
Ryan School of Aeronautics
America's most modern
School of Aviation •
RYAN STUDENTS in formation flight over San Diego California

INDEX

FOR TUITION RATES: See Ryan Booklet entitled "Outline of Courses and Tuition Rates."

RYAN SCHOOL OF AERONAUTICS

UNITED STATES DEPARTMENT OF COMMERCE

Approved School Certificate

This is to certify that RYAN SCHOOL OF AERONAUTICS, LTD.

Located at LINDBERGH FIELD, SAN DIEGO, CALIFORNIA *is an*

Approved TRANSPORT, LIMITED COMMERCIAL, PRIVATE & AMATEUR: GROUND & FLYING *School*

Pursuant to the authority of Sec. 3-D of the Air Commerce Act of 1926, as amended February 28, 1929, and the School Supplement, Air Commerce Regulations, the provisions of which are made a part hereof as though written herein.

ISSUED SEPTEMBER 1, 1932.
RE-ISSUED FEBRUARY 8, 1934.
EXPIRES SEPTEMBER 1, 1934.

BY DIRECTION OF THE SECRETARY

DIRECTOR OF AERONAUTICS.

Lindbergh Field, San Diego, California

Ocean liners bring passengers and cargo to San Diego from all parts of the world.

The largest steamships dock in San Diego —but a few blocks from the Ryan School.

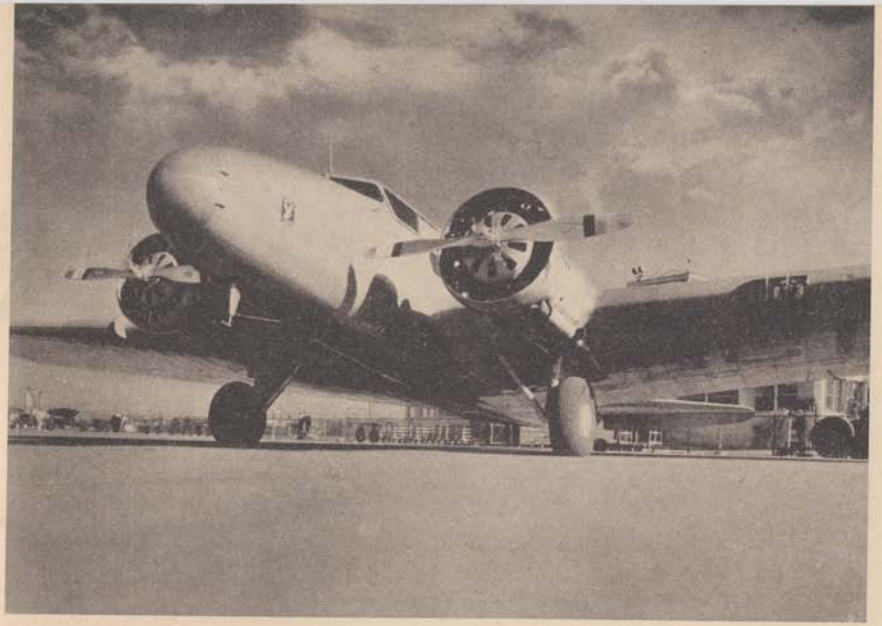
LOOKING TOWARD THE FUTURE

Any one who reviews the events of the past few years will find that aviation is the outstanding industry which has forged ahead with an undiminished pace. Even during extraordinary times, this industry has been most progressive and has constantly required more equipment, more men and more facilities to carry out a program of rapid expansion created by a popular demand.

