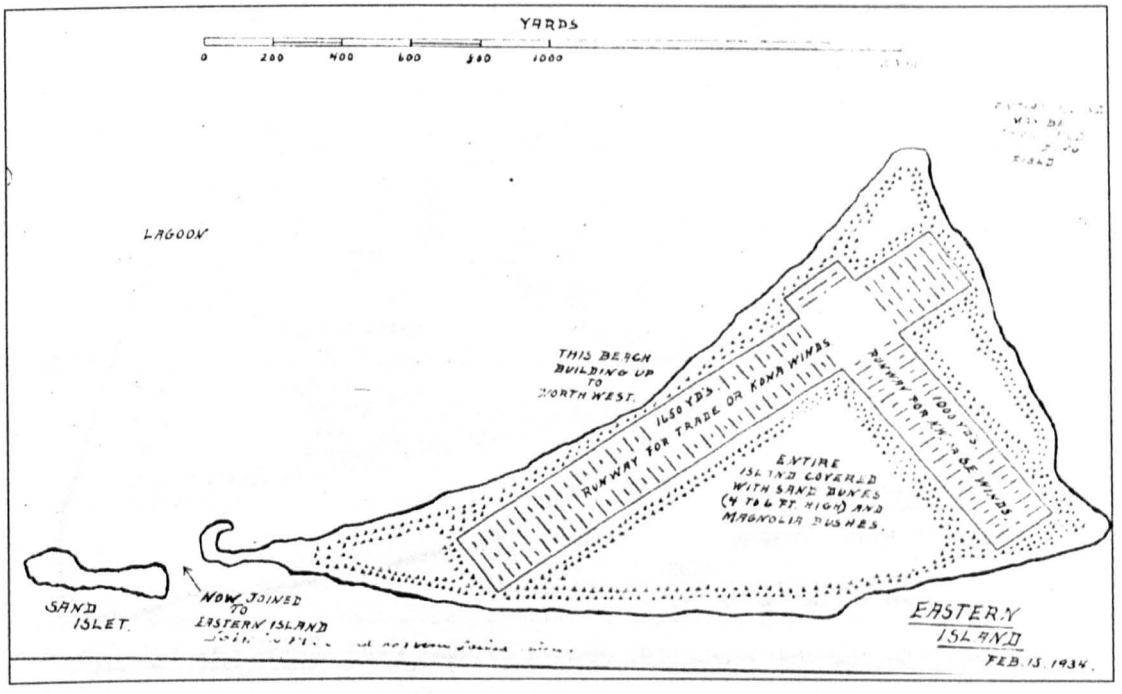

Fig. 6.2.6. Map of Eastern Island, Midway, from the 1934 survey showing land plane areas[38]

[37] Anonymous. Midway Island. (c. 1934). *Op cit.* p. 1.
[38] Anonymous. Midway Island. (c. 1934). *Ibid.*

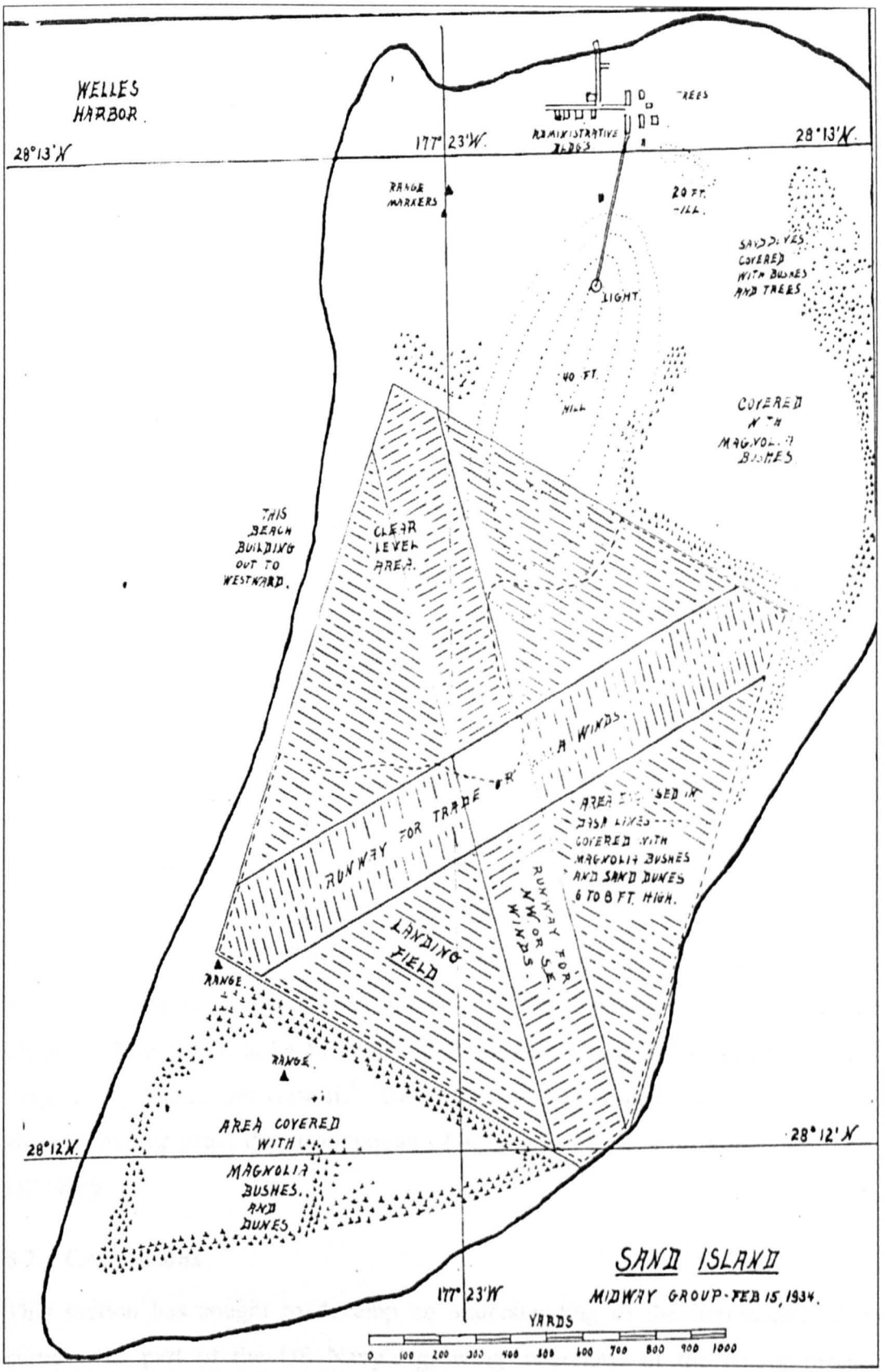

Fig. 6.2.7. Map of Sand Island, Midway, from the 1934 survey showing land plane areas[39]

[39] Anonymous. Midway Island. (c. 1934). *Op cit.*

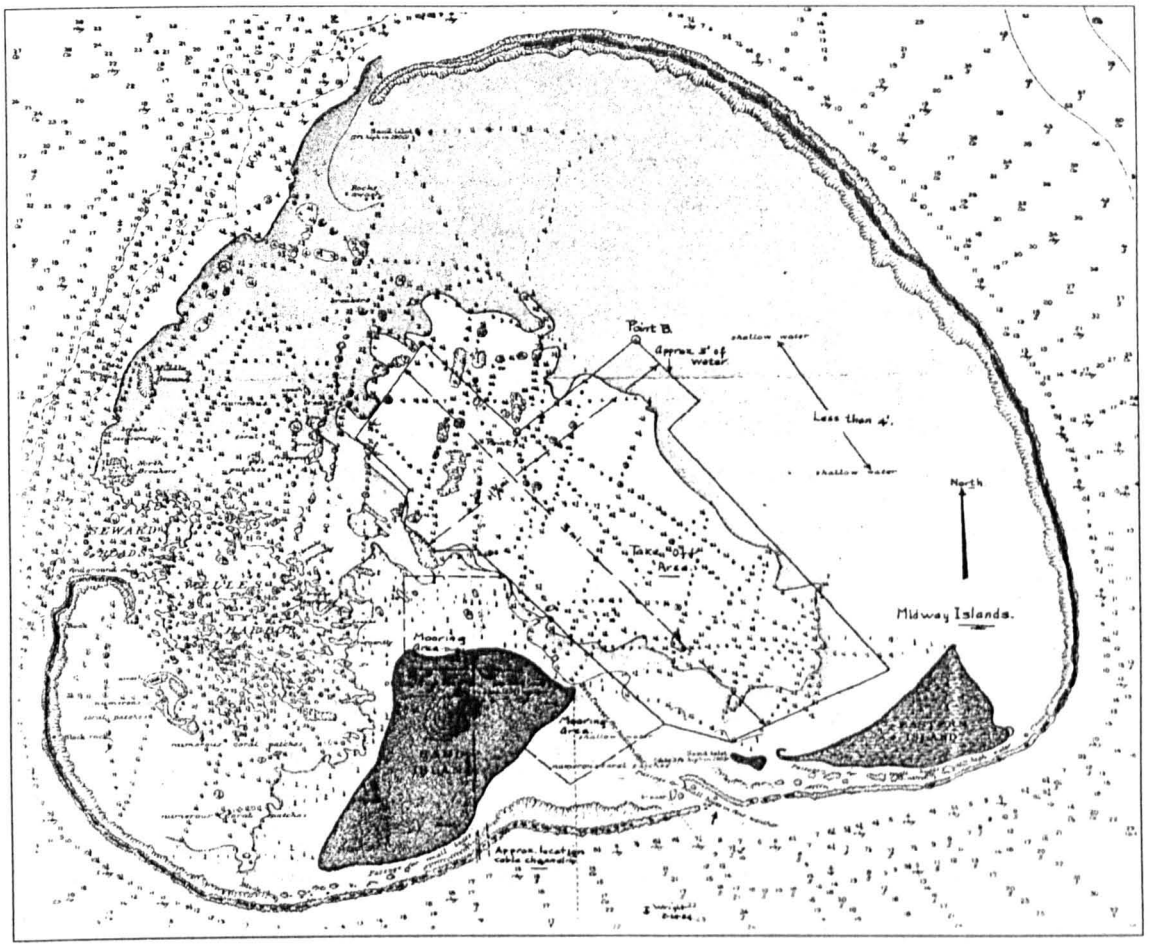

Fig. 6.2.8. Map of Midway from the 1934 survey showing seaplane areas[40]

The inclusion of these detailed maps in this survey illustrates the seriousness with which the US Navy perceived the potential of aviation to materialise and territorialise the Pacific. Further to this, the inclusion of land plane facilities is especially interesting, given that in 1934 the Navy would have had to ship land planes to Midway in order to deploy them there because fighter planes lacked the range to fly there from Hawaii.[41] This willingness to consider such an undertaking shows how important the development of an aviation facility on Midway was to the US Navy.

6.2.3 Conclusions

This section has sought to develop an understanding of the importance of these surveys, as part of the US Navy's growing awareness of the power projection

[40] Anonymous. Midway Island. (c. 1934). *Ibid.*

[41] The distance from Hawaii to Midway is approximately 600 miles. The range of a typical US Naval fighter aircraft in 1930 was anything between 200 and 600 miles. The Boeing F3B-1, of which 73 were deployed to US aircraft carriers had a range of just 340 miles. Michael. J. H. Taylor. (1981). *Op cit.* p. 24.

potential of aviation. These surveys, and their focus on the possibilities for aircraft deployment at these Pacific outposts, give further justification to my arguments about the potential role of aircraft on the increasing visibility of the US's presence across the Pacific.

Of specific importance are the air routes included in each survey, because these highlight an understanding, within the US Navy, of the potential of these islands to serve as island airfields along a route, which undoubtedly the planners ultimately hoped would connect the US with its western Pacific outpost of the Philippines. Related to this, the inclusion (in the 1934 surveys) of maps detailing possible airfield facilities at Midway illustrates the ambition to deploy aircraft to such islands permanently, to provide constant power projection capabilities. The comments, made by the Commander of Aircraft, Base Force, regarding the type of aircraft favoured for these deployments is also important. The preference for VP – long range patrol – aircraft can be seen as nothing other than a desire to use aviation to project US power and maintain an obvious presence across the Central Pacific. There seems little doubt that these aircraft could have any other role given their specific patrol and scouting characteristics and their lack of fighter or bomber abilities.[42] Finally this argument is further reinforced by the fact that both surveys, although separated by seven years, focus on the same locations. This indicates the US Navy's continuing desire to establish sites for naval aviation in geostrategically significant locations. Thus, the two surveys analysed in this section show the extent to which the US Navy understood the potential of aviation to project US power across the Pacific. The following section continues in a similar vein, but moves its geographical focus from the Central to the Northern Pacific.

6.3 The Alaska and Aleutians Surveys

This section again analyses two surveys undertaken by the US Navy during the interwar period. However, these surveys concentrate on the Northern Pacific and the

[42] These aircraft were specifically designed to have a range much greater than their fighter and bomber contemporaries. This would allow them to cover great distances in one flight and thus be the visible manifestations of US power projection. They did not have large bomb bays, nor were they heavily armed with machine guns or cannons to provide them with either efficient bombing or dog fighting capabilities. Thus, it must be deduced that the US Navy sought to deploy these VP aircraft for the specific task of power projection through their long range presence.

Aleutian Islands and Alaska in particular.[43] The first survey to be analysed is the 1932 'Alaska Survey Expedition', which was a sizeable undertaking involving several ships and aircraft deployed to Alaska for a four month cruise.[44] The second survey is somewhat different. 'The Study of Naval Requirements – Alaska' was compiled by Admiral Craven, of the War Plans Division, in 1936. It details previous US Navy documentation concerning possible naval aviation requirements for the Alaska region that had been collated into one document by Craven. Further to this, it also includes Craven's comments concerning the possible construction of naval aviation facilities in the region.[45]

The existence of these surveys indicates that the climatic conditions found in this region, a major problem for the prior deployment of aircraft, had been mitigated at least partially. For much of the interwar period aircraft were ill equipped to cope with the icing and engine-freezing problems that were commonplace in this region.[46] Thus, it was not until aviation technologies had advanced to render these problems manageable that the Navy could conceive the Northern Pacific as a viable location for aircraft deployment. These surveys are therefore significant because they suggest a link between the technological advances in aviation and the geopolitics of the Northern Pacific. The following two sub-sections analyse each of these Alaskan surveys in detail using the critical technogeopolitical framework to understand more fully the nature of the relationship between geopolitics and aviation.

6.3.1 The 1932 'Alaska Survey Expedition'

Undertaken by the US Navy during the summer of 1932, the aim of this survey was to,

> "reconnoitre the Aleutian Islands and the south coast of the Alaskan Peninsula in order to determine the feasibility of operating aircraft on these areas and to select and investigate the best bases for such operations."[47]

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[43] Alaska came under US jurisdiction in 1867 when the US Government purchased the territory from the Russian Government. http://xroads.virginia.edu/~CAP/BARTLETT/49state.html. Accessed 27th January 2005.

[44] Lt. R. H. Harrell. Report of the Alaska Survey Expedition. (20th September 1932). NARA CP. RG 38. Strategic Plans WPD. Miscellaneous Subject File. Box. 35.

[45] Admiral Craven. Study of Naval Requirements - Alaska. (16th October 1936). NARA CP. RG 38. Strategic Plans WPD. Miscellaneous Subject File. Box. 35.

[46] For more information on the problems caused by poor weather conditions see Chapter 7 on the Northern Route.

[47] Lt. R. H. Harrell. (20th September 1932). *Op cit.* p. 5.

The survey was split into two parts: the first concerned with identifying seaplane sites, the second concerned with landplane sites.[48] Both of these are analysed in this section in order to develop an understanding of how new aviation technologies allowed aircraft to be located in this harsh region, and how these developments fed into the practical geopolitics of projecting US power across the Pacific.

