



NATIONAL ENDOWMENT FOR THE
Humanities

DIVISION OF PUBLIC PROGRAMS

Narrative Section of a Successful Application

The attached document contains the grant narrative of a previously funded grant application. It is not intended to serve as a model, but to give you a sense of how a successful application may be crafted. Every successful application is different, and each applicant is urged to prepare a proposal that reflects its unique project and aspirations. Prospective applicants should consult the Public Programs application guidelines at <http://www.neh.gov/grants/public/media-projects-development-grants> for instructions. Applicants are also strongly encouraged to consult with the NEH Division of Public Programs staff well before a grant deadline.

Note: The attachment only contains the grant narrative, not the entire funded application. In addition, certain portions may have been redacted to protect the privacy interests of an individual and/or to protect confidential commercial and financial information and/or to protect copyrighted materials.

Project Title: Across the Pacific

Institution: Filmmakers Collaborative, Inc.

Project Director: Stephen E. Lyons

Grant Program: Media Projects: Development

A. PROGRAM DESCRIPTION

This is a request for a \$75,000 scripting grant for a two-hour television documentary about one of the great milestones in aviation history: the 1935 crossing of the Pacific Ocean by the Pan American Airways flying boat known as the *China Clipper*. The Pacific crossing was a remarkable technological achievement that captured the world's imagination in much the way the space program did a generation later. It also opened the era of transoceanic flight – an era that would lead to profound changes in American foreign policy, commerce and the very way Americans saw the world. As Wendell Willkie noted a few years later, after circling the planet by air: “The modern airplane creates a new geographical dimension ... There are no distant places any longer: the world is small and the world is one.”

Produced by Stephen Lyons, one of the writer-producers of “Forgotten Genius,” NOVA’s NEH-funded, Emmy Award-winning biography of the late African American chemist Percy Julian, “Across the Pacific” will combine interviews, dramatic re-enactments directed by the award-winning Lone Wolf Documentary Group, and films and photographs drawn from the rich archival record about Pan Am and the early years of commercial aviation. The film is intended for primetime distribution on cable or public television. The Smithsonian Channel has already expressed interest in the film.

The production team has defined the story we hope to tell; written a treatment that lays out the act structure and major scenes of the film; identified the three major characters and secured the cooperation of their families; and conducted preliminary research into the wealth of archival images available for the film. The \$75,000 grant would enable us to continue our research, complete a shooting script and hold a meeting of the Advisory Committee to ensure that the project is informed by the best possible humanities scholarship. We hope to raise an additional \$27,000 from other sources to support this work.

Ancillary activities. To enhance public understanding of aerial navigation and the impacts of round-the-world flight, the producers will create an **Across the Pacific Web site** that includes information and images beyond what can be included in the film, as well as links to other sites with accurate information about the *China Clipper* and early commercial aviation. We are not asking for NEH support of these activities but will instead seek funding from other sources. The extent and exact form of these activities will depend on the program’s eventual broadcast or cable outlet.

B. CONTENT AND CREATIVE APPROACH

On a sparkling afternoon in November 1935, more than 20,000 people jammed onto the grounds of the Pan American Airways terminal in Alameda, California. Another 100,000 lined the shores of San Francisco Bay, hoping to catch a glimpse of history. And around the world, millions more listened to the live broadcast over nine radio networks reaching four continents. The occasion was the inauguration of Pan Am’s airmail service to Asia in a new flying boat that would become one of the most famous airplanes of all time.

“All eyes now are on the *China Clipper*, riding at anchor just beyond our platform,” reported the radio announcer. “What a thrilling sight she is! So confident, so sturdy, her gleaming hull and wings glistening in the sunshine, her great engines ready to speed her on her way.”

In a few minutes the Martin M-130 flying boat would attempt to accomplish the unthinkable: cross the world’s biggest ocean at its widest point, hop-scotching across more than 8,000 miles of the mighty Pacific. People everywhere sensed this was a milestone in human history, for if the Pacific could be crossed, there would be no place on earth that could not be reached by airplane. The world would suddenly be smaller.

With a roar of her engines, the great silver bird taxied out into the bay, threading her way through hundreds of small boats that had gathered for the occasion. Overhead, 30 small planes circled, ready to offer an uninvited escort. Car horns honked, sirens blared, and 22 aerial bombs exploded, releasing thousands of tiny American flags to parachute down on the breeze. Finally, straining to lift the ton of mail in her hold, the

Clipper rose from the water. A great “Hurrah!” echoed across the bay as the plane ducked under the span of the unfinished Bay Bridge and winged westward through the Golden Gate.

The launch of the *China Clipper* was one of the most-anticipated, most-listened-to events in history to that point – a forerunner of the rocket launches from Cape Canaveral a quarter century later. But as with the space program, the most compelling drama is not in the flight itself but in the effort to reach this point. The *Clipper’s* maiden voyage was the culmination of eight years of innovation involving hundreds of men and women, both famous and unknown. Like the NASA engineers and astronauts who would later put a man on the moon in less than a decade, these earlier aviation pioneers built new aircraft, invented new technologies and overcame innumerable obstacles. They had begun in 1927 with a single, 90-mile airmail route. Now they stood at the water’s edge, poised to vault the Pacific.

One of the goals of “Across the Pacific” is to tell the story of how they did it, revealing the process of invention, the constraints they had to work under, the flashes of inspiration – and the failures and frustrations they encountered along the way. But we will also ask why – what were their motivations for confronting such a formidable barrier as the Pacific, which had already claimed so many aviators’ lives? And we’ll explore what difference it made that the *China Clipper* made it safely across.

Of course, this one flight did not change the world – any more than the first train to rumble across the transcontinental railroad or the first message to pass through the undersea cable between America and Europe. What was important in each case was the permanent link that had been formed. Like those earlier milestones, the establishment of the Pacific airway (and the Atlantic airway that soon followed) was a step in the centuries-old process of globalization, by which new transportation and communication technologies have bound the world together ever more tightly. In time, the spanning of the oceans would change the way Americans travel and the way we do business. It would make us look at the world in a new way – “recasting our maps, rewriting our geographies, and upsetting our sense of direction,” as *Newsweek* put it. “The United States is no longer a country separated by broad oceans from Europe and Asia. Our country lives next door to the world.” This new “air-age geography” would raise hopes of world harmony. As Americans would soon find out, it also made us more vulnerable to attack.

“Across the Pacific” reflects a new approach to aviation history, a field that has long been held in low regard even by some of its own members. Twenty years ago, James R. Hansen of Auburn University wrote an essay taking his fellow aviation historians to task. While books about aviation abound, he said, too many of them are uncritical celebrations of heroic pilots of the past, or “gee-whiz” descriptions of particular airplanes, filled with minutiae that may interest aviation “buffs” but obscure the historical significance of the aircraft. Far too little attention is paid to what Hansen called the “wider view” – the social and intellectual roots of the technology; the people who design, build and use airplanes, and all the social institutions that go along with these activities. “Aviation history is thus regarded by many scholars, both insiders and outsiders, as a field too full of ‘enthusiasm,’” Hansen wrote.

In recent years, however, there have been signs of change. In 2003, Dominick Pisano, a curator at the National Air and Space Museum (and one of our advisors), edited a volume of essays entitled *The Airplane in American Culture*. It was, in part, a call for his colleagues to explore more deeply the social and cultural context of flight. Since then, several books have done just that, including David Courtwright’s *Sky as Frontier: Adventure, Aviation and Empire*, Rosalie Schwartz’s *Flying Down to Rio: Hollywood, Tourists and Yankee Clippers* and A. Bowdoin Van Riper’s *Imagining Flight: Aviation and Popular Culture*.

“Across the Pacific” falls squarely into this new school of aviation scholarship. It is not a heroic account of a famous pilot. (Its main characters are a businessman, an aircraft designer and a radio engineer.) Nor does it idolize a particular airplane, though it does explore how a *class* of aircraft, the flying boats, emerged at a particular time in history, what business forces drove their development, how they were designed, what compromises and technical advances were made – and why they disappeared. Above all, the film shows how aviation was woven into the fabric of American life between the two world wars – benefiting from

government sponsorship, influencing films and other forms of popular culture, changing America's travel habits and business practices, and serving as an instrument of American foreign policy. To borrow a phrase from Hansen's essay, the film shows how aviation took its place as "an essential element in the development of modern society."

The film is built around three compelling central characters:

- **Juan Trippe**, the brash executive who built Pan Am into the world's largest airline by age 35.
- **Igor Sikorsky**, the Russian émigré who designed most of the flying boats that fueled Pan Am's meteoric rise in the 1920s and '30s.
- And an unsung radio engineer named **Hugo Leuteritz**, who invented the navigational systems that guided Pan Am's planes safely to their destinations.

While our primary focus will be on the three main characters and their struggles, "Across the Pacific" will also serve as a window on broader developments in early 20th-century American history. The film covers a period of 16 years, from the end of World War I to the crossing of the Pacific in 1935. Those years saw the fitful birth of commercial aviation and important shifts in American foreign policy toward Latin America and Asia. These events, too, will be part of our story. And the film's epilog will explore some of the impacts of the ocean crossing, including the emergence of "air-age geography" and its strikingly new view of the world.