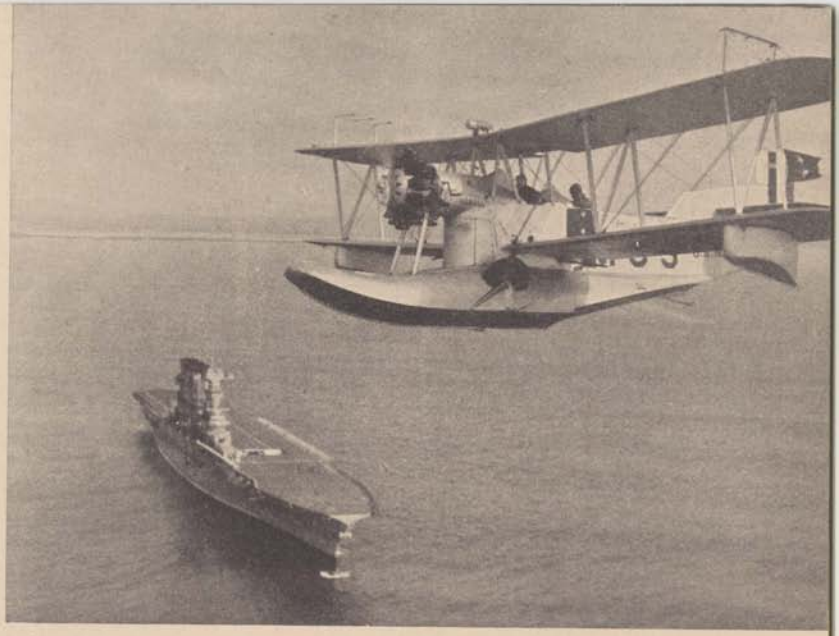
During the past year, scheduled airlines in the United States carried nearly 50% more express, flew more miles and carried more passengers than in any other year since the airplane became a part of the nation's transportation facilities, according to official reports by the United States Department of Commerce. In 1927 approximately 5,000 passengers were carried on airlines. In 1933 more than 500,000 people used this form of transportation.

As we can judge the future only by the past, it is evident that many years of progress, expansion and continued development are ahead of this industry. New air routes are piercing the sky in every part of the world. New planes are being developed. New uses for planes—in commerce and industry—are being applied. More people are flying. More mail and express are being shipped by air. Each week, each month, finds many new and major developments.

All this calls for man power—technically trained man power. The aeronautical demands of the future will be many—and the rewards will be great for those who qualify by training now.



Modern airliners of numerous types operate frequent daily schedules from Lindbergh Field.



Military aircraft and large aircraft carriers are equally at home on San Diego Bay.

AVIATION AS A PROFESSION

Every normal person aspires to do something outstanding in this world—to do something that will gain the respect of his fellow men.

No profession holds greater opportunities than aviation—for noteworthy achievements. No profession is held in higher esteem. The men and women who have mastered the air—and the mechanics who make flying possible—are rightly regarded with respect. They have conquered more than their immediate surroundings!

In former days, those who wished to learn a trade or profession were taken in their early teens and allowed to work out long years of apprenticeship. The rapid growth of aviation has made this procedure impossible in this particular industry.

To be sure, highly specialized flight and technical training is absolutely essential for success in aviation but it may be acquired in less time than is required for other professions, and at lower cost.

Compared with other vocations, aviation offers many advantages. Where others are overcrowded, or standing still, aviation is growing so fast that new opportunities are being constantly presented. The present aeronautical industry is but a skeleton organization of what will be required in the future. Where other professions cater to age and experience, aviation caters to youth, initiative, and ability. Aviation is a young man's profession—for years to come it will look to youth for its greatest accomplishments in administration, engineering, mechanics, manufacturing, designing and piloting.

The sun sets on the Pacific — as Ryan students return from a cross-country flight.

Sportsmen appreciate the well-kept planes, buildings and facilities at Ryan.

THE SPORT OF SPORTS

The world is small, indeed, for those who fly. Man is forgetting the shackles that have held him earth-bound so long. Space and time, or miles and hours, need no longer interfere with business engagements, interesting events or social activities in distant places.

Flying is truly the sport supreme.

Good airplanes are now comparatively inexpensive and their operating cost is no greater than that of an automobile.

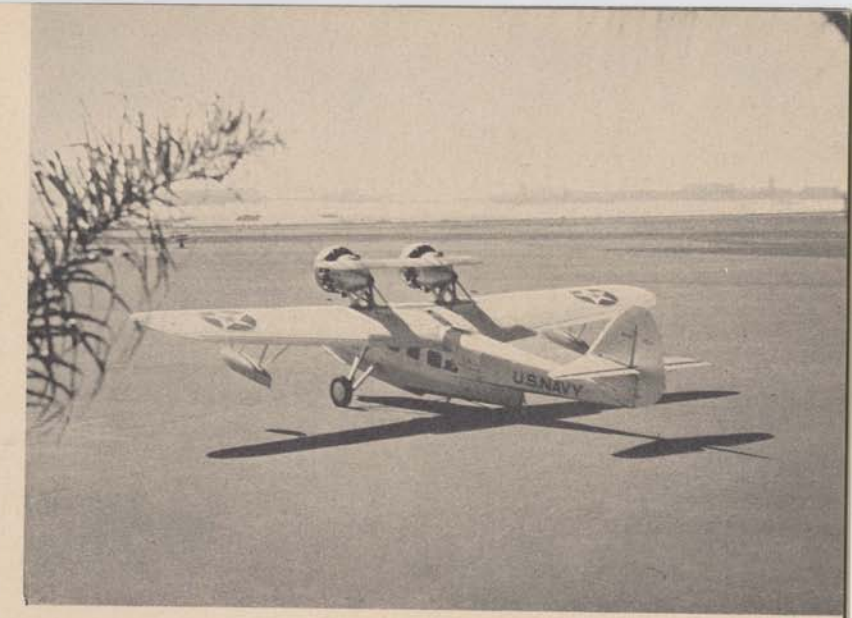
The one indispensable requirement for complete mastery and enjoyment of the air is thorough, systematic training. There is no substitute for the confidence and safety that comes with proper instruction. For those who intend to fly at all, time and money cannot be invested to better advantage than in proper training.