Chicagof Harbor, Attu Island	Kiska Harbor, Kiska Island
Nazan Bay, Atka Island	Chernofski Harbor, Unalaska Island
Dutch Harbor, Unalaska Island	Iliuliuk Harbor, Unalaska
Cold Bay	Dolgoi Harbor, Dolgoi Island
Baralof Bay, Unga Island	Anchorage Bay, Chignik Island
Larsens Bay, Uyak Island	Winter Anchorage Cove, Kodiak Harbor
Port Chatham	Deward, Resurrection Bay

Fig. 6.3.1. List of seaplane sites surveyed[49]

In the analysis of the Midway Islands survey above (section 6.2.3), I discussed the ability of patrol planes to enforce the perception of the Pacific as US space, without the need for the deployment of combat aircraft. This concept is also in evidence in this survey. This adds further weight to the argument that aviation played a pivotal role in the US's territorialisation of the Pacific because their deployment shows that the US Navy was more concerned with maintaining a strong power projection presence in these areas – through the deployment of VP's – rather than through the deployment of shorter range, more heavily armed aircraft. Indeed, the potential role of patrol planes, of which the majority were seaplanes during the interwar period, in establishing the geostrategic territorialisation of the Aleutians/Alaska region is evidenced by the production, by the US Hydrographic Office, of special "Seaplane Anchorage" forms used for this survey.[50] These forms (a copy of which can be found in Appendix C), which provided space to detail location, landmarks, shelter, obstructions, tides, currents, suitability for hauling out, and suitability for amphibious operations, were completed for fourteen locations (listed in Figure 6.3.1 and depicted graphically in Figure 6.3.2) stretching across the Aleutians from Attu to Kodiak.[51]

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[48] Lt. R. H. Harrell. (20th September 1932). *Ibid.* Enclosures Q & R.
[49] Lt. R. H. Harrell. (20th September 1932). *Ibid.* Enclosure Q.
[50] Lt. R. H. Harrell. (20th September 1932). *Ibid.* Enclosure Q.
[51] Lt. R. H. Harrell. (20th September 1932). *Ibid.* Enclosure Q. Sites that were 'suitable for hauling out' were particularly important for seaplane operations as they would allow aircraft maintenance to

Unfortunately, from the Navy's point of view, the survey records that most of these sites were unsuitable for seaplane operations.[52] Whilst advances in aviation technologies had given aircraft a greater ability to cope with the climate and weather problems, they had not been fully overcome. For example, Cold Bay was deemed "unsafe for seaplanes" because "the entire bay is exposed to strong winds...and is subject to violent williwaws."[53] However, Iliuliuk Harbor, Unalaska and Nazan Bay on Atka Island were highlighted as the best possible locations for the construction of seaplane facilities construction.[54] An interesting aspect of this survey is that whilst geopolitical concerns seem to have underpinned the rationale behind the survey, the decisions regarding seaplane base locations were based on geographical and meteorological factors (similar to those discussed in Chapter 3), rather than strategic concerns.[55]

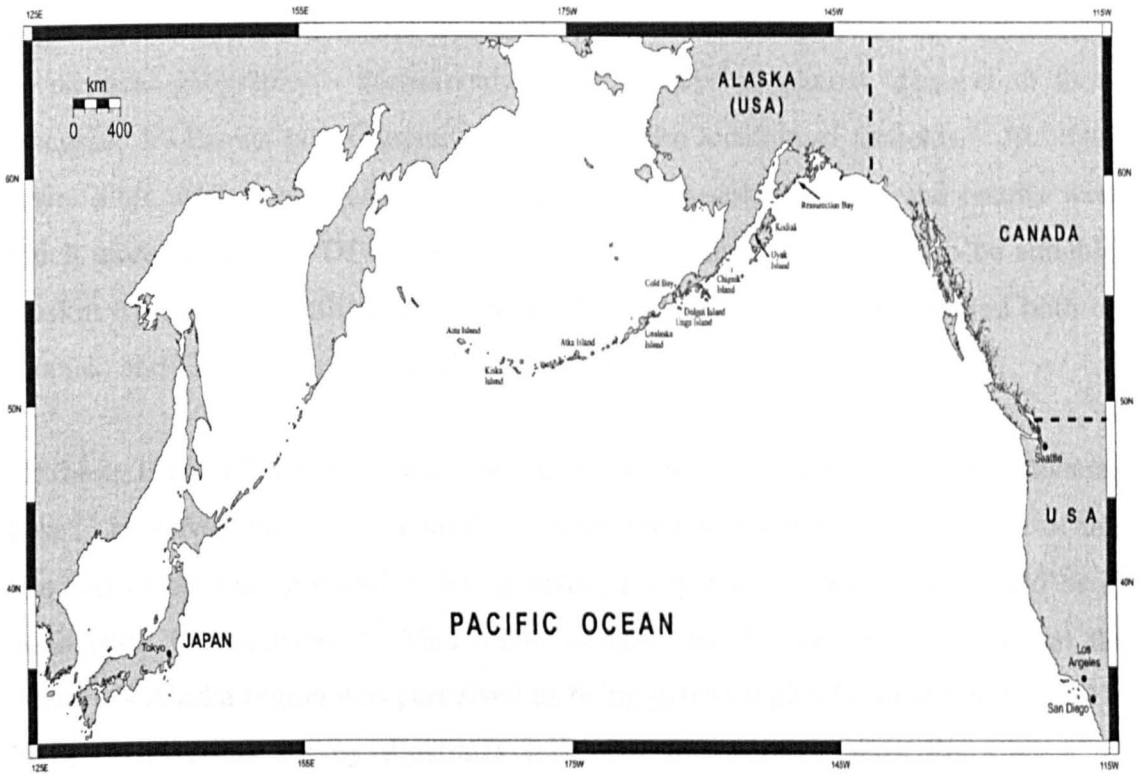

Fig. 6.3.2. Map showing the locations of seaplane survey sites [56]

be carried out without the requirement for a seaplane tender to be in attendance, thus allowing more flexibility to the US Navy.

[52] Lt. R. H. Harrell. (20th September 1932). *Ibid.* Enclosure Q.

[53] Lt. R. H. Harrell. (20th September 1932). *Ibid.* Enclosure Q. A 'williwaw' is a severe whirlwind common in restricted sea area, such as the channels and straits found in the Aleutians.

[54] Lt. R. H. Harrell. (20th September 1932). *Ibid.* Enclosure Q.

[55] For more information on this see the section on Jerold Brown in Chapter 3.

[56] John Garner. Map of 1932 Alaska Survey Expedition seaplane survey locations. (2005. Geography Department. University of Hull).

Thus, whilst sites were pre-selected for survey according to their geostrategic features, their actual viability could be adversely affected by poor geographical conditions. These could undermine the overall geostrategic importance of a specific location. Perhaps this simply illustrates that aviation technologies had yet to advance to a stage that would allow many of these factors to be negated. However, because geostrategic concerns initiated the survey, this does not invalidate my central argument about the existence of a relationship between aviation and geopolitics that increased the visibility and enforceability of extant US perceptions of the Pacific as US space.

The 1932 Alaska Survey Expedition also investigated potential land plane sites, and the report includes several maps and aerial photographs (see Fig. 6.3.3) highlighting these. Again, the factors – specifically those related to topography and other aspects of physical geography – considered by the survey are almost identical to those discussed by Brown (see Chapter 3) relating to the location of airfields.[57] Although fewer sites were investigated, than had been for seaplane usage, the results were much more promising. Of the eight sites surveyed three were found to be suitable. Buskin River Farm, with its flat cultivated land, and Karluk River Valley both on Kodiak, and Umnak Island were all found to have potential.[58]

Of these, Buskin River Farm was highlighted as the most likely site for a permanent base.[59] However, the survey's final report concludes that with the exception of this site "about the only possibility for operating landplanes in this region would be in connection with carriers."[60] This quote is important because it suggests that the Aleutians/Alaska region was perceived as being geostrategically important to the US Navy. Whilst this survey illustrates just how few suitable sites there were for seaplane and land plane base construction, the comment about carriers shows the extent to which an aviation complement in this region was increasingly viewed as a geostrategic necessity. This section has detailed and analysed one specific survey of the aviation potential of the Alaska/Aleutians region. The following section seeks to

[57] Jerold Brown. (1990). *Op cit.*
[58] Lt. R. H. Harrell. (20th September 1932). *Op cit.* Enclosure R.
[59] Lt. R. H. Harrell. (20th September 1932). *Ibid.* Final Report. p. 10.
[60] Lt. R. H. Harrell. (20th September 1932). *Ibid.* Final Report. p. 10.

analyse a different form of document, a compilation of US Navy reports and surveys on the Northern Pacific region from the interwar period.

Fig. 6.3.3. Photograph of a potential land plane site from Alaska Survey Report.[61]

6.3.2 The 1936 'Study of Naval Requirements – Alaska'

This document is interesting for my argument because it takes the form of a commentary on the importance of the Aleutians/Alaska region to WPO. Its author Admiral Craven, of the Navy War Plans Division, states that,

> "The security of the Pacific Coast, and to a lesser degree Hawaii, would be greatly increased if Blue [the US] held the halfway positions in the Aleutian Islands, denying them to Orange [Japan], and obtaining information of any Orange [Japanese] movements in their vicinity."[62]

Craven undertook a review of surveys, Congressional hearings, and other military documents of the interwar period that pertained to the locating of aviation facilities in this region. After reviewing these documents, he concluded that,

> "The best locations for Section Bases appear to be Adak, Unalaska, Kodiak, and Sitka. Of these the most important location from a naval standpoint appears to be Unalaska, which is practically on the Great Circle Course from Puget Sound to Yokohama, as far advanced as can certainly be defended; covers the passage around

[61] Lt. R. H. Harrell. (20th September 1932). *Ibid.* Enclosure Q.
[62] Admiral Craven. (16th October 1936). *Op cit.* p. 1.

continental Alaska; flanks and any attack direct directed at Kodiak or Sitka; and is close enough to the Western Aleutians to support forces based there and to deny these islands to the enemy."[63]

In order to ensure this could be carried out Craven argued that in peacetime "measures necessary to execute this plan are to establish an air station near Kodiak" and once conflict breaks out "the Sitka facilities can be expanded to base the air patrols required in that area."[64] This shows that the Navy continued to perceive the Aleutians/Alaska region as geostrategically important. It also shows a clear advancement, during the interwar period, in the US Navy's objective of locating aircraft in this region.

6.3.3 Conclusions

This section has interrogated two different documents that have the same *raison d'étre* – to identify possible aviation facilities in the emerging geostrategic region of Alaska and the Aleutians. The 1932 survey is important because of its sheer scale, with over 20 different locations being surveyed as possible land or sea plane sites. This indicates the importance the US Navy attached to aviation in this region. As noted in section 6.3.1 weather conditions had previously prevented permanent shipping deployments to the region, however advances in aviation technologies had allowed climatic problems to be resolved and thus aircraft became increasingly important tools in territorialising this area as US space. In the 1932 survey, the inclusion of photographs of potential airfields is also interesting. As a number of geographers have argued recently, photographs are imbued with concepts of control and ownership, thus by their very existence this document shows the extent to which the US Navy perceived the construction of airfields as part of a wider project of owning and materialising space.[65]

The 1936 document is also interesting in that it demonstrates a continuing perception in US military circles, of the potential of aviation as a tool to territorialise the Northern Pacific as US space, and to project US power over territory so close to Asia. The US Navy undertook a number of surveys to ascertain sites for possible aviation facilities, and these documents illustrate an understanding of the potential of

[63] Admiral Craven. (16th October 1936). *Ibid.* p. 9.
[64] Admiral Craven. (16th October 1936). *Ibid.*. p. 10.
[65] J. Schwartz & J. Ryan (Eds.) (2003). *Op cit.*

long-range aircraft, deployed to these locations, to project US power far from the US's main bases in Hawaii and California. The following section is similar to those that precede it, although it concentrates on one specific document – the 'Basic Study for Landing Operations in a Blue-Orange War', which is of significant importance to understanding the place of aviation within a US technogeopolitical project in the Pacific.

6.4 The 1940-1 Basic Study for Landing Operations in a Blue-Orange War

The 'Basic Study for landing operations in a Blue-Orange war' was compiled during 1940 and 1941 by the WPD, with the specific remit of determining sites across the Pacific, from Alaska to the Mandates, that could be utilised by US [Blue] aviation during the implementation of WPO strategies.[66] The survey parts of this study were split into two sections numbered WPL-36 and WPL-37.[67] These documents provide evidence of a clear link between aviation and geopolitics because they show the level and amount of detailed information on aviation facilities that the US Navy required in order to prosecute WPO.[68] This section analyses these documents with relation to each major area surveyed – section 6.4.1 analyses WPL-36 covering the Mandates and Japanese 'home' islands, and section 6.4.2 analyses WPL-37 covering the Kuriles and Aleutians. Taken in concert, these sections develop an understanding of how, by the 1940's, technological advances changed the ways the US Navy viewed the potential of aviation to influence perceptions of the Pacific as US space.

6.4.1 WPL-36

WPL-36 was published in 1940 and covered the Japanese Mandated Islands of the Marshall and Caroline groups as well as a number of Japan's 'home islands' such as the Bonins.[69] In much the same way as the 1927 survey of the same region, discussed in section 6.2.1, this survey detailed potential seaplane and landplane sites across this region. However, WPL-36 covered several hundred pages, as opposed to just a few

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[66] Office of the Chief of Naval Operations. (8th October 1940). *Op cit.* Office of the Chief of Naval Operations. (15th August 1941). *Op cit.*

[67] Office of the Chief of Naval Operations. (8th October 1940). *Op cit.* Office of the Chief of Naval Operations. (15th August 1941). NARA CP. RG 38. *Op cit.*.

[68] WPL-36 was issued in 1940 and covered the Mandates region. WPL-37 was issued in 1941 and covered the Kurile-Aleutians region. The WPL numbers correspond to their place within the wider Orange War Plans Series of documents, with WPL being the abbreviation for War Plans.

[69] Office of the Chief of Naval Operations. (8th October 1940). *Op cit.*

dozen in the 1927 survey, and thus contained much more detail. In this later survey, maps and photographs were included to produce an incredibly detailed document. An example of this detail can be seen in figure (Fig. 6.4.1), which shows a map of potential aviation sites on the Japanese owned Bonin Islands taken from WPL-36.[70] The inclusion of this map, and many others of similar detail in WPL-36, demonstrate a desire to produce increasingly detailed knowledge of the aviation potential of islands across the Pacific.

Given the decline in US-Japanese relations during the latter part of the 1930's it is perhaps no surprise that this later survey was so much more complex. The US Government was increasingly aware of the potential threat that Japan posed to its perceived power across the Pacific, and thus needed as much information as possible on how it could possibly use aviation to counter this. Thus, from the viewpoint of this thesis, advances in aviation – specifically range and speed – can also be seen as a reason for the detail of this later document.

The Marshall Islands were the first to be examined in WPL-36. The following quote illustrates the centrality of potential aviation facilities within this document.

> "Most of the lagoons in the Marshalls may be used for seaplanes for landing, taking off, and anchorage...The commercial air line from Orange homeland to the Mandates is at present using seaplanes...it is reported that Orange has laid out airfields on the principal islands of the Mandates."[71]

The inclusion of comments concerning the development of commercial air routes is interesting, because it shows that the Navy was equally aware of the potential strategic importance of non-military air routes.[72] In addition, this document also includes a map (Fig. 6.4.2) that details the known, and potential, locations for military facilities throughout the Marshall's group.[73]

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[70] Office of the Chief of Naval Operations. (8th October 1940). *Ibid.* p. 194.
[71] Office of the Chief of Naval Operations. (8th October 1940). *Ibid.* Pp. 171-172.
[72] For more information and comments concerning the US Navy's awareness of the potential of commercial air routes to materialise and territorialise the Pacific as US space see Chapter 7 on Pan American Airways, and Chapter 4 on the Line Island Project.
[73] Office of the Chief of Naval Operations. (8th October 1940). *Op cit.* p. 174.

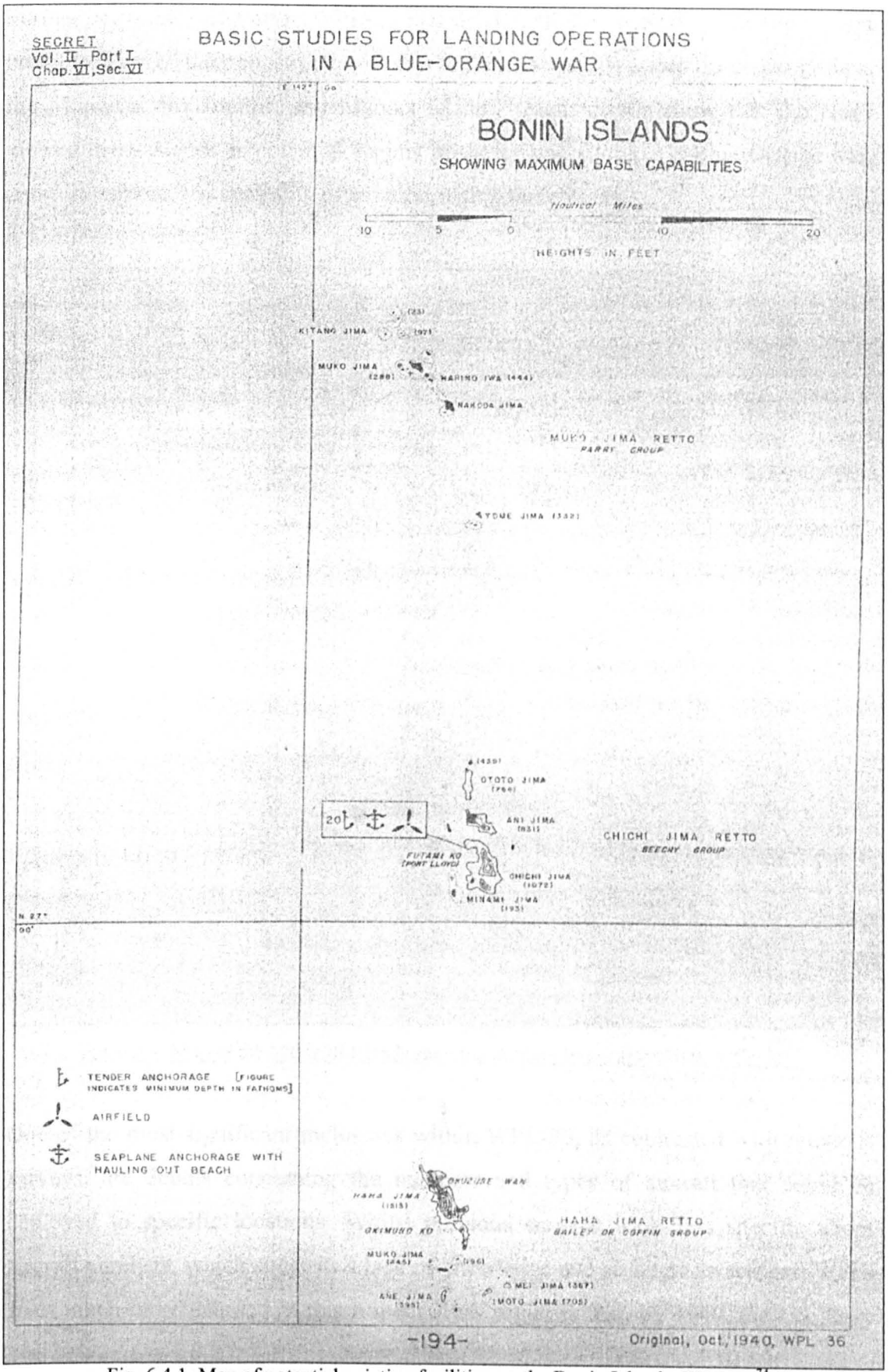

Fig. 6.4.1. Map of potential aviation facilities on the Bonin Islands, WPL-36[74]

[74] Office of the Chief of Naval Operations. (8th October 1940). *Ibid.* p. 194.