In telling this story, we're fortunate to have access to a wealth of archival images, objects and sounds – newsreels, Hollywood films, radio broadcasts, Pan Am artifacts, posters, paintings, advertisements, antique radio instruments and thousands of photographs taken by Pan Am's public relations department, its employees and the news media. (For details, see **O. Collections of Materials to be Used.**) To supplement this rich trove of materials, we'll rely on the following visual elements, all shot in High Definition:

- **Historical re-enactments** of key incidents in the story, with actors playing the three main characters and dialogue drawn from their writings and other historical documents. Among the key scenes is the Florida plane crash that cemented Pan Am's determination to develop a system of radio navigation. (For a more detailed explanation of our approach to these re-enactments, please see **C: Storyline.**)
- **Additional Original Photography.** We'll do a small amount of shooting to supplement the archival imagery and dramatic scenes. For example, we'll get aerial shots of and from the historic planes involved in the story (or suitable substitutes still flying); scenics of locations that figure prominently in the story; and selected shots to augment largely archival scenes. The launch of the *China Clipper*, for example, is a story we can tell almost entirely through photographs, films, headlines and radio broadcasts from that day in 1935. But to that mix we'll add a few enriching details like the image of bombs releasing thousands of tiny American flags to parachute down onto San Francisco Bay.
- **Interviews** with historians, biographers, family members, pilots, aerial navigators, radio engineers and former Pan Am employees, including some who had a hand in building Pan Am's transpacific airway. A critical element in our production style, these storytellers will serve many purposes – relating colorful anecdotes that help establish our main characters, giving first-hand accounts of some of the events in the story, providing viewer-friendly explanations of technical concepts like radio navigation, placing the film's story in the context of what was happening in the early 20th century, and showing how it illustrates the program's broader humanities themes.
- And **computer animations** to illustrate the rapid expansion of Pan Am's Latin American empire; the threat posed by the post-World War I incursion of European airlines into this hemisphere; the formidable distances and various routes considered for crossing the oceans, and the technology of radio navigation, among other things.

Significance to the humanities. Flight is one of the most important technologies developed in the last 100 years, and commercial aviation – the only point of contact most of us have with flight – is so embedded in modern society that life without it is almost unthinkable. (Imagine living in a world in which it still took travelers days to cross the United States by train, or weeks to cross the oceans by steamship.) “Across the Pacific” takes as its subject a key moment in the evolution of commercial aviation: the forging of the last link in a chain of airways that circles the globe. The film uses the tools of a humanities discipline – history – to explore the development of a modern airline and two critical supporting technologies: the flying boat and radio navigation. It poses the kinds of questions that any treatment of the history of technology should: How were these technologies invented and developed? What personal, social and economic forces drove their development? How was this new form of transportation adopted by the society as a whole? And what difference did it make in the world? If one goal of the humanities is to understand who we are and how we came to live as we do, the crossing of the oceans by air is an important chapter in that story.

“Across the Pacific” will draw on a wide range of humanities scholarship, including:

- Well-researched biographies of Juan Trippe and Igor Sikorsky.
- Multiple sources on the histories of aviation, American foreign relations, geography, radio and aerial navigation. Especially noteworthy are several recent works on aviation and popular culture. (See **N. Bibliography**, below, for details.)
- The production team’s own, original research into the Pan Am Archives at the University of Miami and the personal papers of our three main characters. This research will be critical to our effort to probe the motivations of Trippe, Sikorsky and Leuteritz, allowing them to come across as multidimensional characters.

Throughout the process of researching, scripting and producing the film, we will rely on the guidance of our Advisory Committee, made up primarily of humanities scholars. (For the makeup of the committee, see **H: Humanities Advisors**, below.) With their help, we’ll use the film to explore a number of broader themes in American history, including these:

1. Aviation as an Instrument of American Expansion
2. The New Partnership Between Business and Government
3. Business as a Driver of Technological Innovation
4. The Cultural Transformation of Flight
5. Globalization in a Shrinking Air-Age World

THEME 1. AVIATION AS AN INSTRUMENT OF AMERICAN EXPANSION

In his 1893 book *The Frontier in American History*, Frederick Jackson Turner laid out one of the most enduring ideas in American history – that westward expansion had been a formative influence on American life, one that had left an indelible stamp on our national character. As the 19th century drew to a close, Turner argued, the settlement of the continent signaled a new era marked by the absence of a frontier. But Turner was wise enough to add a caveat:

He would be a rash prophet who should assert that the expansive character of American life has now entirely ceased. Movement has been its dominant fact, and, unless this training has no effect upon a people, the American energy will continually demand a wider field for its exercise.

Turner’s words were prophetic. Just five years after his book was published, the U.S. fought its “splendid little war” with Spain, gaining an instant overseas empire. New possessions in the Caribbean (Cuba, Puerto Rico), the Pacific (Guam), and Asia (the Philippines) brought America into direct competition with European nations, as well as expansion-minded Japan. As we’ll see in “Across the Pacific,” these events also created the playing field on which Juan Trippe and Pan Am would operate, building an airline that could service such a far-flung empire.

Thanks to a bloody war over Philippine independence, most Americans quickly lost their appetite for ruling people of other lands. But America continued to expand in other ways, notes historian and project advisor Emily Rosenberg, author of *Spreading the American Dream: American Economic and Cultural Expansion, 1890-1945*.

Gradually, the balance swung away from formal colonialism toward the belief that private institutions – especially businesses and voluntary associations – would spread the American dream more effectively than conquering armies ... The private sector spearheaded American expansion.

Nowhere is this trend more evident than in the story of Pan Am. Because of America's deep-seated faith in free enterprise, the U.S. government could not establish a national airline to carry the flag overseas, as Britain, France and Germany did after World War I. Instead, it fell to entrepreneurs like Juan Trippe to take the lead. Trippe and his Pan Am colleagues first built an airline to serve the Caribbean and South America. Five years later they crossed the Pacific; two years after that, the Atlantic. For nearly two decades, Pan Am was America's only international airline, and for many people around the world, Pan Am was the face of America.

Trippe's motivations in building this empire reflected the typical goals of a businessman: He wanted to grow the company, increase market share and maximize profits. But in pursuing those goals, Trippe adroitly turned Pan Am into the "chosen instrument" of American foreign policy:

- In the mid-1920s, when a Colombian airline controlled by Germans moved to extend its service northward, leaders in Washington grew concerned about the threat such an airline posed to the Panama Canal. The answer, they decided, was to support an American-owned airline with service throughout the Caribbean. Pan Am became the beneficiary of this policy, gaining various kinds of government support that helped the airline outflank all competitors and dominate air service to Latin America. (See Theme 2 for more details.)
- In 1933, with many South Americans still leery of the U.S. as a result of interventions in Panama, Nicaragua and elsewhere, newly elected President Roosevelt sought to promote a "Good Neighbor" policy promising harmony and mutually beneficial trade between North and South. Even as Roosevelt was making international tourism a cornerstone of this policy, Pan Am was expanding its passenger service southward and collaborating with RKO-Radio Pictures on *Flying Down to Rio*, a Hollywood film starring Fred Astaire and Ginger Rogers, to promote air travel to South America.
- And in 1935, when political obstacles blocked Pan Am's plans for crossing the Atlantic, Trippe turned to the Pacific, confident that a skybridge to Asia would serve America's strategic interests. Concerned about Japanese aggression in the region, the State Department and the Navy happily lent their support, since Pan Am's air service to China would establish an American presence across the Pacific, and Pan Am's facilities could easily be converted to military use in an emergency. By supporting this commercial enterprise, Washington could counter the Japanese threat without triggering an arms race or a war. Pan Am would be a civilian surrogate for American expansion.

THEME 2. THE NEW PARTNERSHIP BETWEEN GOVERNMENT AND BUSINESS

The close working relationship between Pan Am and the U.S. government in Latin America and the Pacific reflects a broader change that was taking place in the early 20th century: the emergence of a new alliance between government and business. In the 1800s, historian Emily Rosenberg notes, the American government seldom intervened in the economy, and did so primarily to release the energies of the private sector – to "keep the pump of American business in working order." After the turn of the century, however, "the national government adopted ever more elaborate ways of oiling and repairing the pump."

One sign of this new attitude came soon after World War I. Despite the rapid advances in aeronautical technology brought about by the war, entrepreneurs like Juan Trippe and Igor Sikorsky struggled to make a business of aviation. The glut of surplus World War I aircraft left little demand for new planes like the ones Sikorsky was building, and most new airlines, like Trippe's Long Island Airways, quickly went out of business for lack of passengers. The turning point came with the passage of the 1925 Air Mail Act, which promised private carriers long-term contracts and subsidies for carrying air mail over prescribed routes. The new law "stimulated the airline industry and gave it a sense of stability," notes historian and project advisor Dorothy Cochrane. "Aviation now had a base upon which to build, as the lucrative contracts attracted entrepreneurs who suddenly viewed aviation as a worthwhile investment opportunity."

Washington stepped up its support with the passage of the Air Commerce Act of 1926. Championed by Commerce Secretary Herbert Hoover, the law led to new airports, air navigation systems and safety standards that increased public confidence in flying. But while these government investments were a boon to commercial aviation in the United States, they were of little use to Pan Am. Like other American firms doing business abroad, Pan Am not only had to build its own infrastructure overseas; it also faced stiff competition from European companies on an uneven playing field, notes Emily Rosenberg.

European governments were heavily involved in foreign economic activity; they encouraged, subsidized and even sometimes partially owned the international companies or cartels operated by their citizens ... In order to be able to compete, Americans would have to emulate their rivals. There would have to be a new partnership between government and the private sector.

As "Across the Pacific" illustrates, this partnership took a peculiarly American form. In the first decade after World War I, while France, Britain and Germany were aggressively supporting the growth of their national airlines overseas, Washington had taken a laissez-faire attitude toward international aviation. But that changed in 1927, when SCADTA, a Colombian airline owned and controlled by Germans, announced plans to extend its routes throughout the Caribbean. Alarmed at the prospect of German planes flying over the Panama Canal, officials from the War, Commerce, Navy and State departments met to consider their options. The Interdepartmental Committee on Aviation decided the answer was an American-run airline to service the Caribbean. They threw their weight behind Pan Am, which had just begun carrying mail from Key West to Havana a month earlier.

