Translation essays - sir frank whittle

The pioneering work of Sir Frank Whittle in developing the jet engine.

The pioneering work of Sir Frank Whittle in developing the jet engine helped transform the way civil aviation operates today. Indeed, it is probably true to say that without the jet airliner, there would be no package holiday business today and air travel would have remained an exclusive activity. However, the invention of the jet alone did not make these changes possible. Aircraft manufacturers too had their part to play in building aircraft types that were economic to operate for airlines. There are a variety of important aircraft models, all equally impressive in their own rights, which helped shape the air travel business. We shall focus on three of the most notable product lines: The Boeing 7×7 series, the McDonnell-Douglas DC-10 series, and the Airbus 300 series, all of which have utilized varying degrees of speed, fuel efficiency, service, and passenger capacity to make air travel accessible and attractive to the common person.

It is worth briefly mentioning here that the American aircraft manufacturers had a built-in advantage in the jet passenger craft market coming out of World War II, for a fairly straightforward reason: The American aircraft industry was completely undamaged, in contrast to the European and Asian companies which had been devastated. So aircraft manufacturer Boeing, makers of workhouse American bombers such as the B-17 and B-29, was well-poised to enter and dominate the commercial jet aircraft arena. The first commercially successful venture, unsurprisingly, was the Boeing ‘ 7X7’ Series, four-engine large-payload jets, the first of which was the 707. This remarkable craft was airborne within two years of the announcement of the

project’s commencement, taking to the skies on May 14, 1954 on its first test flight, and carrying its first commercial passengers a relatively short time later (December 20 1957), thanks to Pan American Airways’ agreement with Boeing to purchase and operate a large number of 707s to form the backbone of Pan Am’s worldwide fleet. The first model, the 707-120 (medium-range jets), carried up to 181 passengers, and subsequent versions including the 707-320 (longer-range jets), carried up to 200 passengers. Cruising speeds for the 707 reached up to 1000 kilometers per hour, making even international travel a speedy, convenient, and more affordable process. In all, 1, 010 707s in its various incarnations were produced in an astonishingly lengthy commercial production run from 1954 to 1978. (Boeing continued to produce 707s for the military until 1991.)

The American passenger airline business benefited greatly from government deregulation in the 1970s, opening the way for an explosion comprised of a perfect storm of more carriers, lower prices, and higher customer demand. The aging 707 series, venerable as it was, simply did not carry enough passengers or boast adequate fuel efficiency to remain economically feasible for production and continued use. Some airline industry analysts felt Boeing was slow to realize this, but the company responded with remarkable agility by announcing in 1966 that it would begin production of a line of so-called ‘ jumbo jets’ within four years, spurred again by a huge order from Pan Am, who was gambling on twenty-five brand new jets, sight unseen. This was no minor undertaking – the development and production of this revolutionary new behemoth airplane nearly bankrupted Boeing. In 1970 — right on its announced schedule, yet against all outside predictions — Boeing introduced

the 747, a colossal double-decker jet which will have held the record for largest size jet until late 2006, when it will be surpassed by the introduction of Airbus Industries' A380 (more on the Airbus later). Like the 707, Boeing's 747s were rolled out in a progression of improving and size-varied series, ranging from the 747-100 to the 747-400s. Though the 747's cruising speed is a tad slower than the 707 (910 kilometers per hour), the latest models transport an astonishing amount of human cargo — between 415 and 525 passengers (up from the earliest models' 374-passenger maximum). Its better fuel efficiency, compared to the 707s, allowed it to travel longer distances without refueling, as well, for example, from New York to Hong Kong nonstop. In addition to meeting the market demand of more people to fly for less money, the 747 also accommodated those who were willing and able to pay more to fly in style. Another clever feature of the 747 was the refinement of the idea of different ' classes' of passenger service. The original evolution of passenger air flight in general, not just the 747, was simply along the lines of making air travel affordable for the maximum number of people. Once this goal was achieved, the airlines modified their business plans to accommodate the fact that certain travelers, particularly those traveling for business purposes, would be willing to pay higher fares for added amenities such as larger seating, better food, free alcoholic beverages, priority boarding, etc. The 747's upper deck was designed for such so-called ' first-class' passengers and Boeing produced, for various airlines, a variety of configurations that included such amenities as a piano lounge and standup cocktail bars for its more upscale clientele. In all, over 1, 200 747s have been produced, and with the advent of the 747-8 series in late 2005, the line lives on.