Further maps are included in WPL-36 that detail airfields, seaplane anchorages, and possible sites for their construction across the Eastern and Western Carolines groups, the Marianas, the Bonins, and Marcus Island.[75] Such details show that the Navy viewed these islands as potential staging posts for operations in a Blue-Orange war, and furthermore, the centrality of aviation within these plans.

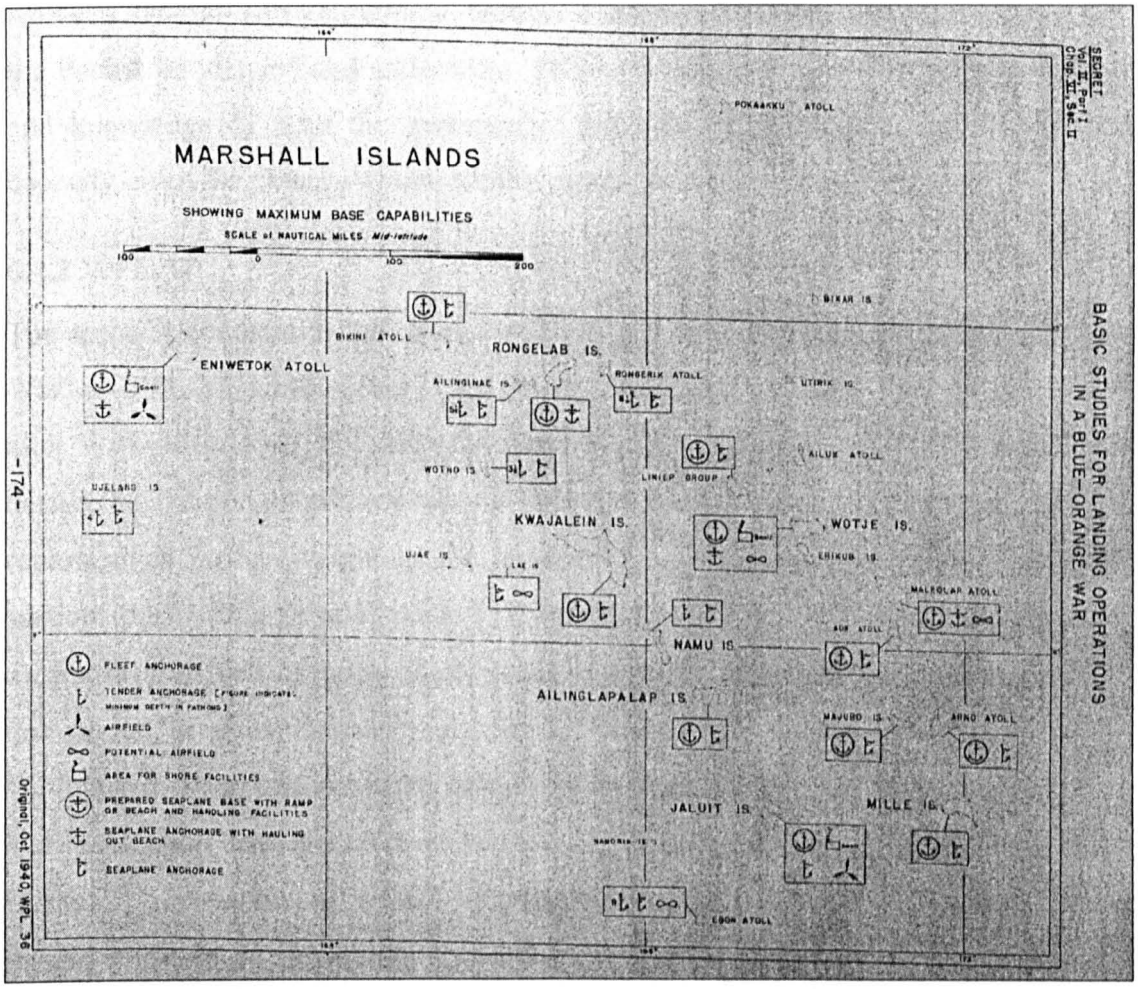

Fig. 6.4.2. Map of the Marshall Islands showing military base capabilities, WPL-36[76]

One of the most significant inclusions within WPL-36, as contrasted with previous surveys, are details concerning the numbers and types of aircraft that could be deployed to specific locations. Whilst previous surveys were less specific about aircraft numbers, which suggests a lack of knowledge and strategic awareness, WPL-36 is much more detailed in this respect. This suggests that, by 1940, the US Navy

[75] Office of the Chief of Naval Operations. (8th October 1940). *Ibid. Passim.*
[76] Office of the Chief of Naval Operations. (8th October 1940). *Ibid.* p. 174.

was far more aware of the capabilities of its aircraft and related deployment needs. For example, the report on the Eastern Carolines states that,

> "It is estimated that on each of the 4 large islands of the Hall group a field could be built which could accommodate an 18 plane squadron and that a field for two 18 plane squadrons could be constructed on Uman of the Truk group."[77]

Clearly, during the course of the interwar period, the developing relationship between aviation and geopolitics demanded that a more precise territorialisation of the Pacific be planned and undertaken. The Navy required increased levels of detail and knowledge of both the geostrategic potential of a location, and its tactical capacity given the extant aviation technology of the time.

6.4.2 WPL-37

The second document in the 'Basic Study for Landing operations in a Blue-Orange War' is WPL-37, which covered the Kuriles-Aleutians area, and was issued a year after WPL-36 in 1941.[78] Taking the same format at its predecessor, this document details the aviation possibilities in this Northern Pacific region. The inclusion of this region gives further weight to the argument – developed in the Alaska Surveys section (6.3) – that developments in aviation technologies (specifically those that mediated the effects of the northerly climate) now allowed the Navy to conceptualise this region as geostrategically significant. Indeed the first sentence of WPL-37 reinforces this perception of the strategic importance of this region, stating that, "The Kurile-Aleutian *strategic* area is located in the north-western part of the Pacific Ocean."[79] The format of WPL-37 highlights this argument further because – in a similar vein to the 1932 Alaska Survey – its concentration on the climatic conditions and geographical landforms that could pose problems for air operations indicates that the decision to view this area as geostrategically important was taken before the survey was carried out. This also suggests that this decision was influenced by aviation technologies rather than geographical conditions. For example, when describing Buroton Bay, in the Kuriles, the survey states that,

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[77] Office of the Chief of Naval Operations. (8th October 1940). *Ibid.* p. 179.
[78] Office of the Chief of Naval Operations. (15th August 1941). *Op cit.*
[79] Office of the Chief of Naval Operations. (15th August 1941). *Ibid.* p. 4. (Emphasis added by author).

> "Buroton Bay offers the only likely site on the [Shimushiru] island for a seaplane base. This bay has sufficient quiet water to permit the operation of seaplanes but, the surrounding hills and probable strong air currents may constitute flying hazards."[80]

WPL-37 states that "there are about 30 areas in the Aleutians where seaplanes may land, moor, and take off", which is considerably more than discovered by the 1932 Alaska Survey Expedition.[81] This increase could be due to advances in aviation, such as the development of more rugged aircraft undercarriages that allowed less promising landing fields to be used. It could also be due to an increasing need to generate a perception of this region as US space, or the practical need for more potential airfields given the impending war.

6.4.3 Conclusions

The 'Basic Studies for Landing Operations in a Blue-Orange War' are of significance in understanding the recursive relationship between aviation and geopolitics, and US desires to territorialise and materialise the Pacific, for a number of reasons. The size and detail of this document (it runs to several hundred pages and is divided up into five different WPL designations) shows the extent to which the US perceived the Pacific as space that it could and should project its power across. Further, the amount of detail covering possible aviation sites proved the increasing importance with which the planners viewed the potential of aircraft.

In WPL-36, the inclusion of the Mandated Islands again reinforces the argument that the US did not view these as Japanese territories but instead saw the whole of the Pacific as US space. The scale and complexity of the maps and charts included again adds to the feeling that the US was surveying its own territories – perhaps in ways not dissimilar from the surveys of the US in its formative years. Again Fig. 6.4.1 and Fig 6.4.2 illustrate the centrality of aviation to these surveys. This is reinforced by the inclusion in WPL-36 and WPL-37 of details concerning the numbers and types of aircraft to be deployed to each location. The inclusion of VP aircraft suggests that the US planned to use such craft to project its power from these sites.

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[80] Office of the Chief of Naval Operations. (15th August 1941). *Ibid.* p. 161.
[81] Office of the Chief of Naval Operations. (15th August 1941). *Ibid.* p. 359.

WPL-37 is important because it concentrates on the Northern Pacific region, again showing the strategic importance of this Alaska/Aleutians region to the US. Furthermore, this document includes many more survey sites than in previous surveys of this region (see section 6.3). This is evidence of an increasing perception, within the US Navy, of the potential of aviation to territorialise this region, and consequently the Pacific, or indeed, of developments in aviation technologies that allowed more marginal areas to be viewed as viable airfields. The final section below seeks to provide an overall conclusion to this chapter, explaining the importance of the documents examined above, the place of this chapter in this thesis, and its place within wider geographical debates on surveys.

6.5 Conclusion

An analysis of the surveys included in this chapter gives an insight into how the US Navy used the potential of aviation to materialise the Pacific as US space through the deployment of aircraft to geostrategically significant locations. It has also sought, through the inclusion of maps, photographs, and other primary sources, to show what the physical contents of these surveys tell us about the mindset of their authors. As Elizabeth Edwards comments, the analysis of visual images included in surveys allow us to "more fully understand and appreciate...[the] performance of space, identity, and power".[82] This chapter has included such images to provide an insight into what might be termed the 'imperial' perception of the US Navy in its vision of the Pacific as space that it controlled and wished to project power across through the use of aviation. It can further be argued that these images and maps also reinforce the idea that the US perceived itself as having a Pacific 'empire', and that these documents partially constitute a 'colonial survey'. Indeed, they seem to tick many of the boxes needed for this; not only were they undertaken by the military, they centre around desires to quantify territory through mapping, and photography – thus materialising it as 'known' and thus 'owned' space.

In section 6.2 two surveys that concentrated on islands in the Central Pacific were examined. One of the most important conclusions to be drawn here is the continuing perception within these surveys, of the Mandates being territory that the US could

[82] Elizabeth Edwards. Negotiating Spaces: some photographic incidents in the Western Pacific, 1883-84, in J. Schwartz & J. Ryan (Eds.) (2003). *Op cit.* p. 261.

control by the deployment of aircraft across the region. The obvious geostrategic importance of these islands is illustrated by their inclusion in both the earlier (1927) and later (1934) surveys in this section. Their inclusion also shows that the US Navy saw the whole of the Pacific as territory to be thought of as US space, irrespective of actual claims on such locations. The second main conclusion relates to the geostrategic importance of Midway and the other islands in its vicinity. The 1934 Midway Island survey, with its airfield maps (Fig. 6.2.5 - 6.2.7) shows the extent to which the construction of airfields on such geostrategically important locations was deemed central to materialising existing perceptions of the Pacific as US space. This argument is further enhanced by the existence in both the 1927 and 1934 surveys of potential air routes, by which the US Navy sought to materialise the 'air defense line' across the Central Pacific. These proposed air routes are also significant because they show that the US Navy was keenly aware of the power projection capabilities of transpacific aviation – even though no aircraft capable of flying such routes existed when the surveys were undertaken. A final conclusion that can be drawn from the Central Pacific surveys is the perceived importance, in terms of power project capabilities, of the long-range VP patrol aircraft. The quote, by the Commander of Aircraft, Base Force, and comments made by Admiral Craven in the 1936 survey, both indicate how the Navy sought to deploy aircraft with large ranges in order to exploit aviation as a physical tool with which to project power and presence across the Pacific.

With regard to the surveys on the Alaska/Aleutians region (documented in section 6.3) a number of similar conclusions can be drawn. The power projection capabilities of aircraft are viewed as especially important in this region. The 1932 Alaska Survey Expedition contains direct reference to this with a concentration on identifying seaplane sites (of which most were for patrol planes) over landplane sites, which would be used primarily for combat aircraft. Further to this, the argument for a mutually constitutive relationship between aviation and geopolitics is further strengthened in the Alaska/Aleutians surveys by comments concerning the use of aircraft carriers in the region to allow a combat aviation capability. This shows that although parts of the region were not suitable for airfield construction, the US Navy could use carriers to territorialise the Pacific as US space. Another conclusion is the effect that advances in aviation technologies could have in countering poor climatic

conditions, thus highlighting aviation's role in the development of this region's geostrategic importance. The US Navy maintained a summer fleet in the Northern Pacific but the Alaska surveys show that aircraft could be permanently deployed here because of advances in cold weather aviation technologies, thus providing a much more tangible materialisation of the Northern Pacific as US space.

Thus, in conclusion this chapter has sought to show how the US used military surveys of potential aviation use across the Pacific to prepare the way for deploying aircraft to territorialise the Pacific, and further, how the US Navy wished to use these airfields to project US power across the Pacific. The following chapter seeks to investigate another element used by the US to materialise and territorialise the Pacific as US space – the development of commercial transpacific aviation routes by Pan American Airways. It will also include discussion of surveys carried out as part of the planning for these routes, and will analyse these documents in the same vein as has been undertaken in this chapter.

Chapter 7

Pan American Airways: the development of the first transpacific commercial air routes and the Pacific as US space

7.1 Introduction

My argument is that the US undertook a technogeopolitical project to use aviation to territorialise the Pacific as US space. The previous two chapters have assessed the importance of advances in aviation to the US military's ability to fulfil this project, whilst this chapter will take a similar approach but will focus on commercial aviation. From a technogeopolitical perspective, there are few differences between military and commercial aviation in relation to US power projection. Both apply technological advances to control territory more effectively. However, the mechanics of how this power projection was manifested by commercial aviation is significantly different. Using the development of Pan American Airways (Pan Am) transpacific routes as case studies, this chapter will seek to understand how developments in commercial aviation can be viewed as being part of a larger technogeopolitical project. However, before this can be attempted some contextual positioning needs to be undertaken.

At the heart of this chapter is the contention that Pan American Airways had links with the US Government, and that these were used by the latter to circumvent the restrictions on the militarisation of the Pacific, stipulated in Article XIX of the Washington Naval Treaty.[1] These links can be argued to be part of a wider process through which the US attempted to construct an 'empire' across the Pacific. The role of the US as an imperial power, and the existence of a US empire, has been at the forefront of a number of contemporary debates in geography and related disciplines. Indeed, as noted in Chapter 1, recent books by Harvey, Gregory, Ferguson, and others, debate this point.[2] Related to these issues of empire and imperialism, this chapter will also include comments on Pan Am's surveying of the Pacific. In a similar way to the documents analysed in Chapter 6, this can be understood as part of

[1] Washington Naval Treaty. http://www.metalab.unc.edu/pha/pre-war/1922/nav_lim.html. Accessed 24th June 1999. *Passim.*
[2] David Harvey. (2003). *Op cit.* Niall Ferguson. (2004). *Op cit.*

the recent interest in understanding the roles of geography within imperialism. The analysis of surveys undertaken in this chapter can be viewed as being part of this paradigm.

A further context relevant to this chapter concerns the role and visibility of the aircraft used by Pan Am on their transpacific routes. As has been noted in Chapter 1, the roles of aircraft in power projection has only been partially understood, even taking into account the amount that has been written on the use of aircraft in the attacks of September 11th 2001, and the effects of those attacks on the global airline industry. This chapter will begin to 'fill in' some of the gaps in our appreciation of air power, by undertaking an analysis of the aircraft used by Pan Am – their characteristics and visibility – as part of the US's technogeopolitical project. Thus, this chapter argues that definite links existed between the US Government and Pan Am with regard to the desire of the former to use the latter to project US power across the Pacific. A brief outline of Pan Am's early history serves to reinforce the notion of such a link.

7.1.1 Early Pan Am history

In 1920, a former German pilot named Dr. Peter Paul von Bauer established the Sociedad Colombo-Alemana de Transported Aereos (SCADTA), a South American airline that became very successful during its first five years of operations.[3] Building on this, Bauer determined to extend his airline by developing its routes through the Caribbean to the US.[4] However, the US's military attaché in Colombia alerted the US military and "began sending reports about SCADTA to Major Henry H. ("Hap") Arnold, then an intelligence officer stationed in Washington."[5] The geopolitical consequences of such an expansion worried 'Hap' Arnold to such an extent that he decided that the best way to stop SCADTA would be to establish an American airline underpinned by United States Post Office contracts that could compete with SCADTA and prevent it gaining landing rights in the US. This airline, christened Pan American Airways, was set up in 1926 by Arnold, Major Carl Spaatz, Major Jack

[3] Ronald W. Jackson. China Clipper. (1980. Everest House. New York). p. 35.
[4] Ronald W. Jackson. (1980). *Ibid.* p. 35.
[5] Ronald W. Jackson. (1980). *Ibid.* p. 35. 'Hap' Arnold would go on to be one of the foremost proponents of Army aviation throughout the inter-war and Second World War period.