The Foreign Air Mail Act, passed early the next year, gave the Postmaster General authority to award airmail contracts not to the lowest bidder but the bidder he deemed most suitable. Over the next three years, Pan Am won every airmail contract to Latin America. And when Colombia threatened to block Pan Am's path south, Trippe persuaded the State Department to negotiate America's first international air treaty – signed just in time for Pan Am to win the critical route to Peru and Chile. Why this special treatment? Because Trippe had convinced Washington that when it came to international air service, where the cost of developing new routes was so high, America's interests were best served not by competition but by government support for a single airline: the "chosen instrument" of American aviation overseas.

Pan Am's symbiotic relationship with the government also came into play when Trippe turned his attention to the Pacific in 1935. Alarmed at the threat posed by an increasingly aggressive Japan, federal officials threw their support behind Pan Am's plan to establish flying boat facilities on the five stepping-stone islands where the *China Clipper* would land in crossing the Pacific. President Roosevelt signed an order transferring control of Midway and Wake Island to the Navy, and Pan Am won landing rights on those two islands, as well as Hawaii, Guam and the Philippines. As Pan Am raced to build the Pacific airway, dozens of Navy personnel left the service and passed through a revolving door directly onto Pan Am's payroll. Meanwhile, Pan Am quietly lent the Navy its radio facilities and reported on the movements of Japanese vessels.

This story offers a classic illustration of the way the U.S. government negotiated the thorny issue of promoting American economic interests overseas, Rosenberg notes. Given its bedrock belief in free enterprise, Washington would not countenance government-owned businesses, the model adopted in Europe.

But neither did it take a strictly hand-off, market-driven approach, which would have left American firms at a competitive disadvantage. Instead, government and business fashioned a uniquely American brand of public-private partnership, with government lending private enterprise a helping hand as the U.S. pushed beyond its borders.

THEME 3. BUSINESS AS A DRIVER OF TECHNOLOGICAL INNOVATION

Pan Am's crossing of the Pacific was possible only because of a series of technological innovations in airplane design and navigation. "Across the Pacific" thus provides an opportunity to explore one of the most potent sources of technological innovation throughout history. While some new technologies spring from scientific discoveries (radio is one example) or are stimulated by war (e.g., the atomic bomb), the key innovations in our story came from two inventors, Igor Sikorsky and Hugo Leuteritz, whose dreams were nurtured by the demands of business.

Flying boats

Igor Sikorsky had been fascinated with flight ever since his boyhood in Russia. At age 11, he had a vivid dream about walking through a huge airship – an ocean liner in the sky. But grown-ups dismissed the vision as nonsense. It would be three years before the Wright brothers showed that flight was even possible. Sikorsky himself first flew in 1911, and within a year he was building planes that could carry multiple passengers with some measure of comfort. His *Grand* and *Ilya Murometz* bombers were marvels of their age, four-engine monsters that astounded experts with their airworthiness and made Sikorsky the top airplane designer in Russia.

When the Bolshevik revolution destroyed the thriving aviation business he had built, Sikorsky looked for a new place to realize his dream. He immigrated to America in 1919 but struggled for years to find a place in aviation. In a market flooded with surplus World War I aircraft, no one was interested in the planes he hoped to build. "I would see somebody else flying and think: 'Perhaps I could do it better – I know I could,'" he later wrote of the early 1920s. "During these trying years I was building in my imagination, and sometimes working out on paper, the airplanes which I [later] built and which have [since] flown the oceans."

Through the lean years of the early 1920s, Sikorsky showed the doggedness typical of inventors driven to realize their dreams. After his underpowered S-29A crashed on its maiden flight in 1924, he herded his investors into a room, locked the door and refused to let his fellow Russian émigrés leave until they had contributed \$2,500 to rebuild the plane with more powerful engines.

But Sikorsky would not find commercial success until 1928, when he designed an amphibian called the S-38. It was an odd-looking plane, derided by some as "a collection of airplane parts flying in formation." But the S-38 was sturdy, reliable and safe – the first twin-engine craft capable of maintaining altitude on one engine. Most of all, this "ugly duckling" was versatile – equally at home on land or water. Sikorsky's company would ultimately build more than 100 of them, and one of his biggest customers was Pan Am. The S-38 was the perfect plane for Pan Am's forays into the Caribbean and South America, where good airfields were scarce but lakes and harbors plentiful. The S-38 would be the foundation of a long and fruitful partnership between Sikorsky and Juan Trippe.

For the next six years, much of Sikorsky's energy and imagination went into building planes to serve Trippe's business needs. As Pan Am's route system spread across South America, the airline needed bigger planes capable of carrying more cargo and passengers over greater distances. Trippe asked Sikorsky to build a flying boat with four engines and a size, range and lifting capacity unmatched by any airplane in the world. The result was the S-40, christened the *American Clipper* in October 1931. As he stepped aboard the completed plane for the first time, Sikorsky experienced a strong feeling of déjà vu: It was the realization of his boyhood dream of an ocean liner in the sky. With four engines, a range of 700 miles and a seating capacity of 40 passengers – five times as many as the S-38 – the S-40 gave Pan Am a plane that could serve all of South America in comfort and safety.

But even as the S-40 was making its maiden flight, Sikorsky was already at work on the next generation of flying boat, sketching ideas on restaurant menus with Pan Am consultant Charles Lindbergh. Four months earlier, with his eye already on crossing the oceans, Trippe had invited America's six leading airplane manufacturers to submit designs for a multi-engine flying boat with the unheard-of range of 2,500 miles. Many aviation authorities considered the task impossible, but achieving the impossible was nothing new for Sikorsky. The challenge, he said years later, was simply to "obtain the greatest possible work from every gallon of fuel on board, from every horsepower delivered by the engines, from every cubic foot of displacement of the boat, and, most of all, from every square foot of its wing surface."

Over the next three years, Sikorsky and his engineers worked with Lindbergh to turn out a modern airliner called the S-42. To minimize drag, its all-metal skin was attached with flush rivets, and the engine nacelles were buried within the wings. New variable-pitch propellers gave the plane a "second gear," improving its fuel efficiency. It had a wing span of 118 feet and, because of the wings' light-weight, efficient design, could lift an unheard-of 16,000 pounds. And though its range was only 2,500 miles – leaving too little margin of error for the 2,400-mile flight from San Francisco to Hawaii – a stripped-down version of the S-42 conducted the test flights for Pan Am's transpacific service.

But Sikorsky was not the only airplane designer to rise to Trippe's challenge. Glenn L. Martin, a former barnstormer who had had great success building bombers for the military, proposed an even bigger craft called the M-130. With a wing span of 130 feet, it could carry up to 46 passengers. Most important, it had a range of 3,200 miles – more than enough for safe completion of the longest leg of the Pacific flight. It was this plane, dubbed the *China Clipper*, that would make history in 1935.

Today the era of the flying boat is tinged with nostalgia, but in the 1920s and 1930s, as the film will show, these vessels were made for good and practical reasons: There were very few paved runways around the world, and since a good rainstorm could turn a dirt or grass runway into a quagmire, this placed sharp limits on the size of land planes. Because flying boats could land in any suitable harbor, they became the largest airliners, capable of carrying the most passengers and the biggest payloads. While their reign would be short, these planes launched the era of global flight.

Radio navigation

Like Sikorsky, Hugo Leuteritz had a boyhood fascination with technology, but in his case it was radio rather than aviation. At 13, Leuteritz spent his spare time talking with ham radio operators on a set he had built by winding a coil around an empty oatmeal package. By 19 he had enlisted in the Navy, where he became a Junior Radio Expert Aide. And at 22 he went to work for RCA, the new company that been formed after World War I to advance radio in America.

In 1925, RCA asked Leuteritz to find out if there was a market for radio in the American aviation industry, which was just then taking off. Riding shotgun with airmail pilots as they followed railroad tracks across the country, Leuteritz concluded that radio could play a key role in aviation – for navigation as well as communication. Early radio engineers had discovered that antennas in the shape of a loop were exquisitely sensitive to the direction from which a radio signal came. For nearly a decade, ship captains had taken advantage of this phenomenon, using radio beacons to find their way through fog and treacherous waters. Leuteritz urged RCA to develop light-weight radio sets that pilots could use in the same way. When RCA refused, saying the market was too uncertain to justify the expense, Leuteritz developed his own aviation radio sets. But he might never have achieved his goal if Juan Trippe hadn't asked him to put his know-how to work for Pan Am.

In the summer of 1928, while still on the RCA staff, Leuteritz spent two months in Key West, flying alongside pilots on Pan Am's new airmail route to Havana. Using materials ranging from lady's garters to tin pie plates, he built a makeshift radio direction finder that could track Pan Am's planes over the 90-mile route. But the pilots wanted no part of this newfangled technology. It wasn't until one of Pan Am's planes

(with Leuteritz aboard) crashed in the Gulf of Mexico, 300 miles off course, that the need for a navigation system became unmistakable. A few months later, Trippe persuaded Leuteritz to leave RCA and join Pan Am as communications director.

Over the next three years, as Pan Am spread throughout Latin America, Leuteritz developed ever-more-sophisticated direction finders to guide planes to their destinations. But the real challenge came when Trippe looked to the oceans. To cross the Pacific, Pan Am's pilots would need to find – without fail – the tiny islands where their flying boats would land to refuel; navigation was critical to the company's success. To meet this challenge, Leuteritz adapted a tall, H-shaped antenna than had been invented by a British inventor named Frank Adcock. By experimenting with higher radio frequencies, Leuteritz was able to build direction finders capable of tracking Pan Am's planes up to 1,200 miles away. With Adcocks installed on each of the stepping stone islands, the crossing of the Pacific became possible.