Another important jet was McDonnell-Douglas' DC-10, which flew its first passenger flight in 1971. It was designed to compete directly with Boeing's 747 and its creation, like the 747, was spurred in large part by the demand from a particular airline. In the DC-10's case, American Airlines specifically asked McDonnell-Douglas if it could manufacture a plane capable of flying the same long routes as the 747 but which could accommodate shorter runways and standard gate sizes found at many airports. The result was a three-engine aircraft that could carry between 250 and 380 passengers in its various incarnations. Its speed was essentially comparable to the 747, at 982 kilometers per hour, with less fuel consumption, again making it more affordable. United Airlines, pleased with the results of McDonnell-Douglas' fruits, also purchased a number of DC-10s. Unfortunately, the DC-10 was not to have as celebrated an era of service as the 747. In the 1970s, several horrific and well-publicized disasters occurred involving DC-10s that were traced to design flaws. The most noteworthy of these problems was the design of the cargo doors. Most passenger jets utilized designs in which the doors opened inward; the DC-10 cargo door opened outwards, requiring a complex and heavy locking mechanism to withstand the heavy outward-directed force of cabin pressurization. The locking mechanism was prone to a variety of dangerous pitfalls, ranging from human error to mechanical failure, any of which could cause a catastrophic blowout of the door. There were a few near-misses in the early 1970s in which a door failed, including a 1972 incident in Detroit, but no accidents transpired. Tragically, however, a complete and utter disaster befell a Turkish Airlines DC-10 on March 3, 1974. The plane took off from Orly airport in Paris; within seconds, its cargo door blew out and the resulting depressurization severed the control cables,

rendering the aircraft unmanageable by the pilots. The plane crashed 77 seconds after takeoff into the dense Ermenonville forest outside of Paris, shredding the plane and its passengers to ribbons. All 364 people aboard were killed. Subsequent investigations by the French and American governments revealed that McDonnell-Douglas was well aware of defects in the cargo door design, but made inadequate efforts to correct it. Under legal pressure and rebellion from passengers who simply refused to fly on a DC-10, McDonnell-Douglas corrected the flaw. But after yet another catastrophic crash of a DC-10 in 1979 at Chicago O'Hare airport, the DC-10 never regained its footing and eventually, production was halted in 1988 after a comparably small production run of 446 planes, ending what could have been a healthier competition between the 747 and DC-10 that would have continued to benefit airlines in their fierce competition for passengers.

Lastly, Airbus Industries' Airbus model is important to mention, both for its successful, albeit relatively short track record and the simple fact that it is not a product of American design and manufacturing. Airbus was formed in 1967 by a consortium of European aviation manufacturers with the express purpose to compete with Boeing's overwhelming dominance in the passenger jet market. In the intervening 38 years, Airbus has fought a pitched battle with Boeing, both politically and commercially, and achieved remarkable parity. It narrowly edged out Boeing in total number of orders received in 2005, 1055 jets to 1002. Airbus did not get off to an auspicious beginning, however. Only 81 of its A300 model were in service by 1979 despite its entry into the world market in 1974. However, the introduction of the A320 model in 1981 was a smashing success, with Airbus having taken

400 orders from airlines before the first model even left the ground. Though the A320 typically only carried approximately 150 passengers, its reliability, speed (approximately as fast as a 747) and fuel efficiency made it an attractive choice that could compete with Boeing's smaller jets including the 737, and Airbus wasted little time in expanding the passenger capacity of the A320 and subsequent models. In fall 2006, Airbus' A380 will overtake the 747 in maximum passenger capacity – 555. The competition between Airbus and Boeing has become so fierce that it has escalated into conflict between the United States and European Union, with unfair subsidy accusations and threats of trade wars flying across the Atlantic Ocean as often as the jets.

Certainly, Boeing, McDonnell-Douglas, and Airbus were not the only major players in the passenger jet business since its advent. Other notables include American manufacturer Lockheed and a host of minor foreign manufacturers. None, however, have matched the dominance and industry-changing models of Boeing 7×7 series and Airbus 300 series, or the unfortunate inability of McDonnell-Douglas to live up to the potential of the maligned DC-10. Each of these planes played a key role in making long-distance air travel more competitive, more affordable, more international, more accessible, and safer (ironically, in the case of the DC-10) with each passing year.

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