Joulet and John Montgomery.[6] Thus, Pan Am owed its very existence to issues of technogeopolitics. However, Arnold and his Army friends were unable to resign their military commissions and develop Pan Am because of several incidents that resulted in "Arnold, Spaatz and Joulet [feeling] that they could not desert the Army."[7] Montgomery was unable to develop the airline alone and it was not long before other parties began to take an interest in the company. Eventually, after much wrangling, Juan Trippe, a Yale graduate and banker who had become a naval aviator during the First World War, took charge.[8]

Pan Am commenced its flying operations in 1927 when Trippe won a United States Post Office Foreign Air Mail Contract (as discussed in Chapter 4) to fly air mail from Key West to Havana.[9] For the next four years Pan Am concentrated on developing its routes from its new base at Dinner Key, Miami, through the Caribbean and into South America. It introduced services to Puerto Rico, Mexico City, Panama, Santiago, and Buenos Aires.[10] With the acquisition of several other South American airlines Trippe soon had a monopoly of air mail services from the US to South America. Whilst Pan Am continued to consolidate this domination throughout the early 1930's, Trippe began to turn his attentions to developing new and arguably more prestigious routes for Pan Am. Inevitably his gaze fell on the as yet unclaimed transoceanic routes, and less than five years after Pan Am's inaugural flight from Key West, Trippe set his sights on crossing the Pacific. In the context of this thesis, the development of Pan Am's transpacific routes is of huge importance, because they clearly show the extent to which aviation and geopolitics influenced each other and how actors, such as Pan Am, acted to materialise an American presence in the Pacific during the interwar period.

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[6] Ronald W. Jackson. (1980). *Ibid.* p. 36. Carl Spaatz would also go on to become a prominent figure in Army aviation.
[7] Ronald W. Jackson. (1980). *Ibid.* p. 36. These incidents included the crash of the airship Shenandoah and the courts martial of Billy Mitchell (see Chapter 3 for more information on this).
[8] Ronald W. Jackson. (1980). *Ibid.* p. 37. For more information on Trippe, see Robert L. Gandt. China Clipper. (1991. Naval Institute Press. Annapolis). Pp. 23-28. Matthew Josephson. Empire of the Air: Juan Trippe and the struggle for world airways. (1972. Ayer Publishing Co. New York). Marylin Bender & Selig Altschul. (1982). *Op cit.*
[9] John R. Steele. The Early Years. http://www.panam.org Accessed 6th October 2000.
[10] John R. Steele. The Early Years. http://www.panam.org Accessed 6th October 2000.

This chapter is composed of six sections, the first being this introduction. Section 7.2 will analyse Pan Am's attempts to develop a Northern Pacific route, and sections 7.3 and 7.4 seek to assess their Central and Southern Pacific routes respectively. In section 7.5 some technological context will be given with a discussion of the aircraft developed and used by Pan Am on its transpacific routes. Section 7.6 aims to explain how Pan Am materialised the Pacific as US space through the construction of its island way-stations. Finally, section 7.7 will conclude by drawing together the arguments presented in the previous sections to more fully understand how Pan Am's transpacific routes were part of a this larger technogeopolitical project.

7.2 The Northern Route

This section will assess Pan Am's first attempt at developing a transpacific route, across the northern Pacific from Alaska to Kamchatka at the beginning of the 1930's.[11] It seeks to analyse why this Northern Route was the first to be developed, and why it was eventually abandoned. The decision to use this route was predicated on a desire to cross the Pacific at its narrowest point because of the limitations of the aircraft available; the narrowest point being the safest to cross given the limited range of contemporary aircraft. The story of the Northern Route is really the story of two men's belief in its viability. The following two sub-sections will detail and analyse this route's surveying and planning undertaken by Charles Lindbergh and Vilhjamur Stefansson.

7.2.1 Charles Lindbergh

In 1931 the famous aviator, and Pan Am technical consultant, Charles Lindbergh, and his wife Anne, conducted a survey flight designed to test the viability of establishing a transpacific route.[12] The route chosen by Pan Am (as seen in Fig. 7.2.1) began in Washington DC and called at eight US and Canadian cities and towns before arriving at Nome, Alaska.[13] From there the route took the Lindberghs' across the Bering Straits to Kamchatka, and on to Tokyo. This is important because it

[11] Anonymous. Notes on Pan American's Arctic Experience. (no date). Pan Am Archives. Box. 290/4. Pp. 3-4.
[12] H. C. Leuteritz. Lindbergh's Washington DC – Tokyo Flight. (7th July 1932). Pan Am Archives. Box. 47/5. Lindbergh was famous as the first man to single-handedly fly across the Atlantic from the New York to Paris. For information on this see, Charles A. Lindbergh. The Spirit of St. Louis. (1993. PoolBeg. Dublin)
[13] Anonymous. Notes on Pan American's Arctic Experience. (no date). *Op cit.* Pp. 3-4.

illustrates Pan Am's desire to demonstrate how such a route could link the main political and financial centres on the US east coast with a developing transpacific market.

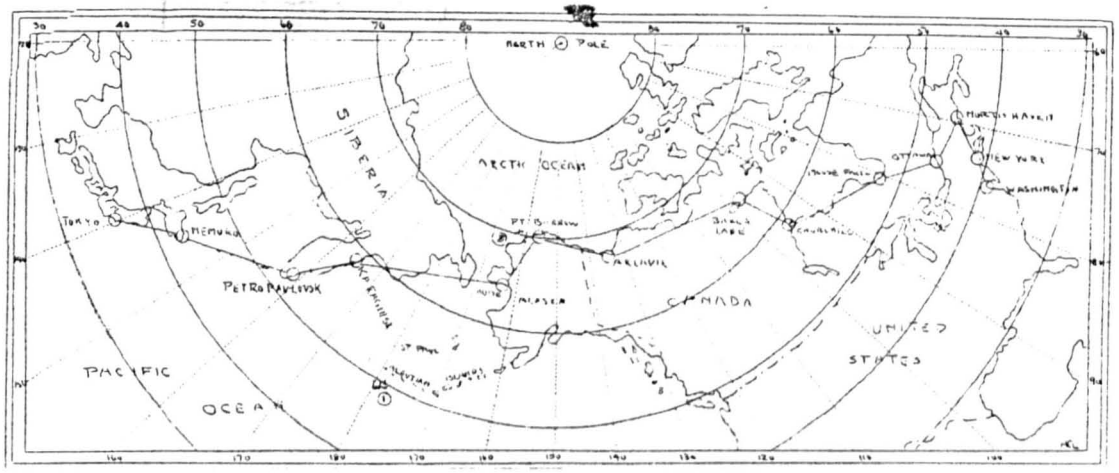

Fig. 7.2.1. Map of Pan Am's survey flight from Washington DC to Tokyo, July 29 to August 26 1931[14]

That this flight was undertaken by Lindbergh (the famous aviator whom Trippe had hired as a consultant) is important.[15] Lindbergh guaranteed the flight more publicity and propelled the possibility of a transpacific route into the public domain. While other aviators (such as Wiley Post) had flown over the northern Pacific before, these had always been part of longer flights.[16] Lindbergh's 1931 flight was the first that set out with the sole intention of proving the possibilities of developing a commercial air route across the Pacific. This publicity was further enhanced with the publication of Anne Lindbergh's account of the flight 'North to the Orient' in 1935.[17]

7.2.2 Vilhjamur Stefansson

In 1932, Pan Am employed another well-known figure, the Arctic geographer and explorer Vilhjamur Stefansson, to compile a feasibility study for the Northern Route.[18] Stefansson's task was to contemplate a number of possible routes and, after weighing up their various geographical advantages and disadvantages, to identify the

[14]Anonymous. Map of Lindbergh's flight. (no date). Pan Am Archives. Box. 47/5.
[15] Ronald W. Jackson. (1980). *Op cit.* Pp. 50-51. Lindbergh was hired by Trippe in 1927 as a technical advisor.
[16] For information on Wiley Post see; Wiley Post & Harold Gatty. Around the World in Eight Days: the flight of the Winnie Mae. (1989. Orion Books. London).
[17] Anne Morrow Lindbergh. North to the Orient. (1935. Harcourt, Brace & Co. New York).
[18] Althea Lister. *Aviation Pioneer*, in Polar Notes. Occasional Publications of the Stefansson Collection. November 1962. No. 4. p. 19.

most viable.[19] Stefansson first came to the attention of Pan Am in 1929 when he published an article entitled '*Flight in the Arctic Regions*' in the journal 'Mechanical Engineering'.[20] Stefansson argued that the most practical route across the Pacific was at its most northerly and narrowest point - across the 75 miles of the Bering Straits from Nome, Alaska to Anadyr in the Soviet Union.[21] The following diagram (Fig. 7.2.2), is taken from his 1929 article and shows his preferred transpacific route, which is strikingly similar to that flown by Lindbergh two years later (see Fig.7.2.1).

Fig. 7.2.2. Stefansson's "Three Advantageous Arctic Flying Routes"[22]

In his 1932 study for Pan Am entitled 'Intercontinental Trans-Bering Airways' Stefansson continued his belief in the feasibility of such a route. He identified three possible "American-Asiatic air mail" routes for consideration.[23] The first would run "from San Francisco, Seattle or Vancouver to the Hawaii Islands, Japan, and thus to Asia", however Stefansson dismissed it believing that "this route is suitable only for

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[19] Vilhjamur Stefansson. Inter-continental Trans-Bering Airways. (18th January 1932). Pan Am Archives. Box. 21/3.
[20] Vilhjamur Stefansson. *Flight in the Arctic Region*, in Mechanical Engineering. 1929. Vol. 51. No. 11. Pp. 806-812. The presence of a copy of this article in Pan Am's records proves the company's knowledge of Stefansson at this time.
[21] Vilhjamur Stefansson. (1929). *Ibid.* p. 809.
[22] Vilhjamur Stefansson. (1929). *Ibid.* p. 809.
[23] Vilhjamur Stefansson. (18th January 1932). *Op cit.* p. 1.

airships because of the long jumps, as from the American continent to the Hawaiis."[24] His second possible route,

> "would gather American mails and passengers at some such point as Seattle or Vancouver and at corresponding Asiatic concentration points, as Tokio [sic] or Vladivostok. Sea planes would be used and the flights would follow the Japanese islands and the Asiatic coast till they departed for the Aleutian Islands, then following that chain to the south coast of Alaska and the west coast of British Columbia."[25]

Stefansson rejected this route because of the mountainous geographies of the British Columbia region, and the poor climatic conditions that could be expected along the Aleutian chain. His final route favoured a

> "concentration of Soviet mails and passengers at some such point as Anadir [sic], with the Japanese and Chinese gathering points farther south. The corresponding American depot might be at Fort Resolution on Great Slave Lake."[26]

Stefansson argued that this third route was the most promising as it offered "a great saving of distance" because of the geographical concentration of the stop-over points, and it avoided the need to cross the "western American mountain ranges" which aircraft of the early 1930's would not be guaranteed to do safely.[27] Climatically, this route was also "notably less foggy and less often within the dangerous temperature range" and perhaps most importantly the third route offered the greatest "number of safe emergency landing places."[28]

Thus, Stefansson presented these findings to Pan Am, arguing that the "Bering Straits ha[d] been crossed by airplanes at least fifty times without a single accident" thus proving the viability of such a route.[29] However, even as Stefansson was preparing his report, Trippe was already reconsidering the Northern Route, and was becoming increasingly interested in the possibilities of developing a Central Pacific Route. Stefansson remained a consultant to the company until the end of the Second World War, and maintained his belief in the viability of trans-Arctic aviation.[30]

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[24] Vilhjamur Stefansson. (18th January 1932). *Ibid.* p. 1. For more comment on this route see section 7.3.
[25] Vilhjamur Stefansson. (18th January 1932). *Ibid.* p. 1.
[26] Vilhjamur Stefansson. (18th January 1932). *Ibid.* p. 1.
[27] Vilhjamur Stefansson. (18th January 1932). *Ibid.* p. 1.
[28] Vilhjamur Stefansson. (18th January 1932). *Ibid.* p. 1.
[29] Vilhjamur Stefansson. (18th January 1932). *Ibid.* p. 3.
[30] Althea Lister. (1962). *Op cit.* p. 19.

Indeed, in 1943 the Auckland Weekly News published an article discussing Stefansson's plans to develop aviation supply routes across the Arctic. It stated that,

> "Stefansson visualises the Polar seas as a "Mediterranean" around which are grouped Europe, Asia, North American. This is our sea. Here, British, Soviet, Canadian and American navies and air forces are dominant...Why run around the rim of the world, he asks, when we can go over the top."[31]

Whilst Stefansson had not lost faith in the viability of the Northern Route, Pan Am had, and in the same year that Stefansson delivered his report to Pan Am, Trippe decided to reject the Northern Route, and opted instead to develop a route across the Central Pacific.

7.2.3 Conclusions

There were several reasons why the Northern Route was abandoned. Whilst its main advantage was its short over-water section, this was outweighed by several disadvantages that stemmed from its geographical positioning. Its northerly latitude resulted in climatic conditions (like icing) that were far from suitable for the operation of aircraft of the period.[32] A second problem was finding suitable landing facilities, especially during the winter months. Indeed, Lindbergh himself had suffered from this problem on his survey flight.[33] The final problem was pure geopolitics in action.

The Northern Route, as flown by Lindbergh, required a stopover at Petropavlovsk in the Soviet Union. However, the Soviets were unwilling to grant landing rights to Pan Am. Trippe even attempted to alter the route, to avoid the USSR, by opening a dialogue with the Japan Air Transport Company in 1933. However, once again Pan Am was thwarted by a foreign government when the Japanese Air Ministry "denied access to Japanese soil and waters."[34] The non-compliance of these two countries put a definite stop to Pan Am's Northern Route plans, because whilst advances in aviation technologies would eventually remove the problem of icing, the political stances of Japan and the USSR seemed unlikely to alter.

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[31] Anonymous. Across World's Roof: Stefansson's Plan for New Supply Routes. Auckland Weekly News. (27th January 1943). *Op cit.*

[32] For more information on icing see, http://www.usatoday.com/weather/wlzicegf.htm Accessed 1st September 2004.

[33] See, Anne Morrow Lindbergh. (1935). *Op cit. Passim.*

[34] Marylin Bender & Selig Altschul. (1982). *Op cit.* p. 226.

Whilst the Northern Route ultimately proved unfeasible it remains important because it shows how closely aviation and geopolitics were connected. Even though Pan Am could see the potential of such a route to link the major East Coast cities with Asia, the attitude of the Soviet Union acted to halt any further planning. Thus, Pan Am were forced to concede failure and instead refocused their efforts upon finding a more feasible transpacific route. Perhaps most importantly, from a geopolitical perspective, they sought one constructed solely on US territory. The following section detail the second Pacific route attempted by Pan Am.

7.3 The Central Route

In Stefansson's 1932 Northern Route feasibility study he had also commented upon the possibilities of developing a transpacific route that ran "from San Francisco, Seattle or Vancouver to the Hawaiian Islands, Japan and thus to Asia."[35] Whilst he argued that in 1932 such a route was unachievable because of limitations in aircraft technologies (specifically those relating to the range of contemporary aircraft) Juan Trippe thought that a Central Route, via Hawaii and Guam to the Philippines, could be feasible. This section will discuss the development of this Central Route, analysing the role of both aviation and geopolitics in its evolution.

Planning for a Central Route can be traced back as early as 1931, when Pan Am put out to tender a request for flying boats with a greater range than the distance from San Francisco to Hawaii (2400 miles), the longest stretch on any Central Pacific crossing.[36] However, it was not until 1935 that plans for such a route began to take shape. The success of a Central Pacific route was dependent on two major factors – one geopolitical, the other technological. The first concerned finding way-stations along the route where Pan Am could build air facilities. The second concerned purchasing aircraft that met the range and load capabilities required to make the route viable. The following sub-section will analyse the first of these, whilst section 7.5 will assess the aircraft component.

[35] Vilhjamur Stefansson. (18th January 1932). *Op cit.* p. 1.
[36] For more information on this, see section 7.5.

7.3.1 Island Sovereignty

After the problems with the Soviet Union and Japan on the Northern Route, one of the key considerations in developing a Central Route was the sovereignty of the islands that Pan Am desired as stopover sites. Fortunately, the US had definite dominion over the Hawaiian Islands in the Eastern Pacific and Guam and the Philippines in the Western Pacific, thus making them obvious locations for Pan Am.[37] All that remained was for Pan Am to ascertain the sovereignty of the islands of Midway and Wake, which it hoped to use as the remaining way-stations. Fortunately, the US Hydrographical Office were able to advise Pan Am that "Midway Island was unquestionable US territory and [it was] satisfied that the United States had the first territorial claims to Wake."[38] As Marylin Bender and Selig Altschul note in their book on Pan Am,

> "The trail across the mid-Pacific from San Francisco to the Orient had...a sprinkling of islands under US jurisdiction where aircraft could pause for servicing. There were the naval outposts at Pearl Harbor, Guam and the Philippines and two groupings of pin specks in between. Midway, 1,380 miles northwest of Honolulu, was a coral atoll on which and American flag had been planted by a Navy ship on 1867, and subsequently ignored until a cable company set up a small operating station in 1903. Wake, 1,260 miles farther west, was a barren cluster of three uninhabited islets Trippe spotted while poring over the Hydrographic maps in his office."[39]

Thus, Pan Am was able to pencil in a route across the Central Pacific (shown in Fig.7.3.1).

It can be argued that Pan Am's technical and aviation requirements highlighted the need to secure definite sovereignty over geostrategically important islands (such as Wake) that had been all but forgotten by the US military. One of the key arguments espoused in this chapter is that a link existed between the US Government and Pan Am with regard to incorporating certain Pacific islands as US territory through their use as stopover points for transpacific routes. I argue that the development of Pan

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[37] The US had gained the Philippines and Guam as part of its victory spoils in the Spanish-American War of 1898. In the same year the Hawaiian Islands had been ceded to the US by its native rulers.