Leuteritz was not the only engineer – or even the first – to apply radio to air navigation. Under the Air Commerce Act of 1926, the Bureau of Air Commerce had begun installing radio range beacons at U.S. airports, allowing pilots to “fly the beam” to a safe landing. But because of the special demands of Pan Am's far-flung system, Leuteritz pushed the technology of radio navigation farther and faster than anyone else in the world. “The specialized development of Adcock direction finders for use in aviation ... has been pioneered almost entirely by the Radio Division of the Pan American Airways System under the direction of H.C. Leuteritz,” aviation journalist Henry Roberts wrote in his 1945 book *Aviation Radio*.

For the first two decades of flight, pilots had either relied on visible landmarks below to guide them to their destinations (a technique called *pilotage*) or flew by compass while estimating how air speed and wind conditions were affecting their progress (a technique called *dead reckoning*). When planes began flying over long stretches of water, aerial navigators adapted marine techniques for charting a course by the stars (*celestial navigation*). But Pan Am needed a system that could unerringly guide its planes over vast stretches of featureless ocean – and that would continue to work in daylight and bad weather, when the stars would not be visible. Only radio would do.

“That is why radio navigation is the mainstay of modern air transportation,” Roberts wrote. “Day or night, fair weather or foul, the impalpable tentacles of radio beacons reach into the sky and guide the speeding airplanes on their course, lead them through mountain passes and over oceans ... and, if need be, bring them to a safe landing at a fog-obscured airport. Wherever the pilot may fly ... near the earth or miles up in the stratosphere, the radio waves are there, ready to guide him.”

Our film cannot give a complete account of the development of radio navigation. But because Leuteritz's work was so critical to Pan Am's success, the film *can* give viewers a window on the development of this underappreciated technology, one that played a critical role in the evolution of flight – and that millions of people around the world still rely on every day without realizing it. Despite the skepticism of Pan Am's early pilots, radio went on to become the foundation of every aerial navigation system developed since the 1930s, from radar to LORAN, air traffic control to GPS. While the details of these systems differ from Leuteritz's, the basic principle is the same: *Radio will show the way*.

Hugo Leuteritz and Igor Sikorsky each developed an early passion for technology, but their specific innovations were the result of their association with Juan Trippe. By fixing his sights on crossing the oceans, Trippe set the bar high, challenging Sikorsky and Leuteritz to build revolutionary airplanes and the navigation systems that would be needed to guide them. The two inventors came to the partnership with great energy and creativity, but it was Pan Am that channeled those talents in specific directions and gave them the resources to succeed. In this case, business was the driver of technological innovation. And the result of this remarkable collaboration was that all three men helped each other realize their dreams.

THEME 4. THE CULTURAL TRANSFORMATION OF FLIGHT

One of the dreams shared by Trippe, Sikorsky and Leuteritz was that flying would one day be something ordinary people did routinely. But to achieve that dream it would not be enough to solve the technological problems described above. They and other aviation supporters would also have to transform the popular image of flight and its role in society. That transformation was largely accomplished during the 16 years covered by this film. In 1919, when the film opens, America was just emerging from World War I, and aviation was once again the province of a select few – daredevils and hobbyists who had been bitten by the flying bug. By 1935, when the *China Clipper* crossed the Pacific, flight had become a safe, comfortable and reliable form of transportation used by an ever-growing number of Americans. Through the interwoven stories of Trippe, Sikorsky and Leuteritz, the film will help viewers understand the broader changes that occurred with this emergence of commercial aviation.

By 1919, as historian Joseph Corn notes in his book *The Winged Gospel*, America was well into its love affair with flying. People had initially been skeptical about reports of what the Wright brothers had done at Kitty Hawk in 1903, but once they were convinced flight was possible, public passion for aviation rose sharply. By 1909, crowds estimated at more than a million people (including 10-year-old Juan Trippe) gathered to watch Wilbur Wright fly over New York harbor and around the Statue of Liberty. When war broke out, Americans avidly followed the exploits of Eddie Rickenbacker and other aces. And enthusiasm for flight reached a fever pitch with Charles Lindbergh's Atlantic crossing in 1927. During this period, Corn notes, millions of Americans were proud to call themselves "air-minded."

They avidly followed and promoted aeronautics. The mere sound of an engine overhead caused them to pause in their work and raise their eyes to the heavens. Crowds assembled at the smallest airfield to watch planes take off and land, while the public voraciously consumed the many stories about aviation in newspapers and magazines.

But for all this enthusiasm, the popular image of flight kept airplane ridership stubbornly low. In these early days, aviation's strongest associations were with war, excitement and danger. War because in the hands of pilots like Rickenbacker, airplanes had shown themselves to be lethal weapons. Excitement because air shows, cross-country races and the aerial acrobatics of the barnstormers made aviation a popular form of entertainment. And danger because many of the early stunt pilots died while putting on their shows, as did most of the airmail pilots hired by the Post Office in 1918. "It had been easy to lure masses of people into a grandstand to watch an air show. Convincing even a small segment of the population to take a seat as a passenger on an airplane, however, required considerable persuasion," writes Rosalie Schwartz in *Flying Down to Rio: Hollywood, Tourists and Yankee Clippers*. "Most people who applauded human flight remained quite content to forgo the pleasure themselves."

So even as they tackled the financial, political and technological challenges of building a commercial aviation industry, Schwartz notes, Trippe, Sikorsky, Leuteritz and hundreds of others worked to erase the public perception that flying was an exciting but dangerous activity best left to others.

A dedicated phalanx of businesspeople, aviation enthusiasts and public officials struggled to overcome images of airplanes falling from the sky and of pilots who stared death in the face every time they flew. To transform the public consciousness, airline promoters fought to plant a new image in people's minds, one of transport instead of sport, of practicality and profits instead of thrills.

In "Across the Pacific," we'll see many of the techniques the founders of commercial aviation used to solve this problem, among them:

Public relations. After a fatal crash during Pan Am's first year of operation, Trippe hired a public relations firm to mitigate the damage from the accident. From then on, Pan Am would carefully court the press, winning favorable coverage from newspapers and magazines, especially *Time* and *Life*, which were published by Trippe's Yale colleague Henry Luce. Pan Am's biggest PR coup was to sign Charles

Lindbergh as a technical consultant to the airline. Whenever Lindbergh opened a new route, he was sure to be greeted by headlines and huge crowds.

Advertising. To fill the seats on its airplanes, Pan Am aggressively marketed flying as a new and better way to travel overseas. Borrowing a page from the successful cruise lines, Pan Am created seductively illustrated ads that sold the romance and excitement of foreign travel. “Its posters featured idealized images of exotic foreign ports in lush detail and vibrant color,” historian A. Bowdoin Van Riper notes in *Imagining Flight: Aviation and Popular Culture*. “A Pan Am plane floated or flew amid the scene, just as a ship would in a shipping line poster. Implicitly, the aircraft had replaced the ship as the viewer’s gateway to the exciting world in the picture.”

Movies. In 1933, Pan Am collaborated with RKO-Radio Pictures on a Hollywood musical accentuating the appeal of South American travel. Produced by an RKO executive who was also a Pan Am board member, *Flying Down to Rio* is remembered today for the first pairing of Fred Astaire and Ginger Rogers, who danced the carioca in the big nightclub scene. But it was also one of many films released during the ‘20s and ‘30s whose purpose was to promote flying as a form of travel.

Safety. From the beginning, Trippe, Sikorsky and Leuteritz put a premium on safety. This priority is evident in the development of multi-engine airplanes like Sikorsky’s S-38 and in the unstinting support Trippe gave Leuteritz for his development of the radio navigation systems that would guide Pan Am’s planes safely to their destinations.

Comfort. To compete with the railroads and cruise lines for passengers, airlines needed to develop planes that offered comfort as well as speed. This was the thinking behind Sikorsky’s S-40 flying boat. Its November 1931 maiden flight from Miami to Panama included the first hot meal ever served aboard an aircraft. Passengers sat at tables draped in linen tablecloths, dined with heavy silverware, and were served by stewards in dapper, Navy-style uniforms. When they weren’t eating, the passengers sat in upholstered chairs and conversed in normal tones, thanks to the soundproofing that had been installed to dampen engine noise. The S-40 ushered in a new era in air travel, and later planes like the S-42 and the *China Clipper* took passenger comfort to an even higher level.

By the time Pan Am began offering passenger service to Asia in 1936, the cultural transformation of flight was essentially complete. The *Clipper’s* spacious cabins and well-appointed lounge were the epitome of luxury travel – a far cry from the cold, smelly, noisy, rough-riding planes of a decade earlier. Flying was no longer a risky adventure for the few; it was a well-established form of transportation, well on its way to becoming an indispensable part of global commerce.

When historian (and project advisor) David Courtwright looks at this historic process, he sees a parallel between the sky and the western frontier Frederick Jackson Turner wrote about more than a century ago. “Flying in the early days was a young man’s game,” Courtwright notes in “The Routine Stuff: How Flying Became a Form of Mass Transportation.” “Passengers of any sort were scarce. The pilots’ culture, like that of the mining camp or bunkhouse, was masculine, competitive, and inclined toward risk.” But the character of the aerial frontier gradually changed, Courtwright notes, just as the American West had.

The sky, considered as a zone of human activity, underwent a settlement process analogous to that of the nineteenth-century mining and ranching frontiers. Both began with a sprinkling of mostly male adventurers and ended with a much larger and more or less demographically normal slice of the general population. By the last two decades of the twentieth century, if not before, ordinary people could fly in relative comfort and safety and at low cost, but without much excitement or interest. For most Americans the sky had become domesticated, familiar, undifferentiated: Kansas without the Indians.

While some may have lamented the passing of flight’s exciting pioneer days, there was no turning back. In the 16-year span of this film, the nature of flight had been permanently altered. And it was just beginning to change the world.

