

BRIEF HISTORY OF HANG-GLIDING AND PARAGLIDING

A HUNDRED YEARS AGO OTTO LILLIENTHAL BUILT BIRD-LIKE WINGS AND MADE HUNDREDS OF FLIGHTS BEFORE HIS UNFORTUNATE DEATH IN 1896. THE WRIGHT BROTHERS WERE INSPIRED BY HIS WORK. THEY WERE REMARKABLY SUCCESSFUL IN THEIR DEVELOPMENT AND FLYING OF GLIDERS AND POWERED AIRPLANES HERE IN NORTH CAROLINA, WHERE A MONUMENT AND MUSEUM HAVE BEEN BUILT TO COMMEMORATE THEIR ACHIEVEMENTS. THEIR ACHIEVEMENT OF POWERED FLIGHT LED TO THE GREAT VARIETY OF MILITARY, COMMERCIAL, AND CORPORATE AIRCRAFT OF TODAY. BUT HAD NOT LED TO PRACTICAL AND AFFORDABLE WINGS FOR THE COMMON MAN, A GOAL I THOUGHT WORTH SEEKING, AND WHICH I PROPOSED FOR THE NACA AT THE END OF WORLD WAR II. THE NACA, FOR WHOM I HAD BEEN DOING AERONAUTICAL RESEARCH SINCE 1936, WAS NOT INTERESTED IN SUCH A GOAL, BUT ALLOWED ME TO DEVOTE MY SPARE TIME AT HOME TO THIS EFFORT. MY WIFE GERTRUDE JOINED IN THIS WORK AND BY THE END OF 1948 WE HAD DEVELOPED SUCCESSFUL FLEXIBLE WINGS AND FLOWN THEM AS KITES AND AS MODEL GLIDERS, AND HAD APPLIED FOR A PATENT.

FOR THE FOLLOWING TEN YEARS (1948-58) I CONTINUED MY RESEARCH AT NACA, AND ALSO OUR PRIVATE EFFORT TO DEVELOP FLEXIBLE WINGS AND TO ENCOURAGE THE AERONAUTICAL ESTABLISHMENT, BOTH GOVERNMENT AND PRIVATE, TO DO LIKEWISE, BUT TO NO AVAIL. THEN IN 1958 AFTER THE RUSSIANS LAUNCHED SPUTNIK, NACA BECAME THE NASA, AND I WAS ALLOWED TO BEGIN MAKING WIND TUNNEL AND FLIGHT TESTS OF FLEXIBLE WINGS AS PART OF MY NASA WORK.

BETWEEN 1958 AND 1970 THE US GOVERNMENT AND CORPORATIONS UNDER CONTRACT DEVELOPED AND FLEW A VARIETY OF EXPERIMENTAL FLEXIBLE WING AIRCRAFT, AND PUBLISHED THE TEST RESULTS. MANY OF THESE AIRCRAFT WERE ALSO PICTURED AND DESCRIBED IN MAGAZINES AND NEWSPAPERS IN THE US AND ABROAD, COMING TO THE ATTENTION OF INDIVIDUALS WHO BUILT A VARIETY OF MANNED FLEXIBLE WING AIRCRAFT.

FOR EXAMPLE, IN 1961 TOM PURCELL OF RALEIGH NC, AN NC STATE GRADUATE AERONAUTICAL ENGINEER, AFTER READING THE FIRST NASA FLEXIBLE-WING REPORT, BUILT A FLEXIBLE-WING GLIDER THAT WAS TOWED INTO THE AIR BY AN AUTOMOBILE ON THE RALEIGH-DURHAM AIRPORT. GERTRUDE AND I HAD THE PLEASURE OF GOING TO RALEIGH TO SEE PURCELL AND MILT THOMPSON FLY IT. THOMPSON WAS A NASA TEST PILOT AND LATER AN ASTRONAUT WHO HAD BEEN CHOSEN TO TEST FLY A SOMEWHAT SIMILAR GLIDER THAT NASA WAS BUILDING AT EDWARDS CALIFORNIA TEST CENTER AS A TRAINER FOR ASTRONAUTS IN PREPARATION FOR FLYING THE GEMINI WITH PARAGLIDERS. I THOUGHT IT NOTEWORTHY THAT NASA WOULD SEND A TEST PILOT AND AN ENGINEER FROM CALIFORNIA TO NORTH CAROLINA TO FLY PURCELL'S HOME-BUILT FLEXIBLE-WING GLIDER. SUBSEQUENTLY, THOMPSON AND SEVERAL OTHER NASA PILOTS FLEW THE NASA FLEXIBLE-WING TRAINER, AND MANY SUCCESSFUL MANNED FLIGHTS AND LANDINGS WERE ALSO MADE WITH THE FULL-SCALE GEMINI PARAGLIDER TEST VEHICLE.