[38] Anonymous. Pan Am's Pioneering Accomplishments in the Pacific. (no date). Pan Am Archives. Box. 61/12. p. 20. Most of the US's territorial claims to Pacific islands had their origins either in the US Whaling industry or guano trade. Some islands were claimed by the US during the epic 1838-1842 South Seas Exploring Expedition. For more information on this see, Nathanial Philbrick. (2004). *Op cit. Passim.*

[39] Marylin Bender & Selig Altschul. (1982). *Op cit.* p. 230.

Am's transpacific routes was, at least in part, aided by a US administration which, whilst tied by the edicts of the 1922 Washington Naval Treaty (see Chapter 4), desired to territorialise the Pacific through an aviation-based technogeopolitical project.

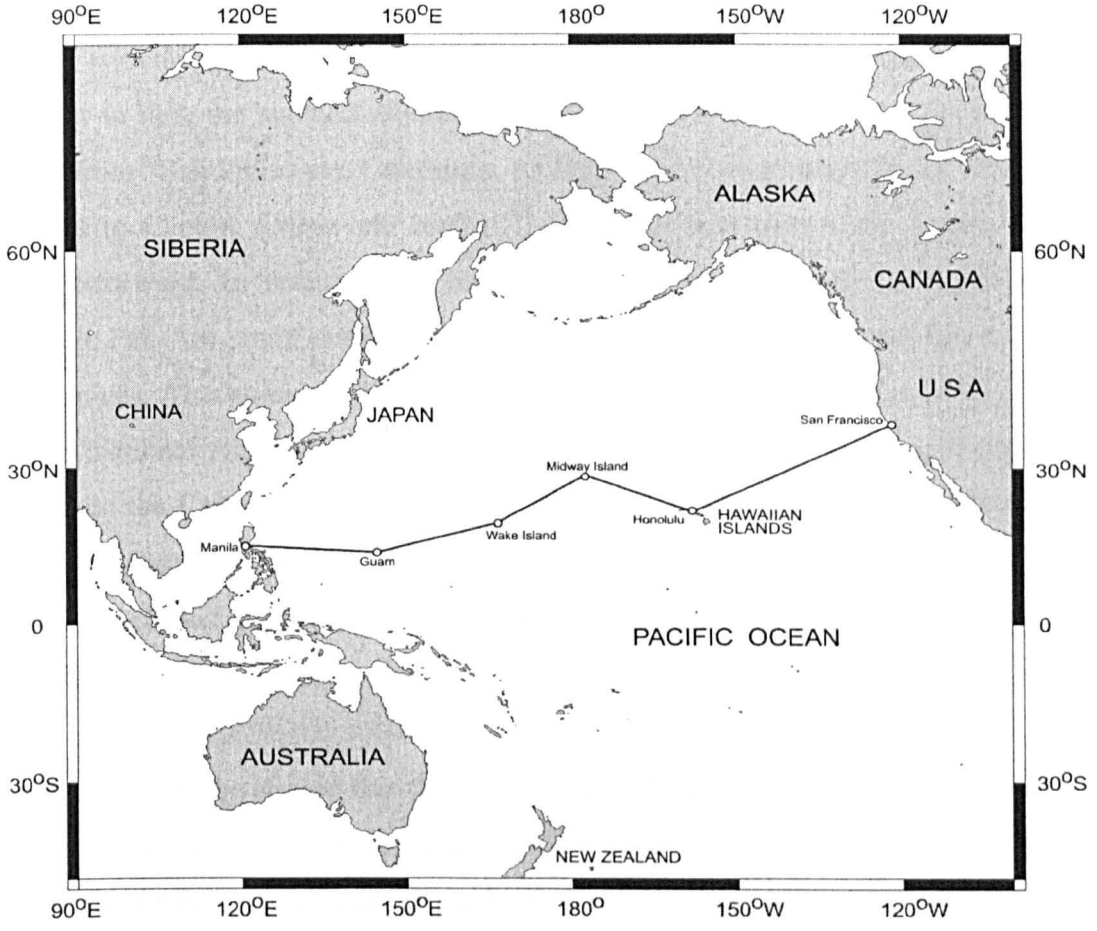

Fig. 7.3.1. Pan Am's Central Pacific route[40]

7.3.2 The Air Mail Imperative

One of the most important of these links concerns the US Post Office (USPO) and Pan Am. As noted in section 7.1, Pan Am's South American routes were based on holding USPO Foreign Airmail Contracts (FAM) and the financial security they provided.[41] Similarly, the USPO was involved in the development of the Central Pacific route. On 10th October 1934 Trippe approached the Postmaster General with regard to the possibility of the USPO tendering for a transpacific foreign airmail

[40] John Garner. Map of Pan Am's Central Pacific Route. (2005. Geography Department. University of Hull).

[41] See Chapter 4 for information on the 1928 Foreign Air Mail Act that set up the FAM scheme.

contract.[42] Ten months later, the USPO agreed to Trippe's suggestion and put the transpacific airmail contract (known as FAM 14) out to tender.

> "Sealed proposals will be received at the Office of the Second Assistant Postmaster General in Washington D.C., until 12pm, October 21, 1935, for carrying the mails herein specified by aircraft during a term of ten years beginning at a date optional with the contractor but no later that one year for the date of the award of contact."[43]

Further to this, the contract stipulated that the service must follow a predetermined route from "San Francisco, California, by Honolulu, Hawaii and Manila, Philippines Islands to Canton, China and return."[44] Whilst at first glance this contract seems straightforward, in reality, only one airline had the ability to undertake such a service. Pan Am could not have planned this any better had they written the tender themselves. The company had extant landing rights in China, due to its share in China National Air Corporation that it had gained in 1933, thus giving it immediate access to the Canton terminus.[45] Further to this Trippe had, in October 1934 written to the Secretary of the US Navy, Claude Swanson, to seek authorisation to use the Navy's facilities at Alameda (a USN seaplane base in San Francisco) and at Pearl Harbor.[46]

Indeed, it could be argued that the route stipulated by the USPO fitted just a little too neatly in to Pan Am's existing transpacific plans, and the USPO and Navy were all too aware of Pan Am's desire to establish the first transpacific commercial air route. It seems too much of a coincidence that this airmail route mirrored Pan Am's survey flights (discussed below) and was put out to tender at exactly the same time as Pan Am took delivery of the aircraft with which it would inaugurate its proposed route. A final detail, that serves to reinforce the probability of a direct link between the US Government and Pan Am with regard to the development of the transpacific service, is the composition of the committee tasked with assessing the FAM 14 bids. In the advertisement for FAM 14 this composition is noted.

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[42] Juan Trippe. Letter to James Farley, Postmaster General. (10th October 1934). Pan Am Archives. Box. 192/15.
[43] Post Office Department. Advertisement for Foreign Airmail Service. (13th August 1935). Pan Am Archives. Box. 15/2. p. 1.
[44] Post Office Department. (13th August 1935). *Ibid.* p. 1.
[45] Pan American Airways. Annual Report. (1933). p. 6. Pan Am Archives. Box. 50/11.
[46] Juan Trippe. Letter to Claude Swanson, SecNav. (3rd October 1934). Pan Am Archives. Box. 192/15.

> "a Committee composed of the Secretary of State, the Secretary of War, the Attorney General, the Postmaster General, the Secretary of the Navy and the Secretary of Commerce will be formed which will examine all bids received under this advertisement."[47]

The presence of both the Secretaries of War (Army) and Navy on a committee tasked with determining the winning tender for a civilian commercial airmail route suggests at least a degree of geopolitical interest in its outcome. Their presence lends credence to the argument that FAM 14 was a cover used to circumvent the restrictions of the Washington Naval Treaty (given declining diplomatic relations with Japan), and was also part of a wider technogeopolitical project to use aviation to materialise the Pacific as US space. The use of the phase 'chosen instrument' – as in the title of Bender & Altschul's book – as a way of describing Pan Am's relationship with the US Government seems to be borne out by this foreign air mail contract. On 21st October 1935 Pan Am was awarded the FAM 14 contract. It was the only company to have submitted a bid. Indeed, Pan Am did not wait until the contract was theirs before planning the Central Pacific route. The following sub-section will detail the preparations that Pan Am undertook during 1935, and will include further examples of the technogeopolitical links that I argue existed between Pan Am and the US Government.

7.3.3 Preparing the route

Once Pan Am had settled on a viable route across the Central Pacific, from San Francisco, through Honolulu, Midway, Wake, Guam, and Manila to Canton, the company needed to develop the infrastructure necessary to ensure its practicality. This included gaining landing rights, and constructing facilities for aircraft and passengers at each way-station. These issues will be detailed in this sub-section, and section 7.5 will discuss the aircraft that were developed to fly the route.

Trippe had first approached the US Government requesting authority to use Midway and Wake in his October 1934 letter to Claude Swanson.[48] However, it was not until the 12th March 1935 that Pan Am was finally issued with three revocable permits by the Navy Department to use "a portion of Sand Island of the Midway Islands Naval

[47] Post Office Department. (13th August 1935). *Op cit.* p. 1.
[48] Juan Trippe. (3rd October 1934). *Op cit.*

Reservation", "a portion of Wake Island Naval Reservation", and "the area and naval facilities of the US Aviation Station, Sumay, Guam."[49] The acquisition of these permits allowed Pan Am to begin its aerial surveys, and perhaps more importantly in terms of territorialising the Pacific, to begin building the ground facilities at Midway and Wake necessary to operate a transpacific air service. Whilst Midway had a handful of inhabitants working at the cable relay station, Wake was completely uninhabited and thus the construction of Pan Am's facilities would indelibly mark Wake as a US possession.

Less than two weeks after Pan Am received its permits the SS *North Haven*, a freighter leased by Pan Am, left San Francisco laden with construction materiel bound for Pan Am's mid-Pacific way-stations.[50] The speed with which this ship embarked upon this voyage indicates that Pan Am was sure of its position regarding the granting of its permits – again hinting at the close links between the company and the US Government, because it would have taken far longer than two weeks to procure the tons of equipment required for the voyage.

These links are further evidenced by the presence aboard the *North Haven* of two US Navy officers. Just three days after the issuing of Pan Am's permits to use Midway, Wake, and Guam, Rear Admiral King, the Chief of the US Navy's Bureau of Aeronautics, wrote to Trippe.

> "it is noted that your company proposes to send the SS North Haven with construction units to Honolulu, Midway, Wake, Guam, and the Philippines in the near future. I am writing to ask if it would be feasible for two naval officers, one an aviator and one a civil engineer, to accompany this expedition in the capacity of observers."[51]

The inclusion of an aviator and engineer indicates that their purpose aboard the *North Haven* was to investigate the potential military aviation uses of the islands along Pan Am's transpacific route. Another letter, received by Trippe from W. H. Standley of the Office of the Chief of Naval Operations gives further credence to the argument

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[49] Claude Swanson, SecNav. Revocable Permit for Wake Island. (12th March 1935). Pan Am Archives. Box. 21/6. Claude Swanson, SecNav. Revocable Permit for Sand Island. (12th March 1935). Pan Am Archives. Box. 21/6. Claude Swanson, SecNav. Revocable Permit for Sumay, Guam. (12th March 1935). Pan Am Archives. Box. 21/6.

[50] John Borger. The Pacific Bases. http://www.panam.org Accessed 6th October 2000.

[51] Rear Admiral King. Letter to Juan Trippe. (15th March 1935). Pan Am Archives. Box. 21/7.

that Pan Am's route had geopolitical undertones.[52] After thanking Trippe for agreeing to allow the two aforementioned officers to travel aboard the *North Haven*, Standley requests that,

> "In view of the fact that arrangements made by the Navy Department with the officers concerned have been handled without publicity it is earnestly requested that every practicable effort be made to avoid publicity of their participation in your enterprise."[53]

This letter, perhaps above all other evidence, shows the geopolitical importance of Pan Am's route. The need to keep the presence of these officers secret shows that the US Navy did not want anyone to know that they were using Pan Am's route to gather information and develop plans for the potential future establishment of military airfields on these islands. This link is clear evidence of the recursive relationship that existed between aviation and geopolitics with regard to the materialisation of the US presence in the Central Pacific.

The *North Haven* set sail for the mid-Pacific on 27th March 1935 with "two complete villages, five air-bases, a quarter million gallons of fuel...fuel to feed [the workers] for months, and 1,018,897 other items of equipment and material."[54] Once their facilities had been constructed on each of the islands (see Appendix D for Pan Am's blueprints for construction at Midway, Wake, and Guam) Pan Am could begin the most important part of its preparations, the survey flights. These flights not only tested the aircraft chosen by the company (see section 7.5), but more importantly, began the process of territorialising the Pacific because each flight contributed to a growing knowledge of the route and to an increased US presence across these Pacific spaces. The following table (Fig. 7.3.2) shows the various Central Route survey flights undertaken during 1935.

Once these flights had proved the feasibility of the route all that remained was for Pan Am to finalise its plans and set a date to start the service. It had an airmail contract that ensured an income for the route, it had constructed facilities at each of

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[52] W. H. Standley. (Office of the CNO). Letter to Juan Trippe. (29th March 1935). Pan Am Archives. Box. 21/7.
[53] W. H. Standley. (Office of the CNO). (29th March 1935). *Ibid.*
[54] Daniel Sayre. Pacific Bridgement (Pan American Airways Supplement No. 1). (1935). Pan Am Archives. Box. 249/10. p. 1.

the islands way-stations, and had bought flying boats capable of flying the route (see section 7.5). Thus on 22nd November 1935 the first transpacific air route was inaugurated.[55]

Take off point	Landing point	Distance (miles)	Time taken
Alameda	*Pearl Harbor*	*2393*	*18hrs 9 mins*
Pearl Harbor	*Alameda*	*2393*	*20 hrs 59 mins*
Alameda	Pearl Harbor	2393	18 hrs 0 mins
Pearl Harbor	Midway	1320	9 hrs 13 mins
Midway	Pearl Harbor	1320	10 hrs 6 mins
Pearl Harbor	Alameda	2393	18 hrs 40 mins
Alameda	*Pearl Harbor*	*2393*	*17 hrs 12 mins*
Pearl Harbor	*Midway*	*1320*	*8 hrs 50 mins*
Midway	*Wake*	*1208*	*8 hrs 9 mins*
Wake	*Midway*	*1208*	*8 hrs 44 mins*
Midway	*Pearl Harbor*	*1320*	*10 hrs 7 mins*
Pearl Harbor	*Alameda*	*2393*	*17 hrs 25 mins*
Alameda	Pearl Harbor	2393	17 hrs 22 mins
Pearl Harbor	Midway	1320	9 hrs 13 mins
Midway	Wake	1208	9 hrs 37 mins
Wake	Guam	1510	10 hrs 27 mins
Guam	Wake	1510	12 hrs 4 mins
Wake	Midway	1208	9 hrs 49 mins
Midway	Pearl Harbor	1320	9 hrs 49 mins
Pearl Harbor	Alameda	2393	17 hrs 42 mins

Fig. 7.3.2. Pan Am's 1935 survey flights[56]

This sub-section has sought to show the links between the US Government and Pan Am with regard to the identification and construction of island air facilities across the Pacific, and their importance as a tool with which to circumvent the WNT. The following sub-section will analyse the importance of Pan Am's inaugural Central Route flight, and its successors, in terms of the technogeopolitical materialisation of the Pacific as US space.

[55] Robert L. Gandt. (1991). *Op cit.* p. 100. Pan American Airways, Inc. History of the Transpacific Air Services to and through Hawaii. (12th August 1944). Pan Am Archives. Box. 369/4. p. 22.

[56] Anonymous. Transpacific Survey Flight 1935. No's 1-4. Pan Am Archives. Box. 249/7. Distances have been calculated using http://jan.ucc.nau.edu/~cvm/latlongdist.html and Philip's Atlas of the World. (1996) and are thus not necessarily the actual distances flown by these surveys. Rather they show the straight-line distances between each Take Off and Landing point.

7.3.4 Flying the Central Route

On the 22nd November 1935 twenty-five thousand people lined the "Alameda seaplane base in San Francisco Bay" to see Pan Am's Martin M-130 flying boat (known as the China Clipper) take off on the first flight of Pan Am's transpacific airmail service, to Honolulu, Midway, Wake, Guam, and the Philippines.[57] In 1935, the population of San Francisco was approximately 1,500,000, which means that approximately 1 in every 60 San Franciscans witnessed the China Clipper take-off.[58] Figure 7.3.3. shows a cartoon entitled 'The Bridge' that was published in the Los Angeles Times on the day of the first flight, and shows how the geopolitical importance of this flight was perceived in the popular press.