THEME 5: GLOBALIZATION IN A SHRINKING AIR-AGE WORLD

Pan Am's crossing of the Pacific was no ordinary aviation milestone. Unlike many previous feats of flight (Lindbergh's 1927 Atlantic crossing, for example), its purpose was not simply to breach a barrier, to show what one heroic pilot could do. It was to build a permanent bridge over which many ordinary, *nonheroic* people – businessmen and tourists, diplomats and students – could then pass. For this reason, the building of the Pacific skyway is part of the long and continuing process historians Alfred Eckes Jr. and Thomas Zeiler call globalization. "Globalization is the process of integrating nations and peoples – politically, economically and culturally – into larger communities," Eckes and Zeiler write in *Globalization and the American Century*. "Over the centuries, [it] has brought people and nations closer together as technological innovations dissolved barriers of time and distance, enhanced flows of information, and promoted greater awareness and understanding." This process, which goes back at least as far as Marco Polo, has involved countless people and inventions, from great explorers to ships, railroads and technologies like the telegraph and telephone.

Rapidly changing technologies for transportation and communications continue to dissolve the barriers of time, distance and ignorance that once complicated long-distance relationships. In the twentieth century, some of the most important innovations were aviation, wireless radio, satellite communications, fiber-optic cables, personal computers and, of course, the Internet.

That Pan Am's crossing of the Pacific belongs on this continuum was recognized by the media of the day. On the morning of the *China Clipper's* takeoff for Asia, the *Los Angeles Times* wrote: "History is being written today at the Alameda Airport. November 22, 1935, takes its place along with the date of the first trans-Atlantic telegraph message, the completion of the first continental American railway and the receiving of the first wireless signal from Europe."

The completion of the Pacific skyway, soon followed by service across the Atlantic, had a number of practical impacts. Transoceanic flight expanded the vacation options for American tourists, bringing exotic new destinations within reach of those wealthy enough to afford the airfares. Rapid overseas travel helped American businessmen tap the long-coveted Asian markets. Airmail and express packages – delivered in days by plane instead of weeks by ship – helped international businesses operate more efficiently and compete with foreign rivals. And there was a widespread conviction that more contact with people of other countries would lead to better international relations. "When people are but hours instead of days, weeks and months apart," aviation philanthropist Daniel Guggenheim wrote in 1929, "they get acquainted, learn of each other's faults and virtues, and in time learn to sit down amicably together and straighten out their problems. It is the stranger of whom we are suspicious, not the one we know."

But the most profound effect of transoceanic flight may have been on people's perceptions. As one prominent scholar of the time put it, "the airplane has created a new geography of the world." That new sense of geography would alter Americans' ideas about space and distance, challenge longstanding assumptions about defense policy, and help bring about a new consensus about America's place in world affairs. It would literally change the way Americans saw the world.

For hundreds of years, most people's image of the world had been based on a rectangular map drawn in 1569 by a Flemish cartographer named Mercator. The Mercator projection was ideal for the age of sea power, because it allowed mariners to plot accurate courses using straight lines on the map. But it also grossly distorted the size of land masses far from the equator. (Greenland appears to be about ten times its actual size.) And because most Mercator maps placed the Americas to the left of the frame, they created a false sense of isolation, with the United States seemingly separated by wide oceans from the rest of the world.

But in 1936, soon after Pan Am began flying the oceans, cartographers like Richard Edes Harrison of *Fortune* magazine began depicting the world in ways more suited to the age of air travel. His maps were like photographs taken from an airplane high above the earth – a perspective that effectively put the reader in the pilot seat. "For a culture raised on the rigidity of the Mercator projection, the visual impact of Harrison's

maps should not be underestimated,” says historian Susan Schulten, author of *The Geographical Imagination in America, 1880-1950*. “The powerful simplicity of this perspective silently – yet insistently – forced the reader to conclude that the world had been reshaped by aviation. These maps forced a re-evaluation of assumptions about the appearance and shape of the world, about distances and directions between cities and nations, and about America’s role abroad.”

“Mercator’s flat projection of oceans and land masses still serves the shipmaster,” declared the *New York Times*, “but the time has come to discard it for something that represents continents and directions less deceptively. The reason is to be found in the long-range airplane.” The map that soon supplanted Mercator’s was the polar projection, a view of the northern hemisphere from over the pole. It revealed America’s surprising proximity to Europe and Asia, two continents that would soon be engulfed in war. The polar projection became the trademark of “air-age geography,” a movement that flourished in the late ‘30s and early ‘40s, inspiring museum exhibits, film and radio productions, and new geography textbooks with titles like *Our Air-Age World*.

One of the tenets of the new geography was that distance should no longer be measured in miles but in travel time. One museum display called “This Shrinking World” consisted of a series of ever-smaller globes whose size was determined by the time it took to travel around the world as transportation had improved over the centuries. In the early 1500s, it had taken nearly 1,100 days to circle the globe by ship. With faster ships and then airplanes, the time required had steadily diminished. By 1940, what had taken Magellan’s crew nearly three years could be accomplished in three days. “The area of an ocean, a continent or a country is as great as the time required to cross it,” declared one of the new geography textbooks. “Distance is measured in terms of speed and space. Not how far, but how fast!”

Even President Roosevelt joined in the chorus of air-age geography. “Today,” he said, “no point in the world is distant more than 60 hours from our shores. We are today closer to other continents than Boston was to Mount Vernon in Washington’s day.” And when FDR sent his former Republican rival Wendell Willkie on a goodwill air tour of the world in 1942, Willkie returned with the same message: “The modern airplane creates a new geographic dimension. A navigable ocean of air blankets the whole surface of the globe. There are no distant places any longer; the world is small and the world is one.”

But while the new Air Age could inspire visions of world harmony and easy access to other markets and cultures, it also heightened America’s sense of vulnerability. In April 1941, the Science Museum of St. Paul opened a new geography exhibit with the provocative title: *Can We Be Bombed?* The answer came eight months later. The Japanese attack on Pearl Harbor shattered America’s sense of isolation and security, plunged the nation into war – and redoubled public interest in air-age geography and Harrison’s flight-inspired maps. “It is only in recent years that we have come to realize that the psychological isolationism of the United States was largely due to an antiquated ‘vision’ of the world,” Harrison and political scientist Hans Weigert wrote during the war. “This world view, which many of us thought was the only possible and correct one, saw the ‘Western Hemisphere’ in happy and secure insular isolation. The surrounding oceans formed in our imagination a gigantic and impenetrable Maginot Line.”

Like the French defensive fortifications that had proved ineffective against the Nazis, the oceans offered little protection in an age of air power. In fact, the whole idea of hemispheres was a dangerous illusion, argued Air Age proponents. This new way of thinking – inspired both by the war and by the new global reach of aviation, epitomized by Pan Am’s transoceanic service – helped shift America’s military policy away from “hemisphere defense;” it eroded the remaining support for isolationism, and it helped prepare the American people for a more active role in world affairs and a firm commitment to the Allied cause.

As Eckes and Zeiler point out, globalization is not an unalloyed good. Critics see a dark side to many aspects of the process, and aviation is no exception. Just as worldwide communication technologies have led to a homogenization of culture, and the single global market has triggered job losses at home and environmental degradation overseas, the development of ocean-crossing planes has had military applications not welcomed

by all. The technological advance represented by Pan Am's crossing of the Pacific is part of the inexorable historical process – for good and ill – by which the world is bound together into an ever-tighter community.

Relation to Other Aviation Films. Hundreds of films have been made on the history of aviation, with subjects ranging from Charles Lindbergh and Amelia Earhart to the Wright brothers and great warplanes of yesteryear. But the early years of commercial aviation have been treated by relatively few films – and none that do what “Across the Pacific” sets out to do. These are the most relevant earlier programs:

- *Chasing the Sun.* In 2001, PBS broadcast this four-part series based on T.A. Heppenheimer's book "Turbulent Skies: The History of Commercial Aviation." Produced by KCET/Los Angeles, the series is a broad survey of American commercial aviation in the 20th century. One episode includes two sequences, totaling 13 minutes, on Juan Trippe and the early days of Pan Am, including the crossing of the Pacific; Trippe also figures in a later episode about the impact of jet air transports on the airline industry. While the *Chasing the Sun* Web site is still accessible at pbs.org, the television series itself is no longer available for purchase or at most libraries.
- *They Made America.* Trippe is one of a dozen technological pioneers featured in this 2004 PBS series produced by the WGBH History Unit. However, Trippe's story comprises just 15 minutes of the four-hour series, and most of that focuses on his role in dragging the airline industry into the jet age in the late 1950s. Less than five minutes of the piece deals with Pan Am's early years up until the *China Clipper*. Neither Sikorsky nor Leuteritz is mentioned.
- “Empires of Industry: Battle for the Skies.” Produced by Jupiter Entertainment for the History Channel in 2000, this one-hour film examines the impact that Juan Trippe and Howard Hughes had on the growth of international air transport. Much of the film focuses on the rivalry between Pan Am and TWA for dominance after World War II. Only about seven minutes of the film covers the earlier parts of the Pan Am story, and the development of routes in Latin America and across the Pacific is skimmed over very briefly.
- *Flying Boats.* This three-part series, produced for the Discovery Channel's “Wings” series in the 1980s, is a nostalgic survey of the flying boat era. It touches on the Sikorsky and Martin flying boats featured in our film, among others. The series is currently unavailable.
- *Pioneers of Aviation: Igor Sikorsky – A Man and His Dream.* One episode of this seven-part series, produced by Columbia River Entertainment, covers Sikorsky and his career. However, only seven minutes of the program deals with the period we propose to cover in our film, from Sikorsky's arrival in America to the crossing of the Pacific. Most of the program deals with Sikorsky's later work on helicopters. It consists almost entirely of murky archival footage and photographs, with excerpts from interviews with Sikorsky and his son. This 1998 series is still available for purchase but, to our knowledge, has never aired on American television.