PURCELL LATER MOUNTED HIS GLIDER ON FLOATS AND TOWED IT WITH A BOAT. IN 1965 I MADE MY FIRST SOLO FLIGHT IN THIS GLIDER NEAR LANGLEY RESEARCH CENTER AND LATER FLEW SEVERAL FLIGHTS ON THE JAMES RIVER.

PURCELL ALSO BUILT AND FLEW A SMALL SEAPLANE WITH A FLEXIBLE-WING THAT COULD BE OPENED OR FOLDED FROM INSIDE THE COCKPIT, AND RECENTLY ON ARMY CONTRACT BUILT AND FLEW A CARGO PACKAGE WITH A FLEXIBLE-WING THAT COULD BE UNFOLDED TO ALLOW THE CARGO TO BE RADIO CONTROLLED TO A SOFT LANDING AT A CHOSEN SITE.

FOR ANOTHER EXAMPLE, IN 1963 JOHN DICKENSON IN AUSTRALIA LEARNED ABOUT THE FLEXIBLE-WING FLOWN IN AMERICA, AND HE DEVELOPED A FLEXIBLE-WING HANG-GLIDER TO BE USED INSTEAD OF FLAT KITES USED BY WATER SKIERS. HIS DESIGN OF TRIANGLE CONTROL FRAME AND PILOT SUSPENSION ARE STILL IN GENERAL USE. OTHER AUSTRALIANS FOLLOWED DICKENSON'S LEAD, NOTABLY BILL MOYES AND BILL BENNETT, WHO STARTED BUILDING AND FLYING SIMILAR WINGS IN AUSTRALIA AND INTRODUCED THEM IN EUROPE AND AMERICA, WHERE OTHERS JOINED THE PARTY, AND SOME CAME OUT OF THE WATER AND BEGAN LAUNCHING FROM SAND DUNES AND HILLS.

IN JULY 1973 A HANG-GLIDING MEET WAS HELD NEAR OUR HOME IN KITTY HAWK, ATTENDED BY 26 PILOTS FROM MANY PARTS OF THE U.S., ESPECIALLY CALIFORNIA. IT HAS BEEN REPEATED ANNUALLY EVER SINCE, AND GERTRUDE AND I HAVE NEVER MISSED ONE. SOON AFTER THAT MEET A HANG-GLIDER SCHOOL, "KITTY HAWK KITES", WAS ESTABLISHED NEAR JOCKEY'S RIDGE IN NAGS HEAD AND HAS BECOME THE WORLD'S LARGEST HANG-GLIDING SCHOOL. HANG-GLIDING ALSO BECAME POPULAR IN THE MOUNTAINS OF NORTH CAROLINA, NOTABLY GRANDFATHER MOUNTAIN, WHERE MANY NATIONAL AND INTERNATIONAL HANG-GLIDING MEETS WERE HELD.

AS FOR PARAGLIDING, IN 1966 THE ARMY GOLDEN KNIGHTS PARACHUTE TEAM OF FORT BRAGG NC INVITED US TO COME TO FORT BRAGG AND DEMONSTRATE OUR DEPLOYABLE FLEXIBLE-WINGS BY AIR DROPS WITH DUMMIES. THEY LIKED WHAT THEY SAW, AND BECAME THE FIRST PARACHUTISTS TO LIVE-JUMP FLEXIBLE-WINGS. AFTER A SERIES OF TESTS BY SEVERAL MEMBERS OF THE TEAM, THE GOLDEN KNIGHTS SWITCHED FROM PARACHUTES TO FLEXIBLE-WINGS FOR THEIR DEMONSTRATIONS, AND PARACHUTISTS ALL OVER THE WORLD SOON FOLLOWED THEIR LEAD.

MANY OF THE NASA PEOPLE WHO DID RESEARCH AND DEVELOPMENT RELATED TO FLEXIBLE-WINGS WERE FROM NORTH CAROLINA, AND WE OFTEN TALKED OF MAKING A TRIP TO THE OUTER BANKS TO FLY OUR WINGS. IN 1967 GERTRUDE AND I BOUGHT A BEACH COTTAGE NEAR KITTY HAWK WHERE WE FLEW SEVERAL PARAGLIDERS THAT WE HAD MADE AT HOME. WE ACHIEVED MANNED FLIGHT BY THREE METHODS- FOOT LAUNCHING FROM THE HIGH DUNES, TOWING WITH A BOAT, AND AS KITES IN THE SEA BREEZE ON THE BEACH. FLIGHTS WERE ALSO MADE BY OUR CHILDREN, A GRANDSON, AND MANY OF OUR FRIENDS ON THESE PARAGLIDERS BETWEEN 1967 AND 1974. PARAGLIDERS ARE NOW ALSO BECOMING POPULAR WORLDWIDE.

I THINK THIS BRIEF HISTORY PROVES THAT NORTH CAROLINA HAD A BIG PART IN THE DEVELOPMENT OF HANG-GLIDING AND PARAGLIDING.

A. M. Royallo 7/15/90