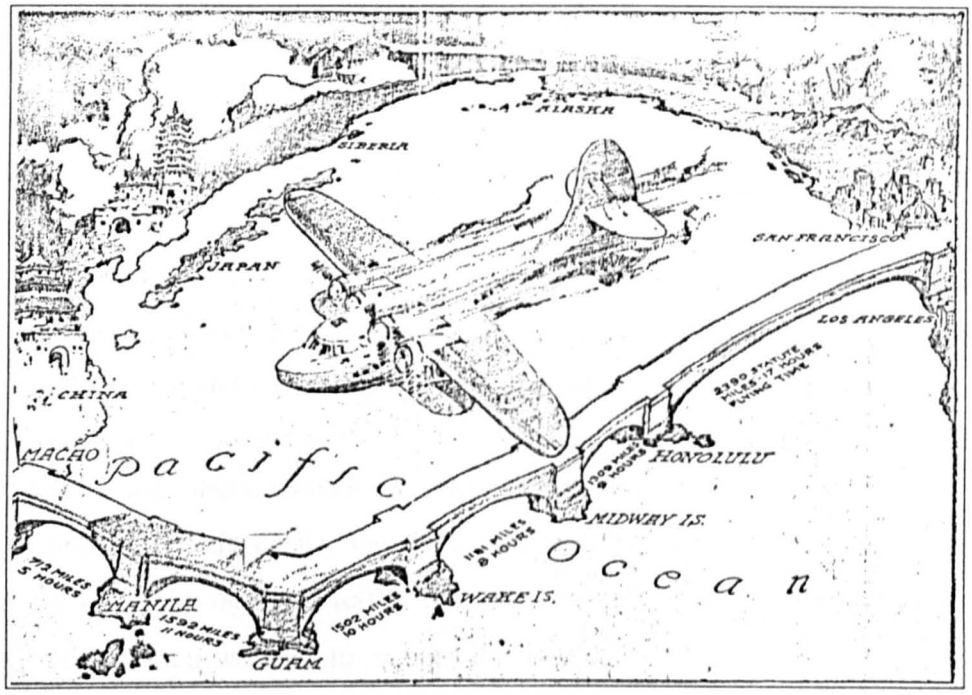

Fig. 7.3.3. 'The Bridge'[59]

During the following six years, the newspapers kept up popular interest in the Central Route and its importance in terms of territorialising the Pacific as US space. For example, in the 16th August 1940 edition of the London Evening Standard carried the following headline; "New Clipper Ocean Route is vital US defense

[57] Robert L. Gandt. (1991). *Op cit.* p. 100.
[58] Population data from http://www.abag.ca.gov/bayarea/sfep/reports/soe/fig10.htm Accessed 6th September 2004.
[59] Los Angeles Times. The Bridge. (22nd November 1935). Pan Am Archives. Box. 249/9.

link."[60] This story referred to the development of Pan Am's second transpacific route, which will be discussed in the following section.

7.4 The Southern Route

This section will seek to analyse the second of Pan Am's transpacific routes. Even before the Central Route had been inaugurated Pan Am had begun planning a route south to the Antipodes.[61] As early as 1932 the company had undertaken "preliminary studies of trade and transport conditions in Australasia" to identify the potentiality of such a route.[62] These studies were given renewed impetus in 1933 when the British carrier Imperial Airways announced its aim to expand its flying boat operations in the South Pacific region.[63] This would undoubtedly have increased US fears that Imperial Airways wanted to develop an 'all red route' which would cross the Pacific – from the British dominion of Australia to the British dominion of Canada – effectively strengthening British influence across the Pacific through the power projection capabilities of the Imperial Airways' flying boats.[64] As Bender and Altshul detail,

> "Fulfilling the Empire Air Mail Scheme, Imperial Airways reached Australia through the Middle East, Burma and Malaya. East of Singapore, Imperial operated in partnership with Quantas Airways, the pride of Australia. From Brisbane, the empire route was to continue across the Pacific to Vancouver, link up with a Canadian air service and connect with the ephemeral Atlantic service."[65]

If, as is argued in this thesis, Pan Am was working with the US Government to ensure US control over the Pacific, then the possibility of this British route could have raised sufficient worries to prompt Pan Am to develop a Southern Route of its own to counteract Imperial's. Further weight is added to this argument with the revelation that Pan Am began covertly surveying such a route in 1935.[66]

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[60] London Evening Standard. (16th August 1940). Pan Am Archives. Box. 67/1.
[61] Marylin Bender and Selig Altschul. (1982). *Op cit.* Pp. 267-268.
[62] Pan American Airways, Inc. (12th August 1944). *Op cit.* p. 23.
[63] Pan American Airways, Inc. (12th August 1944). *Ibid.* p. 23. For more information on Imperial Airways see, Phillip E. Sims. Adventurous Empires: the story of the Short Empire flying-boats. (2000. Airlife Publishing Ltd. Shrewsbury).
[64] This was known as an 'all red route' because of the custom of colouring British Empire territories red on maps. For information on Imperial Airway's flying boats see, Phillip E. Sims. (2000). *Op cit.*
[65] Marylin Bender and Selig Altschul. (1982). *Op cit.* p. 270.
[66] Jon E. Krupnick. Pan American's Pacific Pioneers: the rest of the story. (2000. Pictorial Histories Publishing Co. Montana). p. 522.

7.4.1 Surveying the route

Under the guise of the Oceanic Nitrate Company (a business owned by Trippe and used as a front to obscure the real purpose of the trip), Pan Am charted the schooner *Kinkajou* and undertook two trips to the Line Islands (see Chapter 4) of "Howland, Baker and Jarvis" returning home via "Christmas Island to also explore it as a potential air base."[67] Almost as soon as they began surveying for the Southern Route Pan Am encountered the same problem of establishing sovereignty that they had dealt with on the Central Route. However whereas the islands for the Central Route had all been proven to be US territories the Southern Route was a different matter. Christmas Island was the first problem. The existence of a British coconut plantation effectively gave the British sovereignty.[68] Thus, Pan Am returned to the policy that had served them so well on the Central Route and sent the *Kinkajou* on a second survey trip calling only at islands known to be US possessions.[69] The voyage sailed from Honolulu on 4th November 1935 on a circular tour of the south Pacific calling at Kingman Reef, Palmyra Island, Howland Island, Baker Island, Jarvis Island, and American Samoa (see Figure. 4.4.1).[70] Aboard the Kinkajou was Harold Gatty, one of Trippe's most trusted employees, who reported that,

> "Howland, Baker and Jarvis did not have lagoons and therefore could not be used for seaplanes. Furthermore Palmyra needed too much work to be quickly readied as a seaplane base. However, if a base ship were anchored in the lagoon, Kingman Reef might serve as the first overnight stop on the flights."[71]

Pan Am also decided to terminate its proposed Southern Route in New Zealand rather than Australia. New Zealand also feared the 'all red route' because, in bypassing New Zealand for Australia, it would diminish New Zealand's status. Thus, the Prime Minister of New Zealand determined to allow Pan Am landing rights in order to offset the possibility of an Imperial Airways monopoly.[72] Thus by the end of 1935, Pan Am had its two Southern Route termini and the first of its way-stations in

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[67] Jon E. Krupnick. (2000). *Ibid.* p. 523. See Chapter 4 for more information on the Line Islands. It is interesting that Pan Am surveyed these islands just months before Miller's survey trip took place. This is surely indicative of the geostrategic importance of these islands to the US.
[68] Jon E. Krupnick. (2000). *Ibid.* p. 523.
[69] Jon E. Krupnick. (2000). *Ibid.* p. 523.
[70] Jon E. Krupnick. (2000). *Ibid.* p. 523.
[71] Jon E. Krupnick. (2000). *Ibid.* p. 524.
[72] St. Petersburg Independent. US-New Zealand air service is arranged. (30th October 1935). Pan Am Archives. Box. 369/3.

place. For its second stop-over point Pan Am chose Pago Pago in American Samoa. It had many of the same advantages that had drawn the company to Guam, an existing US naval facility which Pan Am could use, and the security of knowing it was definitely US territory. For a variety of reasons, mostly concerned with concentrating on the establishment of the Central Route, Pan Am neglected the Southern Route until 1937 when they took delivery of a new aircraft with the necessary range to begin survey flights. The table (Fig. 7.4.1) below lists these flights.

Date	Take off point	Landing site	Distance (miles)	Time taken
17th March	Alameda	Pearl Harbor	2392	18 hrs 4 mins
23rd March	Pearl Harbor	Kingman Reef	1108	7 hrs 55 mins
24th March	Kingman Reef	Pago Pago	1513	No data given
29th March	Pago Pago	Auckland	1801	9 hrs 57 mins
3rd April	Auckland	Pago Pago	1801	No data given
8th April	Pago Pago	Kingman Reef	1513	No data given
9th April	Kingman Reef	Pearl Harbor	1108	7 hrs 40 mins
23rd December	Pearl Harbor	Kingman Reef	1108	No data given
24th December	Kingman Reef	Pago Pago	1513	No data given
25th December	Pago Pago	Auckland	1801	No data given
1st January	Auckland	Pago Pago	1801	No data given
2nd January	Pago Pago	Kingman Reef	1513	No data given
3rd January	Kingman Reef	Pearl Harbor	1108	No data given

Fig. 7.4.1. Pan Am's 1937 survey flights[73]

Whilst these flights proved the viability of this route, an accident on the third survey flight grounded the Southern Route for almost a year.[74] During this time, Pan Am re-evaluated its proposed route and eventually decided to use Canton Island rather than Kingman Reef, thus also removing Pago Pago from the route. Ostensibly this was for practicable reasons, but it is arguable that geopolitics again played a role. The sovereignty of Canton Island was questionable with both the US and UK claiming the territory. The desire of Pan Am to use this island as a way station added pressure to the US claim, and discussions were undertaken by the US Government with the

[73] Anonymous. Transpacific Survey Flight 1937. Pan Am Archives. Box. 316/7.
[74] For more information on this accident see, Robert L. Gandt. (1991). *Op cit.* Pp. 112-118.

UK regarding this, which culminated with an agreement of joint sovereignty being reached on 31st March 1938.[75] The granting of a license to use Canton Island was significant, both to Pan Am's Southern Route plans and also to the US's continuing territorialisation of the Pacific because the US had successfully expanded its sovereignty to an island previously claimed by another country. This ability to use Canton Island allowed Pan Am to finalise its second transpacific route. On 22nd December 1938 "a concession was obtained for the establishment of an operating base at Noumea [New Caledonia]" and Pan Am had all the geographical pieces in place to inaugurate its Southern Pacific Route.

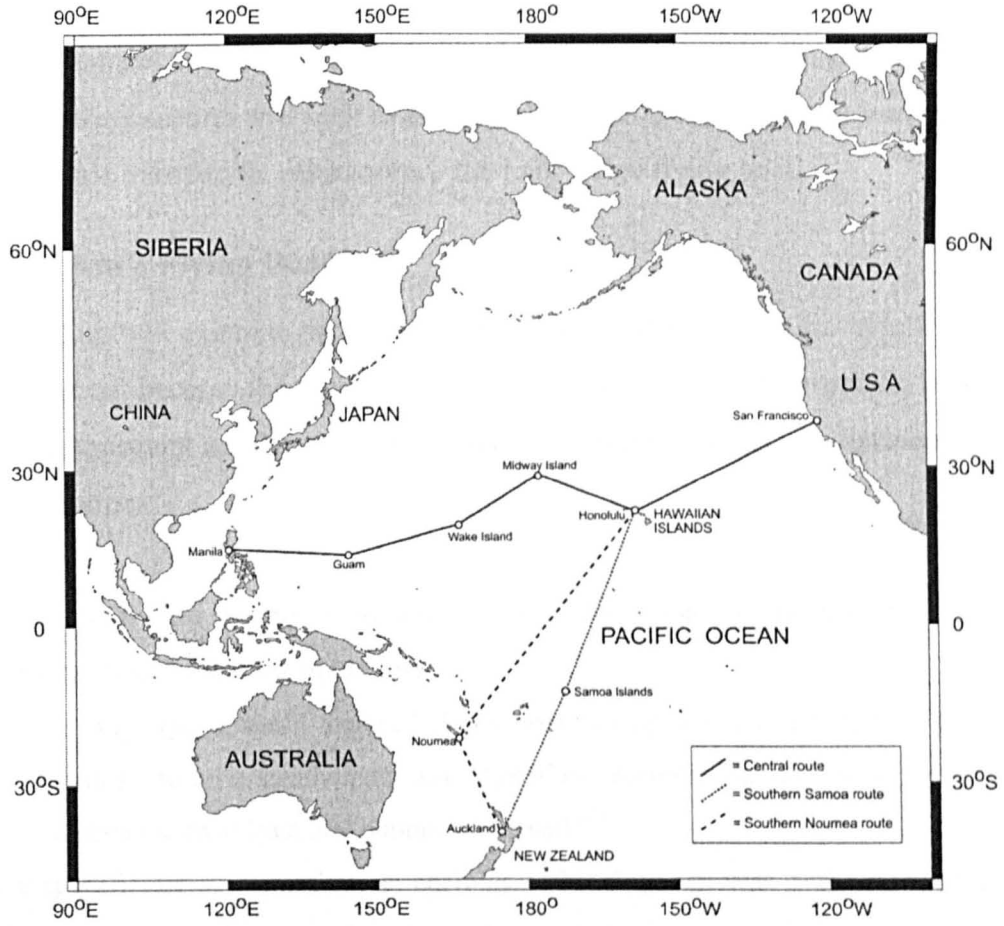

Fig. 7.4.2. Pan Am's Central and Southern routes[76]

All it needed now were the aircraft to fly it (see section 7.5 for information on this).[77] Eventually the first Pan Am flight from San Francisco to Auckland, via Honolulu,

[75] Pan American Airways, Inc. (12th August 1944). *Op cit.* p. 28.
[76] John Garner. Map showing Pan Am's Central and Southern transpacific routes. (2005. Geography Department. University of Hull).
[77] Pan American Airways, Inc. (12th August 1944). *Ibid.* p. 28.

Canton Island, and Noumea left on 12th July 1940. Fig. 7.4.2., based on one found in Pan Am's 1938 Annual Report, illustrates both of its transpacific routes.

7.4.2 Conclusions

This section has argued that the inauguration of the Southern Route served to negate the threat of Imperial Airways 'all red route' and thus acted to reinforce the US's Pacific technogeopolitical project. By the end of 1940 Pan Am had six flying boats criss-crossing the Pacific from San Francisco to Asia and Australasia, projecting US power, and materialising US perceptions of the Pacific as US space. Thus, it has shown that whilst Pan Am was a commercial company, the links between it and the US Government with regard to the establishment of its Pacific routes are significant. The following section will seek to detail the aviation technology that was at the heart of Pan Am's transpacific aspirations – the long-range flying boat.

7.5 Pan Am's Flying Boats

This section will examine the flying boats that Pan Am used to traverse the Pacific. These aircraft became the most visible public symbols of the transpacific routes, and are thus important another element of the developing relationship between aviation and geopolitics.

In 1931, Pan Am wrote to several of the US's leading aircraft manufacturers requesting them to submit plans for,

> "a high speed, multi-motored flying boat having a cruising range of 2500 miles against 30-mile headwinds, and providing accommodation for a crew of four together with at least 300 pounds of airmail."[78]

These specifications show that, as early as 1931, Pan Am was planning to develop a trans-oceanic route, because these specifications were simply not necessary for any other flying boat routes.[79] The desired range of 2500 miles would allow these aircraft to fly non-stop from San Francisco to Honolulu, which was the longest section of Pan Am's proposed transpacific routes. By the end of the following year, two companies - Martin and Sikorsky – had submitted bids.[80] Pan Am accepted both of

[78] Pan American Airways, Inc. (12th August 1944). *Op cit.* p. 3.
[79] Jon E. Krupnick. (2000). *Op cit.* p. 50.
[80] Pan American Airways, Inc. (12th August 1944). *Op cit.* p. 3.

these and work began to construct the prototypes of the Sikorsky S-42 (Fig. 7.5.1) and the Martin M-130 (Fig.7.5.2).

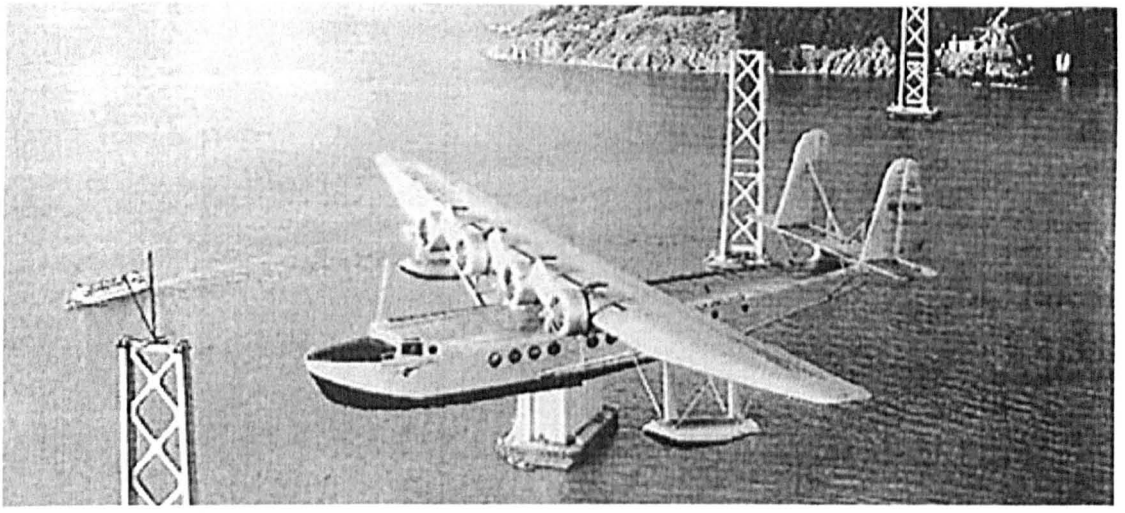

Fig. 7.5.1. A Pan Am Sikorsky S-42 flying over San Francisco Bay [81]

The first S-42 was delivered to Pan Am on 1st August 1934 and immediately began flying on its South American routes.[82] In early 1935 the plane was transferred to the West Coast to undertake several survey flights in preparation for the establishment of the transpacific route (as described in section 7.3). As Krupnick states,

> "Although the Martin M-130 was clearly the aircraft best suited for the Pacific flights [Juan] Trippe was impatient and he could not wait for its completion. Therefore in April of 1935 the first of the Pacific survey flights was flown in the Sikorsky S-42 from San Francisco to Honolulu."[83]

However, the S-42 only had a range of 750 miles and extra fuel tanks had to be added by Pan Am for the survey flights. Whilst successful in this role, the S-42 never fulfilled the requirements set out in Pan Am's 1931 request and only three of the ten S-42's ordered were ever used in the Pacific.[84] The second aircraft ordered in 1932, the Martin M-130, was to prove to be much more successful across the Pacific.