To sum up: Of the three main characters in our film, Hugo Leuteritz has not figured in any earlier programs; Igor Sikorsky has barely been touched on, and the focus has been on his later work on helicopters; and while Trippe has been featured in at least three broadcast documentaries (as well as “The Aviator,” Martin Scorsese's biopic of Howard Hughes), nearly all the attention has been on his role in postwar aviation. The previous documentaries have relied almost entirely on archival images and interviews, with few re-enactments; and none of them has really examined the events leading up to the crossing of the oceans. In both subject matter and production style, then, “Across the Pacific” will be an original contribution to public understanding of aviation history.

C. STORYLINE

In designing “Across the Pacific,” we’ve set out to create an unusual hybrid of the documentary and feature film traditions. Although the film will make use of conventional documentary elements such as archival images, narration and on-camera interviews, it will also include three elements more common in feature films: multiple characters and plots; a classic three-act structure, and featurelike dramatic scenes.

Multiple Characters and Plots

Many historical documentaries focus on a single central character. This is true not only of biographies, the most common form of historical documentary, but also of many other history films. *American Experience*’s “The Great Transatlantic Cable,” for example, chronicles how Cyrus Field completed the first undersea cable connecting America and Europe; and NOVA’s “Lost at Sea” tells how the eighteenth-century clockmaker John Harrison solved the problem of determining longitude at sea.

“Across the Pacific” falls into the smaller class of films with more than one well-established character. (The *American Experience* programs “Partners of the Heart,” “The Fight,” and “Seabiscuit” are three other examples.) It is not a biography but a “slice of history” film. Just as the story of Seabiscuit follows the efforts of three characters (owner, trainer and jockey) to make a champion racehorse, this film is built around three memorable characters, each with his own plot line or story strand:

Strand 1: Juan Trippe and the building of Pan Am. This plot follows the film’s main character as he strives to build an international airline. It shows how he capitalizes on airmail subsidies to gain a foothold in the Caribbean, and then outmaneuvers his competitors by exercising his Washington contacts and methodically laying the groundwork for new routes in Latin America and the Pacific. One of the themes of this plot is Trippe’s foresight. For example, in 1931, four years before Pan Am would cross the Pacific, Trippe is already looking ahead to this goal. Realizing he will need a chain of islands where his flying boats can land, Trippe scans maps of the Pacific. But he can find no landing spot between Midway and Guam, an unbridgeable distance of some 3,000 miles. Convinced there must be someplace to land, he goes to the New York Public Library and scours the old logs of the clipper ship captains. He finds what he is looking for: a tiny coral atoll called Wake Island. It’s only two miles square, but it’s right where it has to be, and it has what Trippe needs most: a lagoon where his flying boats can land.

Strand 2: Igor Sikorsky and the evolution of the flying boat. This plot line follows Sikorsky’s pioneering role in designing and building the series of seaplanes that are instrumental in Pan Am’s success. Fleeing his native Russia after the fall of the czar, Sikorsky struggles for years to regain his footing in the U.S. aviation industry. But by 1928 he has found his niche. Working closely with Trippe and Pan Am consultant Charles Lindbergh, Sikorsky makes a series of flying boats that are ideal for Pan Am’s expansion into remote and undeveloped parts of Latin America and Asia. In 1935, the revolutionary S-42 – stripped down and fitted with extra gas tanks – performs the first test flights over the Pacific airway. But when Pan Am is ready to open the route, Sikorsky takes a back seat to Glenn Martin, who has built a plane with greater range: the M-130 *China Clipper*.

Strand 3: Hugo Leuteritz and the birth of radio navigation. This plot line follows the “unsung hero” of the story as he develops the navigational systems that make Trippe’s dreams possible. As a young radio engineer at RCA, Leuteritz is convinced there’s a market for radio in the fledgling airline industry – not only for communications but also in navigation, with the direction-finding principles already being used aboard ships. Spurned by RCA and turned down by one airline after another, Leuteritz finally gets his chance when Trippe invites him to try out his ideas on Pan Am’s new airmail route from Key West to Havana. Leuteritz faces outright hostility from the pilots (“I’ve thrown better radio equipment off my planes than you can build,” one sneers), but after he’s nearly killed in a crash at sea, the need for navigation is clear. At Trippe’s insistence, Leuteritz becomes Pan Am’s communications director, and

over the next seven years he develops a series of ever-more-sophisticated radio direction finders. They allow Pan Am's pilots to find the tiny islands where they must land to complete the crossing to Asia.

There are other important characters in "Across the Pacific," including **Charles Lindbergh**, who triggers an aviation boom with his historic 1927 crossing of the Atlantic and then becomes a key technical adviser to Pan Am and a co-designer of Sikorsky's flying boats; **Andre Priester**, the chief of operations for Pan Am; and pilot **Ed Musick**, whose historic flights aboard Pan Am's *Clippers* make him a national hero. But much of the story focuses on Trippe, Sikorsky and Leuteritz. We meet them early in the film, and the story unfolds through an account of their efforts, first separately and then together. This structure will allow us to intercut among their respective storylines, just as Hollywood directors intercut among different characters and subplots, giving the film a narrative drive that is unusual for a documentary.

Classic Three-Act Structure

Rather than presenting a straightforward, chronological account of the events leading up to Pan Am's crossing of the Pacific, we've created a classic three-act dramatic structure, selecting and shaping our account to heighten suspense, capitalize on surprise and accentuate the story's natural turning points:

Act 1: Airborne: Early in the film we meet the three main characters as they separately struggle to find a place in post-World War I aviation. Their struggles illuminate the challenges all aviation pioneers face in these early, uncertain days. After repeated setbacks, Trippe, Sikorsky and Leuteritz join forces and, capitalizing on the Air Mail Act and the "Lindbergh Boom," set out to build an airline to South America.

Act 2: Latin Laboratory: As they push southward, Sikorsky, Leuteritz and Trippe build larger flying boats, harness radio to navigate safely over great distances, and, with help from the U.S. government, outwit all competing airlines to dominate service to Latin America and launch the global air tourism industry. But all of this is merely preparation for their ultimate goal: flying the oceans. Trippe spends six years carefully laying plans for an Atlantic crossing – only to have his hopes dashed by political troubles in Britain and France. With \$2 million in new planes on order, Trippe is stymied, with no ocean to cross.

Act 3: Across the Pacific. With his path across the Atlantic blocked, Trippe surprises even his own staff by turning to the Pacific, for which he's been making secret preparations. Defying the skeptics, he and his Pan Am colleagues build an airway to Asia, allowing his planes to hopscotch across the world's widest ocean by landing at five stepping stone islands. Leuteritz's radio direction finders point the way, and Sikorsky's latest flying boat, the S-42B, pioneers the route before giving way to the Martin M-130 known as the *China Clipper*.

Epilog. This final section of the film examines the impact of transoceanic air service, including its role in inspiring the "air-age geography" movement that alters Americans' perceptions of the world and, along with World War II, triggers shifts in U.S. military doctrine and foreign policy.

Featurelike Dramatic Scenes

Many of the "dramatic re-enactments" shot for historical documentaries are anything but dramatic. Actors in period costume wage military battles, fiddle with scientific instruments or otherwise go through the motions of the historical characters they represent. These scenes often serve only to have an appropriate image on the screen while the narrator or a voice-over sound bite advances the story. One of our goals is to avoid scenes like this as much as possible, striving instead for dramatic scenes that *carry the action forward* in the same way scenes in feature films do. One key scene in Act 1, for example, involves the crash of the *General Machado*, the Pan Am mail plane that goes down at sea 300 miles off course on a routine flight from Havana to Key West. The crash is a pivotal moment in our story, because it underscores the need to develop a navigation system that can guide Pan Am's planes to the tiny islands where they'll need to land in crossing the oceans. To tell this story, we'll follow the events going on

inside the *General Machado*, with a submersible set created for that purpose, and we'll intercut those shots with a parallel scene of Andre Priester anxiously following the flight in the Pan Am radio shed. We'll draw dialogue from the actual record of radio transmissions to and from the plane, and we'll commission computer graphics to show how the plane could have ended up so far off course. The result will be a suspenseful scene that advances the story with little or no help from narration or interview bites.

There will be similar scenes throughout the film, including:

- the secret 1927 Washington meeting where U.S. officials concerned about the security of the Panama Canal decide to throw their weight behind a single American airline in the Caribbean, making Pan Am their "chosen instrument."
- the late-night meeting on the porch of a Key West motel, where Leuteritz shows Priester how their pilots are wandering off course and why Pan Am must develop a radio direction finder.
- and the S-42B's suspenseful first flight from Hawaii, with the crew battling ferocious headwinds while their wives and the Pan Am staff anxiously wait to see if they'll run out of gas before reaching San Francisco.

Our goal is to base these scenes strictly on the historical record, as a documentary should, but also to produce them so that they would be equally at home in a feature film.

D/E. AUDIENCE/FORMAT

"Across the Pacific" is intended for adult television viewers who enjoy historical documentaries, particularly ones with a scientific or technological bent. We have good reason to believe there is a large potential audience for the film. Program executives across the television dial have long known that the history of aviation is one of the medium's most popular genres, and this film should be especially appealing, because it's about a world-changing story that is largely unknown to most people alive today – a story filled with compelling characters and high drama.

In recent years, historians of technology have largely turned away from what project advisor John Staudenmaier calls the "master narrative" of technological success stories in favor of stories about technological failures, or stories featuring women and other previously neglected agents. Even so, Staudenmaier says, there is still something very appealing about a story of people who set out with a bold vision, apply great ingenuity and resolve, and succeed in the face of long odds. It's the kind of story that is especially well suited to a popular television program. We're counting on it to draw viewers to "Across the Pacific" and keep them watching.

But we also want those viewers to take away some larger lessons about history, about the human spirit, and about the nature of technology. Many will be surprised to learn about the origins of radio navigation, a technology that we all rely on today without realizing it; or about how the emergence of global flight changed things from American defense policy to people's sense of geography. Other viewers will be struck by the power of dreams to keep men like Sikorksy, Leuteritz and Trippe driving toward goals that at times seemed unattainable. And we hope all viewers will come away understanding that new technologies are not born in isolation but take root in a complex historical context, with social, cultural, political and economic forces all affecting the outcome.

We believe a documentary film like "Across the Pacific" is the ideal format for reaching these intellectual goals. Its innovative dramatic structure and use of featurelike re-enactments will hold the audience's attention, while its use of original sources and expert commentary will keep it solidly grounded in history and allow us to develop the broader humanities themes as the story unfolds. As one of our advisors, Jenifer Van Vleck, put it in her letter of commitment: "The film is essentially a work of scholarship presented in an accessible, compelling audiovisual format."

F. RIGHTS AND PERMISSIONS

“Across the Pacific” will draw on a mix of commercial, public and private sources of archival films, photographs and sound recordings. (For details, see **O. Collections of Materials to be Used**, below.) We do not anticipate any difficulty securing permission to use these materials, since the public materials are open to all, the private collectors are eager to see the film made, and the holders of commercial materials are usually happy to issue licenses and collect usage fees. In negotiating licenses for the use of these materials, we will seek worldwide, perpetual use for all media except theatrical distribution.

We expect archival images to comprise about 25 percent of the two-hour film. (Interviews, re-enactments, computer graphics and scenics will make up the rest.) We estimate that the costs associated with using these materials will total about \$95,000. Here is a preliminary breakdown of the costs, including rights fees and the costs of mastering, duplicating and shipping the materials. We will have more exact figures when we submit for production funds after completing the shooting script.

<u>Commercially available archival footage</u>	<u>\$55,000</u>
Including clips from the 1936 feature film, <i>China Clipper</i> , available through Warner Bros.; out-takes from that film in the Getty Images archive, the Pan American Airways corporate film archive, handled by Corbis; and newsreel footage from several sources such as Fox and the WPA film collections.	
<u>NBC Radio broadcasts</u>	<u>\$10,000</u>
Housed at the Library of Congress, licensed by NBC/Universal.	
<u>Private film collections</u>	<u>\$6,000</u>
Including film professionally shot by a Pan Am contractor in the 1930s. License fees will be minimal, but transfer costs may be substantial.	
<u>Public and other non-commercial sources of moving images</u>	<u>\$15,000</u>
Including the National Archives, Library of Congress, the Glenn Martin Museum, Sikorsky Company Archives, and others.	
<u>Commercial photo archives</u>	<u>\$4,500</u>
<u>Still photos from private and public collections</u>	<u>\$5,000</u>

In addition, the film will draw on the writings of the three main characters. However, since the Trippe, Sikorsky and Leuteritz families support the project, we expect to be able to draw freely from these written materials.

G. DISTRIBUTION PLAN

Our goal is to secure a primetime broadcast of “Across the Pacific” on cable or public television. The Smithsonian Channel, a joint venture between Showtime and the Smithsonian Institution, has already expressed interest in the project. (See their letter of interest in **Documentation**.) Given its strong ties to the National Air and Space Museum and its growing reputation for quality (it won an Emmy Award in its first year), the Smithsonian Channel is an ideal partner. Other possibilities include the PBS series *American Experience* and NOVA, and cable networks such as the History Channel and the Discovery Channel. Given the film’s strong entertainment value and the proven popularity of films on the history of aviation, we’re confident that we’ll find an appropriate television home for the program.

H. HUMANITIES ADVISORS

The production team will be guided by an Advisory Committee of scholars with expertise in aviation history, radio, navigation, the history of technology, cultural history and American foreign policy. The members of the committee are:

Roger E. Bilstein, one of America's most respected aviation historians and author of the acclaimed *Flight in America: From the Wrights to the Astronauts*.

Dorothy Cochrane, Curator, Aeronautics Division, National Air and Space Museum, and co-author of *The Aviation Careers of Igor Sikorsky*.

David T. Courtwright, the John A. Delaney Presidential Professor, Department of History, University of North Florida, and author of *Sky as Frontier: Aviation, Adventure and Empire*.

R. John Hansman, Jr., the T. Wilson Professor of Aeronautics and Astronautics, Massachusetts Institute of Technology, and Director of the International Center for Air Transportation.

Dominick A. Pisano, Curator, Aeronautics Division, National Air and Space Museum, editor of *The Airplane in American Culture*; currently at work on a cultural history of aviation in the U.S. between 1910 and 1939.

Emily S. Rosenberg, Professor of History, University of California-Irvine, and author of *Spreading the American Dream: American Economic and Cultural Expansion, 1890-1945*.

Susan Smulyan, Professor of American Civilization, Brown University, and author of *Selling Radio: The Commercialization of American Broadcasting, 1920-1934*.

John Staudenmaier, Assistant to the President for Mission and Identity, University of Detroit Mercy, and longtime editor of the journal *Technology and Culture*.

Jenifer Van Vleck, a rising young historian and recent winner of the American Historical Association's NASA Fellowship, whose forthcoming Yale dissertation is entitled, *No Distant Places: Commercial Aviation and American Globalism, 1915-1968*.

In selecting these advisors, we set out to assemble a group of scholars with expertise in all the major areas relevant to the film. Roger Bilstein's broad knowledge of aviation history is unsurpassed. Dominick Pisano is a leader in the effort to examine aviation's social and cultural ramifications. Jenifer Van Vleck is a young historian with similar goals, actively engaged in researching the global impact of commercial aviation during the period covered by the film. Dorothy Cochrane is an expert on one of our main characters, Igor Sikorsky. The panel also includes two historians of technology: John Staudenmaier, who has grappled with a wide range of technology issues as editor of the field's leading journal; and Susan Smulyan, who has a particular interest in radio, a technology critical to our story. John Hansman is the lone scientist on the panel; he'll help us understand and accurately convey the intricacies of radio navigation. Finally, the committee includes two scholars in American history: Emily Rosenberg, who has a longstanding interest in American expansion; and David Courtwright, whose book *Sky as Frontier* brought an outsider's perspective to aviation history. These advisors have already helped shape the "Across the Pacific" project, and they will continue to do so through emails, phone calls and our meeting in Boston.

I. MEDIA STAFF

The "Across the Pacific" project is headed by a team of professionals with decades of experience in television production:

Project director/producer/writer: Stephen Lyons. Lyons is an award-winning writer and producer with 25 years of experience in television, newspapers and magazines. He has written grant proposals, treatments and scripts that have helped raise more than \$25 million for a half-dozen PBS science and history programs, including *Evolution*, *Secrets of Lost Empires*, *The Elegant Universe* and “Theodore Roosevelt,” a four-hour biography of the colorful president (for David Grubin and *American Experience*). Lyons has been a writer and producer on three documentaries for NOVA, as well as on shorter pieces for other programs. Most recently, Lyons was producer-writer and Project Director of “Forgotten Genius,” NOVA’s two-hour biography of the late African American chemist Percy Julian. The film was supported by major grants from NEH, the National Science Foundation and the Alfred P. Sloan Foundation. It won the 2007 Science Journalism Award from the American Association for the Advancement of Science, the National Science Writers Association’s “Science in Society Award” and a national Emmy Award (for lighting and scenic design.)

Directors (dramatic re-enactments): Kirk and Lisa Wolfinger. Kirk Wolfinger has worked in the film industry for more than two decades, producing, directing and executive producing award-winning documentaries for a half dozen television networks. Among his many credits are the History Channel series *Deep Sea Detectives*, the National Geographic Special *Pearl Harbor: Legacy of Attack* and the NOVA programs *To the Moon*, *Hitler’s Lost Sub* and *Bioterror* (for which he received one of his two Emmy awards). In 1997, Kirk formed Lone Wolf Documentary Group with (b) (6) Lisa, who has produced, directed and/or written many award-winning programs in her own right, including the Emmy-nominated *Desperate Crossing: The Untold Story of the Mayflower* and the miniseries *Conquest of America*, both for the History Channel, and *Pocahontas Revealed*, for NOVA.

Producer: Doug Miller. Founder of Pelican Films, Miller has filled many production roles over the course of his career, from camera assistant and sound recordist to director of photography and producer. His production credits include commercials and corporate videos as well as television programs. Long interested in aviation, he helped broker and produce “Amelia Earhart: The Final Hours,” a PBS documentary that followed pilot Linda Finch’s 1997 flight around the world on the 60th anniversary of Earhart’s final flight. Miller first became interested in the history of Pan Am in 1985, when he was hired to help document the departure of the *China Clipper II* as the airline commemorated the 50th anniversary of the Pacific crossing. He later pursued opportunities to learn more about Pan Am’s legacy, in the process developing many contacts, unearthing documentary resources, and shooting interviews with Pan Am veterans.

J. PROGRESS

During the long gestation of the “Across the Pacific” project (Doug Miller has been investigating the story for more than a decade), the producers have taken many steps that have advanced the project in significant ways. Among other things they have:

- Located many sources of untapped footage and photographs.
- Conducted audiotaped (and in some cases videotaped) interviews with many people who were involved in the Pacific crossing.
- Contacted several of the authors who are likely to be interviewed for the program.
- Contacted the Trippe, Sikorsky and Leuteritz families and secured their cooperation.
- Visited the archives that hold the Sikorsky and Leuteritz papers, as well as the Pan Am Historical Foundation collection, where Juan Trippe’s papers are housed.
- Consulted with humanities scholars and recruited eight of them (and one scientist) to serve on our Advisory Committee.
- And written the attached treatment of the film.