The first M-130 was delivered to Pan Am on 9th October 1935. It was immediately flown to Alameda, California, to replace the S-42 that had been conducting the

[81] http://www.flyingclippers.com/S42.html Accessed 1st September 2004.
[82] Roy Allen. The Pan Am Clipper: the history of Pan American's flying-boats 1931-1946. (2000. David & Charles. London). p. 49.
[83] Jon E. Krupnick. (2000). *Op cit.* p. 52.
[84] For more information on the S-42's survey flights see sections 6.3 and 6.4 of this chapter.

Pacific route surveys, thus showing Pan Am's acknowledgement of the Martin as a superior aircraft for the transpacific route.[85]

Fig. 7.5.2. A Martin M-130[86]

As Krupnick notes,

> "Basically Pan Am wanted an aircraft that had the capacity to carry a payload equal to its weight, for a distance of 3,000 miles, far enough to reach either Hawaii or Europe. In response to these specifications, Glenn Martin Aviation Corporation of Baltimore, Maryland designed and developed the Martin M-130."[87]

Indeed, the Martin's range of 3200 miles made it hugely more practicable for the Pacific.[88] Thus, it was no surprise that it was a Martin M-130 (christened the China Clipper) rather than a Sikorsky S-42 that was given the honour of the inaugural transpacific flight on November 22nd 1935.[89]

Even though the M-130 fulfilled all Pan Am's technical requirements for a transpacific carrier – with a range on 3200 miles and a payload of 44 passengers, Pan Am wanted to develop its transpacific routes further, both in terms of passenger numbers and services flown. This led, in 1936, to Pan Am "entering into a contract on July 21, 1936" with Boeing "for the construction of six huge and totally revolutionary flying boats."[90] This aircraft was the Boeing B-314 (see Fig. 7.5.3).

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[85] Roy Allen. (2000). *Op cit.* p. 57. Jon E. Krupnick. (2000). *Op cit.* p. 63.
[86] http://www.flyingclippers.com/M130.html Accessed 1st September 2004.
[87] Jon E. Krupnick. (2000). *Op cit.* p. 59.
[88] Roy Allen. (2000). *Op cit.* p. 108.
[89] See section 6.3 for more information on this.
[90] Jon E. Krupnick. (2000). *Op cit.* p. 73.

Fig. 7.5.3. A Pan Am Boeing 314 flying out of San Francisco[91]

The first B-314 entered service with Pan Am on 23rd February 1939.[92] The aircraft had a range of 3500 miles and a maximum payload of 74 passengers.[93] This significant increase in payload – and small increase in range – allowed Pan Am to carry almost 50% more passengers on its two transpacific routes.

Figure 7.5.4. summarises the differences in ability of the three aircraft that Pan Am flew on its transpacific routes.

	Aircraft Type		
	S-42	**M-130**	**B-314**
Wing span	114ft	130ft	152ft
Length	69ft	91ft	106ft
Height	17ft	25ft	28ft
Weight	39,000lb	52,250lb	82,500lb
Payload	38 passengers	44 passengers	74 passengers
Crew	5	7	9-10
Cruising Speed	150mph	160mph	150mph
Range	750miles	3200miles	3500miles
Fuel Capacity	1240gals	4000gals	4200gals

Fig. 7.5.4. Aircraft data for Pan Am's Pacific route aircraft[94]

[91] http://www.flyingclippers.com/B314.html Accessed 1st September 2004.
[92] Jon E. Krupnick. (2000). *Op cit.* p. 75.
[93] Roy Allen. (2000). *Op cit.* p. 109.
[94] All information comes from Roy Allen. (2000). *Op cit.* Pp. 108-109.

Of these, range and payload are the most important. From a geopolitical perspective the longer the range of an aircraft the greater its power projection capabilities because of the greater distance it could cover in a single flight. In addition to this, larger passenger numbers allowed a greater materialisation of the Pacific as US space simply because a greater number of people were able to fly across it and experience Pan Am's Americanisation of the Pacific, which will be discussed below. This section has thus sought to explain the central characteristics of the flying boats flown by Pan Am, and why they were significant in the wider context of the US's desire to use aviation to project power across the Pacific.

7.6 Pan Am 'Americanising' the Pacific

One of the most interesting, and visual, facets of Pan Am's transpacific routes are the hotels that were constructed for their passengers on the islands of Wake and Midway. This section will seek to argue that these hotels reinforced perceptions of the Pacific being US space through their use of quintessentially American décor and commodities. These arguments fit into wider themes concerning the materialisation of a specific culture in a place. As Henderson argues in her 2001 article on the Raffles hotel in Singapore, "buildings acquire meanings and associations."[95] In this section, it will be argued that Pan Am's mid-Pacific hotels not only "acquired meanings and associations" of American culture but transposed these associations from the US across the Pacific. An example of this can be seen in these two pictures.

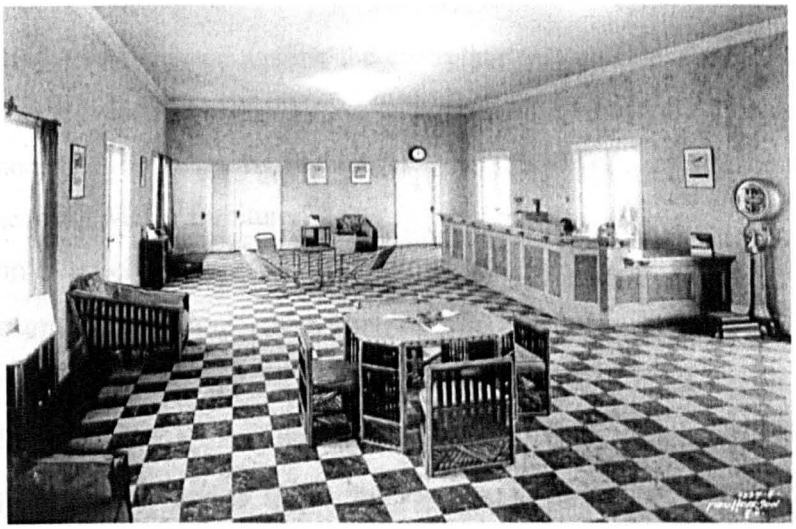

Fig. 7.6.1. Pan Am's Dinner Key Terminal [96]

[95] Joan C. Henderson. *Conserving Colonial Heritage: Raffles Hotel in Singapore*, in International Journal of Heritage Studies. (2001). Vol. 7. No. 1. p. 7.
[96] http://www.panam.org. Accessed 12th August 2004.

The first (Fig 7.6.1) is of the waiting area at the Pan Am terminal at Dinner Key, Miami in 1934. The second photograph (Fig. 7.6.2) is of the lounge at Pan Am's hotel on Wake Island.

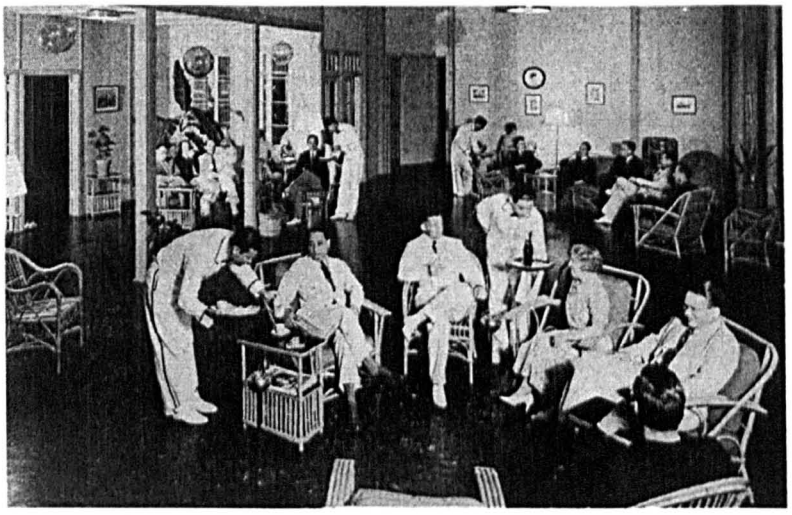

Fig. 7.6.2. Pam Am's hotel at Wake [97]

The similarities between these two photographs are obvious, and serve to show how Pan Am used familiar furniture and decoration to instil in its hotels a sense of a 'Pacific-American' culture, thus imbuing its passengers with a perception of the Pacific as US space. For example, the furniture in the two photos is almost identical, thus creating an impression that the Wake hotel was part of the US rather than a tiny Pacific atoll thousands of miles from it. According to Gandt, the American feel of Pan Am's hotels did not end with the similarities in lounge furniture.[98] He comments that,

> "While the surf crashed against the encircling reef outside, the guests in the hotel were served exotic cuisine by white uniformed Chamorro stewards. There were Simmons beds in the rooms, bathrooms with hot showers, spacious verandas, elegant lounges with wicker furniture."[99]

In Henderson's article, she refers to colonial buildings as being "the stones of empire...monuments of rulers and a way of life."[100] It can be argued that although Wake and Midway had no 'native' inhabitants to impress (unlike the Raffles hotel of which Henderson writes) the construction of Pan Am's hotels were important in materialising the Pacific as US space, because they were neo-colonial "monuments" of US aviation success and Pan Am's ability to transplant the American "way of life"

[97] http://www.panam.org. Accessed 12th August 2004.
[98] Robert L. Gandt. (1991). *Op cit.*
[99] Robert L. Gandt. (1991). *Ibid.* p. 108.
[100] Joan C. Henderson. (2001). *Op cit.* Pp. 10-11.

unchanged, from the mainland to its tiny Pacific way-stations. This can be further seen is the construction of the exteriors of the hotels which Gandt describes as "sprawling, forty-five rooms structures" with "white pillars and a plat of grass on either side of a brick walkway."[101]

An architects drawing of the Midway hotel (Fig. 7.6.3) shows it to be quintessential art-deco, which was the modern style of the period.

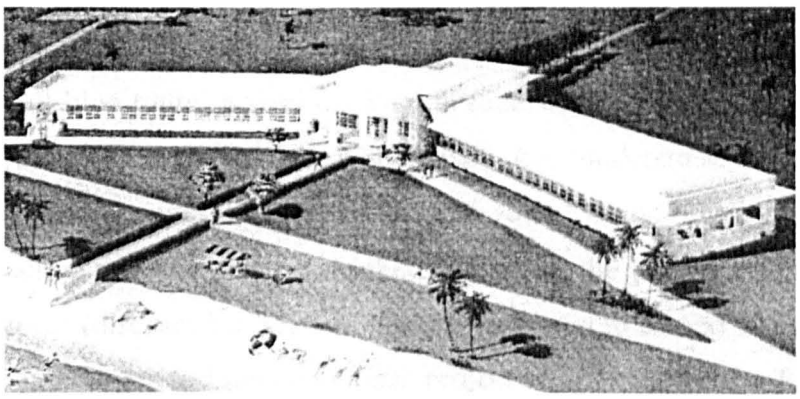

Fig. 7.6.3. Pan Am's Midway hotel [102]

Quite simply this hotel could have been built anywhere in one the US's 'sunbelt' states, again reinforcing the Americanisation of these islands. Even the inclusion of palm trees in the picture does nothing to identify its Pacific island location. Coupled with the intrinsically American interiors, these hotels were arguably slices of the US transposed to the Pacific, emphasising the American presence there and developing popular perceptions of the Pacific as a US realm. This section has sought to analyse the place of Pan Am's Wake and Midway hotels as tools that reinforced US perceptions of the Pacific as US space through their quintessential American-ness. The following section will seek to draw a number of conclusions from this chapter.

7.7 Conclusions

This chapter has analysed the development of Pan Am's transpacific routes, and argued that one of the main aims of these was to materialise an American territorial presence across the Pacific. One of the chapter's key themes is that, given the restrictions of the WNT on US abilities to territorialise the Pacific, a covert linkage existed between Pan Am and the US Government that influenced Pan Am's transpacific routes. The origins of these links were examined and explained in

[101] Robert L. Gandt. (1991). *Op cit.* p. 108.
[102] Pan American Airways. Annual Report. (1935). p. 8. Pan Am Archives. Box. 446.

section 7.1. In sections 7.2-7.4 the development of Pan Am's transpacific routes were detailed, with further comment upon the obvious – and covert – Governmental links.

In section 7.3 the ability of Pan Am to build aviation facilities on the Central Pacific islands of Midway and Wake – which were covered by the WNT and therefore beyond the remit of the US military – clearly shows how Pan Am circumvented the WNT, in a way that the military was unable to do. Issues of sovereignty, again important in projecting US power, were also dealt with in sections 7.3 and 7.4. The need for an 'all blue route' across the Pacific (one which only utilised US claimed territories) showed the extent to which Pan Am understood the geopolitical ramifications of their routes, because an 'all blue route' would highlight the extent of the US's reach across the Pacific. Linked to this is the public awareness of the transpacific route (discussed in section 7.3) which served to extend further Pan Am's role as part of a larger technogeopolitical project to materialise the Pacific as US space. In section 7.6, this role was developed further with a discussion of Pan Am's construction of American-style hotels and amenities at Wake and Midway, again symbolising the US presence in the Pacific. Yet, however much the US Government and Pan Am desired to develop transpacific routes, their feasibility was completely dependent on having aircraft that had a long enough range and large enough payload capacity to make them viable. The development of these aircraft (the S-42, M-130, B-314), and their significance in terms of the argument proposed in this thesis was detailed in section 7.5.

Thus, this chapter has sought to detail and analyse how the development of Pan Am's transpacific routes formed part of a technogeopolitical project undertaken by the US government to territorialise the Pacific as US space. Above all, the key argument presented in the chapter is that these developments were underpinned by a link between the US Government and Pan Am that served to circumvent the restrictions of the WNT and use Pan Am's routes to project US power in both practical and popular geopolitical spheres. The final chapter will draw conclusions from the seven chapters that preceded it, and will formulate a number of final thoughts concerning how the US used aviation during the interwar period as a 'tool'.

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Appendices

Appendix A: Versions and Revisions of WPO

Numerous versions and revisions of WPO were issued during the interwar period. These ranged from documents that set out broad aims to specific naval district documents that set out specific strategies and tactics to be implemented during wartime. The chart lists the main versions of WPO used in Chapter 6. These versions constituted the highest level of WPO planning, being written by the war plans division of the US Navy, and thus deal with the overall aims and objectives of Phases II and III. It must be noted that this table is not comprehensive, but is based on documents found at the US National Archives, Washington DC and College Park, Maryland during the period April-August 2003.

War Plan	Version	Date of issue
WPL-8	0	1923
	10 (correction 1)	1932
	10 (correction 2)	1933
	10 (correction 3)	1934
	10 (correction 4)	1935
	15	1949
WPL-13	0	1929
	3	1934
	4	1935
	5	1936
	6	1937
	7	1938
	8	1939
WPL-15	0	1929
	1	1932
	2	1936
	3	1938
WPL-16	0	1929
	1	1931
	2	1932
	3	1933
	4	1934
	5	1937
	6	1938
Royal Road		1934

Appendix A: Table of War Plans, version numbers and issues dates[1]

[1] Dept of Navy. War Plans Division. WPL-8. Basic Readiness Plan. Vol. 1. (25th June 1923). NARA CP. RG 38. Strategic Plans, WPD. WPL Series. Box. 7. Dept of Navy. War Plans Division. WPL-8. Basic Readiness Plan. Vol. 1. Change 10. Correction 1. (23rd June 1932). NARA CP. RG 38. Strategic Plans, WPD. WPL Series. Box. 8. Dept of Navy. War Plans Division. WPL-8. Basic Readiness Plan. Vol. 1. Change 10. Correction 2. (21st August 1933). NARA CP. RG 38. Strategic Plans, WPD. WPL

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	3	1934
	4	1935
	5	1936
	6	1937
	7	1938
	8	1939
WPL-15	0	1929
	1	1932
	2	1936
	3	1938
WPL-16	0	1929
	1	1931
	2	1932
	3	1933
	4	1934
	5	1937
	6	1938
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[1] Dept of Navy. War Plans Division. WPL-8. Basic Readiness Plan. Vol. 1. (25th June 1923). NARA CP. RG 38. Strategic Plans, WPD. WPL Series. Box. 7. Dept of Navy. War Plans Division. WPL-8. Basic Readiness Plan. Vol. 1. Change 10. Correction 1. (23rd June 1932). NARA CP. RG 38. Strategic Plans, WPD. WPL Series. Box. 8. Dept of Navy. War Plans Division. WPL-8. Basic Readiness Plan. Vol. 1. Change 10. Correction 2. (21st August 1933). NARA CP. RG 38. Strategic Plans, WPD. WPL

Series. Box. 8. Dept of Navy. War Plans Division. WPL-8. Basic Readiness Plan. Vol. 1. Change 10. Correction 3. (18th August 1934). NARA CP. RG 38. Strategic Plans, WPD. WPL Series. Box. 8. Dept of Navy. War Plans Division. WPL-8. Basic Readiness Plan. Vol. 1. Change 10. Correction 4. (6th June 1935). NARA CP. RG 38. Strategic Plans, WPD. WPL Series. Box. 8. Dept of Navy. War Plans Division. WPL-8. Basic Readiness Plan. Vol. 1. Change 15. (1st July 1940). NARA CP. RG 38. Strategic Plans, WPD. WPL Series. Box. 6. Dept of Navy. War Plans Division. WPL-13. (1st March 1929). NARA CP. RG 38. Strategic Plans, WPD. WPL Series. Box. 15. Dept of Navy. War Plans Division. WPL-13. Change 3. (26th February 1935). NARA CP. RG 38. Strategic Plans, WPD. WPL Series. Box. 15. Dept of Navy. War Plans Division. WPL-13. Change 4.. (1st July 1935). NARA CP. RG 38. Strategic Plans, WPD. WPL Series. Box. 15. Dept of Navy. War Plans Division. WPL-13. Change 5. (15th September 1936). NARA CP. RG 38. Strategic Plans, WPD. WPL Series. Box. 15. Dept of Navy. War Plans Division. WPL-13. Change 6. (26th March 1937). NARA CP. RG 38. Strategic Plans, WPD. WPL Series. Box. 15. Dept of Navy. War Plans Division. WPL-13. Change 7. (3rd March 1938). NARA CP. RG 38. Strategic Plans, WPD. WPL Series. Box. 15. Dept of Navy. War Plans Division. WPL-13. Change 8. (8th March 1939). NARA CP. RG 38. Strategic Plans, WPD. WPL Series. Box. 15. Dept of Navy. War Plans Division. WPL-15. (1st March 1929). NARA CP. RG 38. Strategic Plans, WPD. WPL Series. Box. 17. Dept of Navy. War Plans Division. WPL-15. Change 1. (15th July 1932). NARA CP. RG 38. Strategic Plans, WPD. WPL Series. Box. 17. Dept of Navy. War Plans Division. WPL-15. Change 2. (3rd September 1936). NARA CP. RG 38. Strategic Plans, WPD. WPL Series. Box. 17. Dept of Navy. War Plans Division. WPL-15. Change 3. (11th February 1938). NARA CP. RG 38. Strategic Plans, WPD. WPL Series. Box. 17. Dept of Navy. War Plans Division. WPL-16. (1st March 1929). NARA CP. RG 38. Strategic Plans, WPD. WPL Series. Box. 18. Dept of Navy. War Plans Division. WPL-16. Change 1. (15th November 1931). NARA CP. RG 38. Strategic Plans, WPD. WPL Series. Box. 18. Dept of Navy. War Plans Division. WPL-16. Change 2. (20th December 1932). NARA CP. RG 38. Strategic Plans, WPD. WPL Series. Box. 18. Dept of Navy. War Plans Division. WPL-16. Change 3. (17th July 1933). NARA CP. RG 38. Strategic Plans, WPD. WPL Series. Box. 18. Dept of Navy. War Plans Division. WPL-16. Change 4. (31st January 1934). NARA CP. RG 38. Strategic Plans, WPD. WPL Series. Box. 18. Dept of Navy. War Plans Division. WPL-16. Change 5. (10th July 1937). NARA CP. RG 38. Strategic Plans, WPD. WPL Series. Box. 18. Dept of Navy. War Plans Division. WPL-16. Change 6. (23rd April 1938). NARA CP. RG 38. Strategic Plans, WPD. WPL Series. Box. 18. Commander. C. W. Magruder. War Plans Division. Plan O-1 Orange: The Royal Road. (1st July 1934). Op cit.