The treatment lays out the basic story of the film, scene by scene, as we now envision it. During the Scripting Phase, we'll flesh out the script by adding interview bites based on our pre-interviews with scholars, authors, family members and people who played a role in the story; and by scouring the historical record for reliable sources of dialogue among our main characters. At the same time, we'll refine our ideas about how to realize each scene visually, based on our further research into the available archival images and into what kinds of re-enactments are realistic and affordable. (See **K. Work Plan**, below, for further details.)

K. WORK PLAN

January-February

During the six-month Scripting Phase, likely to begin in January 2010, Doug Miller will focus primarily on two tasks:

Image research. Miller, who paid a brief visit to the University of Miami's Richter Library in preparation for this proposal, will go back for a more thorough examination of the visual resources in the huge Pan Am collection. In addition, he will research the relevant images available from:

- *Time-Life*, which covered Pan Am extensively
- Conventional image houses such as Corbis and Getty
- Newsreels
- And home movies and personal photographs of the Trippe family and others involved in the story of the *China Clipper*.

Airborne shots. For the scenes requiring shots of and from airplanes aloft, Miller will research which of the historical aircraft featured in the film are still flying and, for those that aren't, whether there are acceptable substitutes. In cases where no acceptable plane is available, he will investigate how we might shoot those scenes using museum planes (authentic but unflyable), specially constructed sets, green screens, models and other techniques. He will share his findings with Steve Lyons and Lone Wolf Documentary Group throughout this process.

Meanwhile, Steve Lyons will focus on these two aspects of the project:

Interviews. Lyons will identify scholars, authors, pilots, navigators, family members, and former Pan Am employees who are potential on-camera interviews for the film. He will conduct "pre-interviews" with these candidates and get the interviews transcribed.

Written accounts. Lyons will dig deeply into various written sources for lines that could be used as dialogue or otherwise woven into the script. Among the potential sources are:

- the writings of the three main characters
- accounts written by pilots and other Pan Am employees
- oral history interviews conducted by the Pan Am Historical Foundation, the Louis Turpen Aviation Archive and Museum at the San Francisco Airport, and others
- recordings of commercial radio broadcasts (coverage of the November 1935 launch of the *Clipper*, for example)
- transcripts of key Pan Am radio transmissions (the air-to-ground exchange during the crash of the *General Machado*, for example)
- and the minutes of critical meetings (like the meeting where federal officials decided to make Pan Am the government's "chosen instrument").

March-April

Scripting. Based on the findings of these two months of additional research, Lyons will write a shooting script for the two-hour film and circulate a first draft to our advisors and the Lone Wolf directing team. Miller will continue his research and assist in the writing.

May-June

Advisory Committee. We will hold a meeting of the advisors in Boston, seeking their feedback to the script and proposal narrative. Although we will have been in touch with the advisors individually throughout the Scripting Phase, this will be their first opportunity to interact with each other – and their best chance to shape the direction of the script and film.

Revisions. Based on the advisors' responses, Lyons will rewrite the script and proposal narrative, incorporating their suggestions.

Our goal is to submit a production proposal to NEH in August 2010.

L. FUNDRAISING PLAN

To date, the producers have received two grants totaling \$40,000 from the Pan Am Historical Foundation to support our initial research and the writing of this proposal. (PAHF acknowledges that the producers and our ultimate television partner will have editorial control over the film. See the PAHF letter in **Documentation**.) To supplement the \$75,000 NEH scripting grant, we hope to raise an additional \$27,000 from foundations and individuals to support the completion of the shooting script. If the script leads to an NEH production grant, our intention is to seek additional funds from (b) (4), which has a history of supporting films on the history of science and technology, including Steve Lyons' last film, NOVA's two-hour biography of chemist Percy Julian, "Forgotten Genius." We expect to receive partial funding from the television network that airs the program. And we will seek additional funds from state humanities councils, other foundations, foreign broadcasters and philanthropists with an interest in the history of aviation.

M. ORGANIZATION HISTORY

The **Filmmakers Collaborative** is a Boston-based, nonprofit association of independent film and media makers. Since its founding in 1986, the Collaborative has built a strong reputation for fiscal management and artistic integrity, sponsoring some 50 film and television projects on subjects as diverse as history, art, music, education and environmental science. It has administered over \$10 million in grants from NEH and other funders, including the National Science Foundation, the National Endowment for the Arts and the Ford Foundation. Many of its programs have aired nationally on such primetime series as *American Experience* and NOVA. And the Collaborative's films have won some of television's most prestigious honors, including a Peabody Award (for "Tupperware") and an Emmy Award (for "A Midwife's Tale").

"Across the Pacific" will be produced for the Filmmakers Collaborative by **Moreno/Lyons Productions, LLC**, a Boston production company headed by two longtime contributors to PBS. **Stephen Lyons**, the director of the "Across the Pacific" project, is a writer and producer with extensive experience in print and broadcast media. (See **I. Media Staff**, above, for details.) His partner is **Aida Moreno**, one of public television's most prolific and successful producers. Moreno is best known as the creator and original Executive Producer of *Antiques Roadshow*, the most popular program on PBS for the last nine years. She also produced many other programs during a 24-year career at WGBH. Although Moreno/Lyons Productions *as a company* has not yet produced a humanities-based program, Lyons has written several successful NEH proposals and was Project Director and producer-writer of "Forgotten Genius," NOVA's NEH-funded biography of the late African American chemist Percy Julian.

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O. COLLECTIONS OF MATERIALS TO BE USED

During the long development of this project, the producers have identified and/or acquired a wealth of sources that will enrich the film. Among them:

Company Archives

The Pan American Archives. Founded by former Pan Am employees shortly after the airline ceased operations, the Pan American Historical Foundation (PAHF) has devoted a great deal of effort to preserving the memory of Pan Am and promoting recognition of its contributions to aviation. The organization has amassed a huge archive of materials related to the company's history, including letters, speeches, internal memoranda, flight logs, advertisements – and thousands of photographs. Of special interest are letters and speeches by Juan Trippe and a series of unpublished interviews with Hugo Leuteritz concerning his construction of Pan Am's radio navigation system. Most of the Pan Am records are in a special collection at the Otto G. Richter Library at the University of Miami.

The Sikorsky Archives. Housed in a building adjacent to the Sikorsky aircraft manufacturing plant in Stratford, Connecticut, the archives includes a huge collection of papers, photographs and films related to Igor Sikorsky's aviation career. Most promising are Sikorsky's personal correspondence; his notebooks, which include drawings and tables in his own hand; company films of the early flying boats, including a test flight of the S-42; and hundreds of photographs of Sikorsky, his staff and the planes they built.

Photo, Sound and Motion Picture Resources

The Pan American Airways Motion Picture Collection. Because Trippe was keenly aware of the value of publicity, Pan Am shot extensive motion picture footage of its operations over its five decades in business. This massive archive was bought by a private collector when the airline declared bankruptcy in 1991. The owner has a strong personal interest in seeing this documentary made and has worked closely with the producers over the last few years. We expect to be able to tap this collection of archival film at a substantial discount.

Outtakes from the feature film *China Clipper*. In 1936, Warner Brothers set out to capitalize on the public's fascination with the *China Clipper* by producing a feature film starring Humphrey Bogart as pilot Ed Musick. In preparation for the film, the studio sent master cinematographer Elmer Dyer to record much of Pan Am's operations. Only a small part of this beautifully shot 35mm material was used in the film. The outtakes, which sat for decades in a New Jersey warehouse, were recovered a few years ago and are now available.

Private film collections. We have also identified several private film collections, including home movies shot by Juan and Betty Trippe and films taken by early Pan Am pilots during their trips to Asia. One of the most intriguing is the Robert E. Fulton collection, a set of recently rediscovered 35 mm films taken by a Pan Am contractor in the 1930s. This footage includes images of Pan Am activities in Latin America, the Caribbean and the Pacific.

Radio Recordings. Pan Am was opening its transpacific airway just as live radio broadcasts were beginning to be recorded and preserved on acetate disks. As a result, the Library of Congress collection includes hours of relevant recorded material, including the launch of the *China Clipper* from Alameda in 1935.

Contemporary press coverage. Pan Am was born at a time when public fascination with aviation was at its highest. Lindbergh had just crossed the Atlantic – and immediately signed on as an adviser to Pan Am. As a result, the media followed Pan Am's exploits closely. There is extensive newsreel coverage of the airline's early milestones, and many lavishly illustrated articles in magazines and newspapers of the time. Of special interest are the articles in *Time*, *Life* and *Fortune* – all published by Trippe's Yale classmate Henry Luce, an avid backer of Pan Am. The feature stories in *Life* include some of the best photos of Pan Am's Pacific operation.

Other Collections of Personal Accounts and Artifacts

Hugo Leuteritz Collection. The New England Air Museum in Hartford includes a small trove of papers, photos and artifacts, including old radios, instruction manuals, radio reports on several Lindbergh flights, snapshots of Leuteritz and others, magazine articles, copies of speeches, letters concerning the crash of the *General Machado*, and early drafts of Leuteritz' account of Pan Am's communications system.

Fordham University Archives. The Fordham archives include several boxes of papers and artifacts from author Robert Daley's work on the Trippe biography *American Saga*. Especially promising are tape-recorded interviews with Trippe, Leuteritz and Dutch Schildauer, the Pan Am employee who investigated Wake Island as a potential landing site for the *China Clipper*.

Personal photo and diary collections. We have also located several private collections of writings and photographs documenting the early years at Pan Am. They include a diary written by the "First Lady of Pan Am," Betty Stettinius Trippe, and materials from John Borger and Bill Taylor, two young engineers who worked on the construction of Pan Am's bases at Wake Island and other Pacific stepping stones.