Appendix B: Aircraft Carriers, and Tenders, in the US Fleet, 1922-1941

The following table, lists the US Navy's Aircraft Carriers, and Seaplane Tenders, which entered service during the interwar period.[2]

Name of Ship	Date Commissioned
Aircraft Carriers	
Langley	1922
Lexington	1927
Saratoga	1927
Ranger	1934
Yorktown	1937
Enterprise	1938
Wasp	1940
Hornet	1941
Seaplane Tenders	
Wright	1923
Patoka	1924
Jason	1930
Lapwing	1936
Heron	1936
Thrush	1936
Avocet	1936
Teal	1936
Pelican	1936
Swan	1936
Gannet	1936
Sandpiper	1936
Barnegat	1941
Biscayne	1941

[2] Information comes from http://www.history.navy.mil/avh-1910/APP03.PDF. Accessed 6th August 2004.

Appendix C: Seaplane Anchorage form from 1932 Alaska Survey Expedition[3]

N.H.O. 120A

REPORT ON SEAPLANE ANCHORAGE

FOR RECORD IN THE UNITED STATES HYDROGRAPHIC OFFICE

WASHINGTON, D. C.

CONFIDENTIAL

NAME OF ANCHORAGE (Body of water): Chichagof Harbor, Attu Island.

Operator

POSITION: Lat 52-55-45 N Long 173-12-45 E Distance and direction from city or town Immediately off Attu village.

Prominent landmarks (day and night) Village is the only settlement on Attu Island. There are no navigational lights.

LANDING AND TAKE-OFF AREA:

Location Chichagof Harbor.
Size NE-SW 3/4 mile; N-S 1/2 mile.
Shelter Good, except for williwaws.
Obstructions NW and SE, abrupt cliffs rising into mountain slopes; NE, Kennion Island, height about fifty feet.
Currents Negligible.

ANCHORAGE:

Depth of water 2.5 to 7 fathoms Character of bottom Stky, with kelp;
Tide range 5 feet extreme; 2.8 feet mean.
Currents Negligible.
Shelter Good, except for williwaws.

FACILITIES:

Beach suitable for hauling out Yes, immediately north of village.

Is beach suitable for amphibians? No, shifty above high tide mark.
Surf None.
Remarks on additional facilities available Emergency good and shelter at native village; possibly small stock of motor boat gasoline and oil during summer. Mr. Fred Shroeder is the trader here and spends June, July and August on the Island. He is the only white man here. It is reported that a white man and wife will go there this winter as school teachers.

[3] Lt. R. H. Harrell. (20th September 1932). Op cit. Enclosure Q.

METEOROLOGICAL CONDITIONS:

Prevailing winds (summer) ..... (winter) .....

Heaviest winds .....

Fog .....

Ice .....

Precipitation .....

.....

REMARKS:

This harbor is too small to be suitable for large flying boat operations, but is the only compartively safe anchorage west of Kiska. It is well sheltered from all winds but is subject to violent williwaws, especially in spring and fall.

There is usually a fair swell running outside Middle Rocks, but in reasonably calm weather a patrol seaplane could take off outside the entrance.

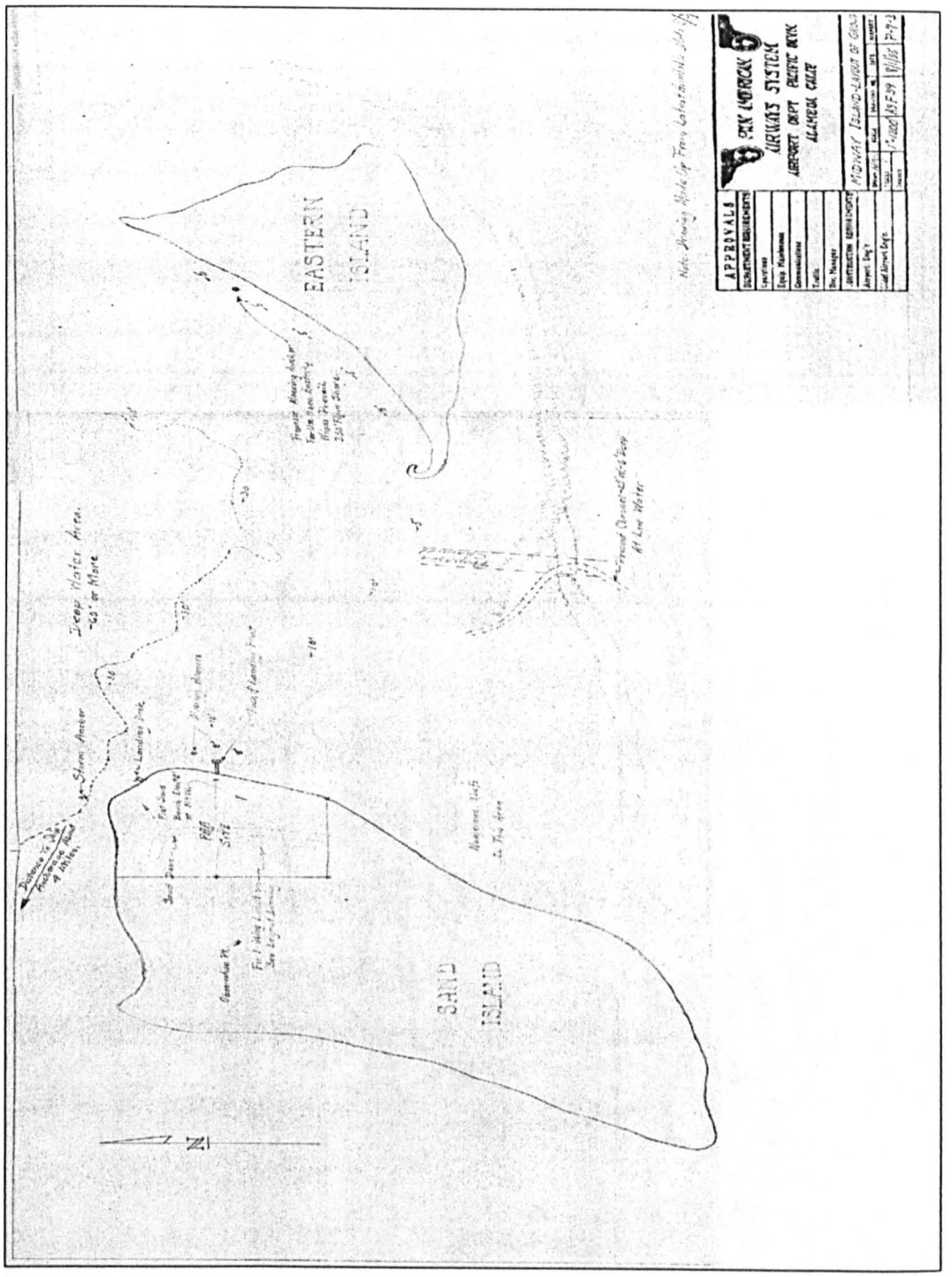
REPORTED: (By) ALASKAN SURVEY EXPEDITION Date 2 June, 1932.

NOTE: Please indicate anchorage, landing and take-off area, available beach, and other pertinent information on enclosed chart.

Kindly mail direct to the U. S. Hydrographic Office, Washington, D. C., or hand to the nearest Branch Hydrographic Office, Agent for Hydrographic Office publications, or U. S. Consul.

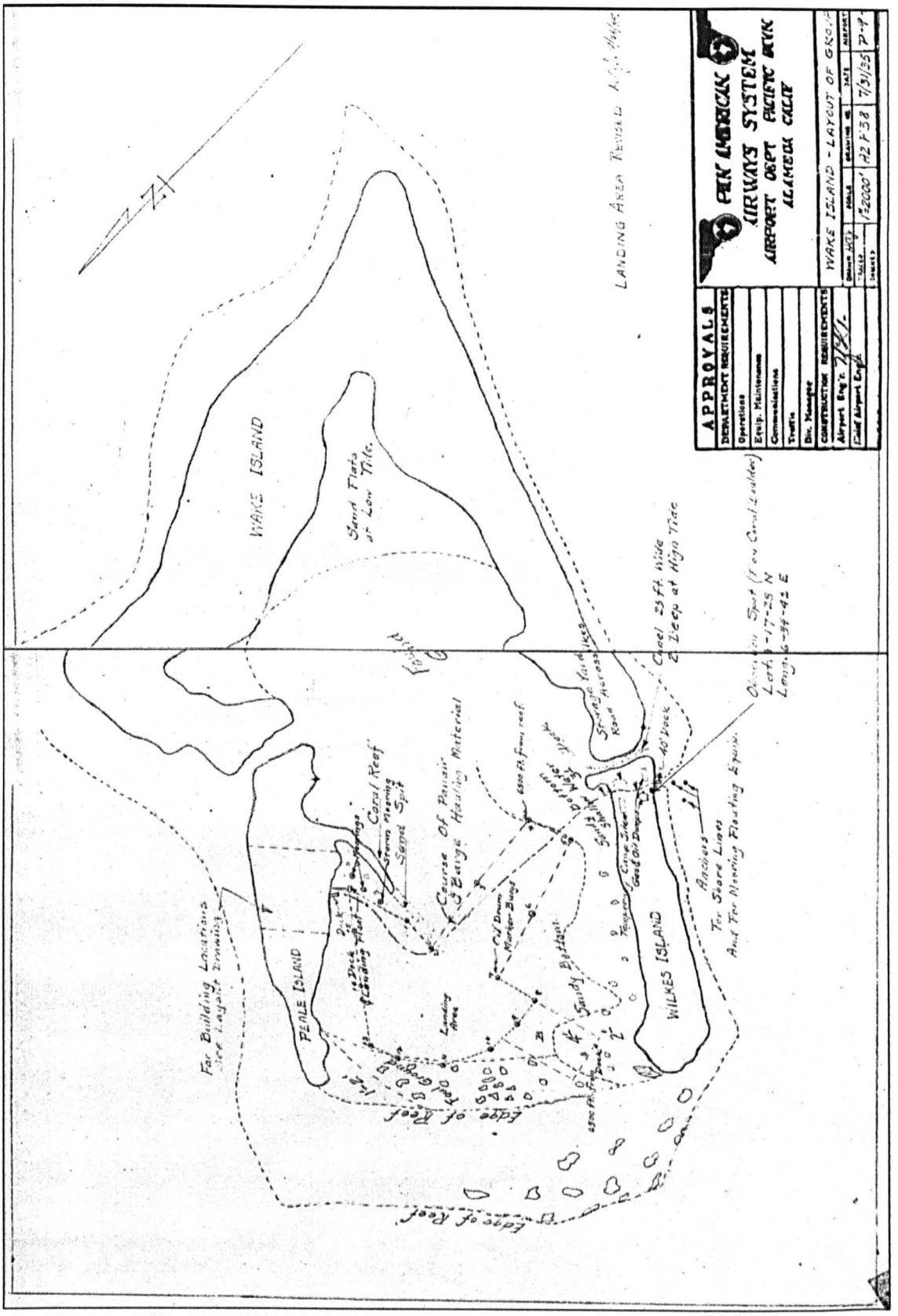
Appendix D: Blueprints of Pan Am's facilities at Midway, Wake, and Guam.

Midway[4]



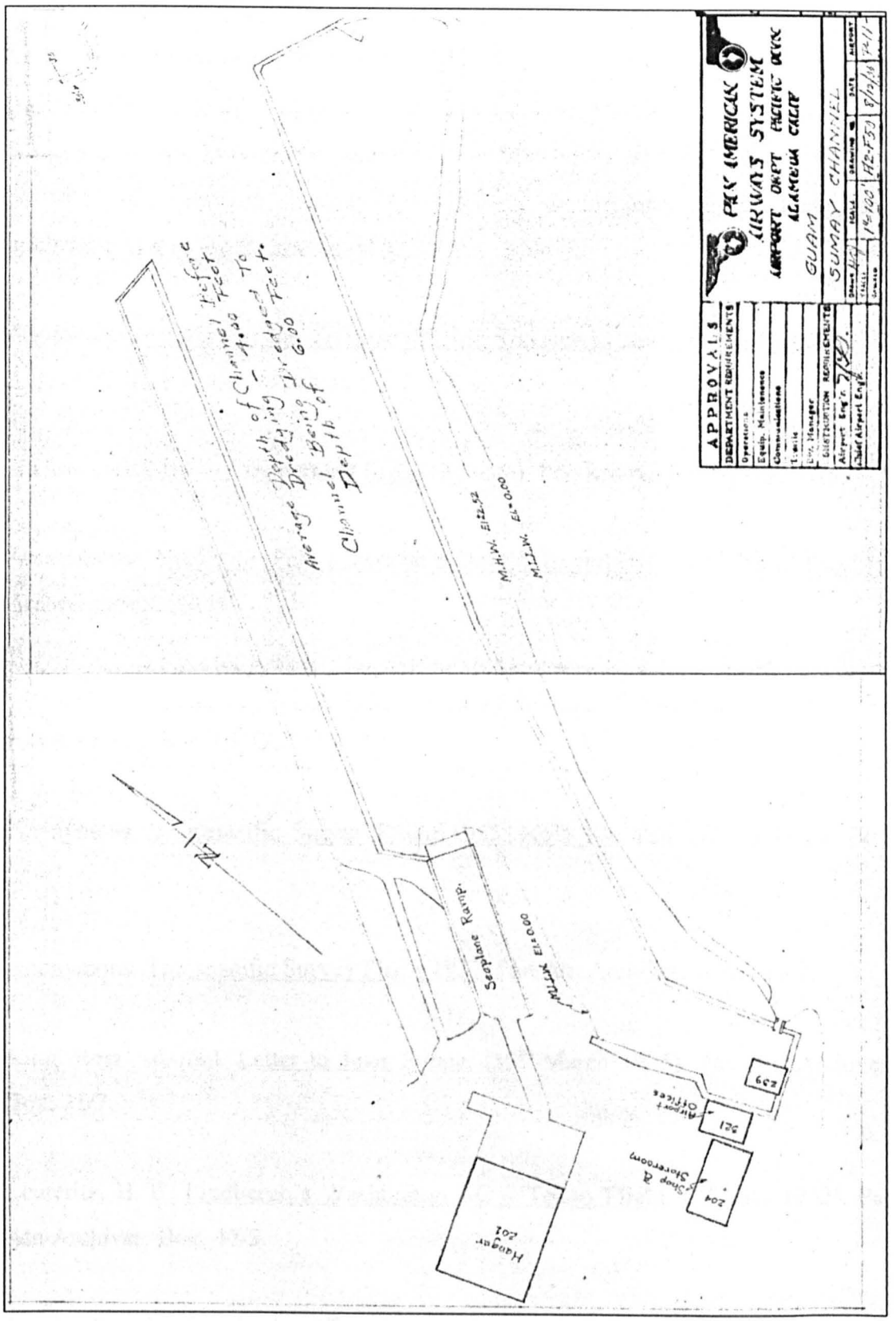
[4] Anonymous. Pan Am Blueprint for construction at Midway. (1st August 1935). NARA DC. RG 28. Contract Files. FAM 14. Box. 5.

Wake[5]



[5] Anonymous. Pan Am Blueprint for Wake. (31st July 1935). NARA DC. RG 28. Contract Files. FAM 14. Box. 5.

Guam[6]



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