The Ryan School recommends to sportsman pilots the longer, more complete courses which include not only flying but also training in navigation, meteorology, radio and other interesting subjects.

A SPECIAL SPORTSMAN PILOT'S COURSE

The Ryan School has designed a special Sportsman Pilot's course, including ownership of a new plane and complete training. See booklet entitled "Ryan Outline of Courses and Tuition Schedules" for further details of this deluxe combination offer.

Aircraft carriers "Saratoga" and "Lexington" anchor in San Diego Bay—near Lindbergh Field.



Military and commercial planes of all types are frequent visitors at the Ryan school.

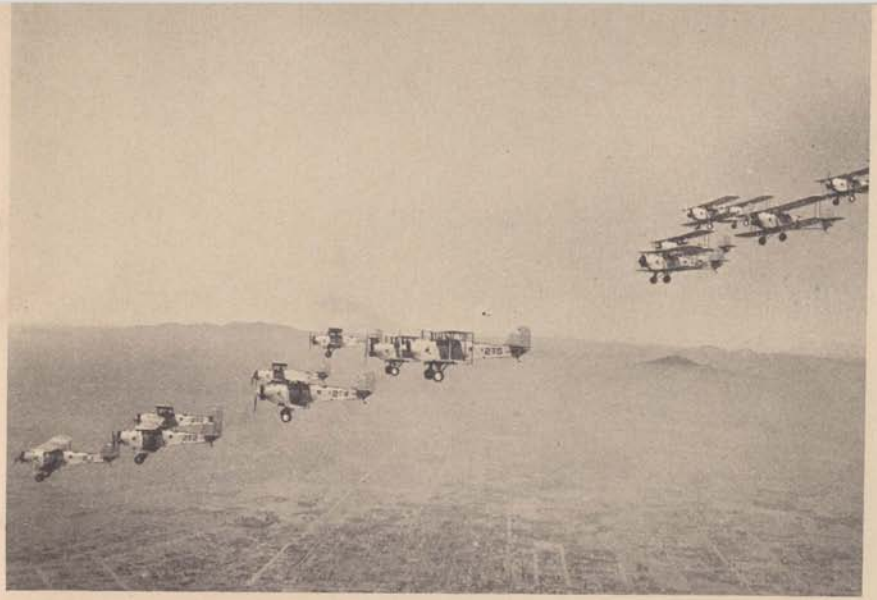
AN IMPORTANT U. S. GOVERNMENT REPORT

Several years ago the United States Government was confronted with the problem of selecting a site for a military aviation training school. For such an important project, the best site possible was to be selected. So the government's vast resources were put to work on the problem. Thousands of dollars were spent. Delegations and experts were dispatched to all parts of the nation. Every conceivable angle was taken into consideration. Finally, the Secretary of War appointed a committee to make a national investigation and, after exhaustive research, this committee reported as follows:

> **"The site for the aviation school . . . should possess certain geographical, climatological, and topographical characteristics. The site should be located on an ocean or bay . . . Climatological characteristics should be such as to give the greatest number of flying days possible throughout the year, with suitable air, moisture, and temperature conditions, while the topography of the terrain in the vicinity should . . . contain many good landing places."**

The report continues as follows:

> **"The terrain in the vicinity of San Diego Bay, California, fulfills the foregoing conditions better than any other section of the United States. A study of the climatological data of the locations visited by the commission . . . clearly indicated that the littoral of San Diego Bay contains the best sites for the establishment of an aviation section as far as weather and air conditions are concerned. . . . The country in the vicinity of San Diego . . . shows terrain of every description from level land to mountains, and possesses characteristics that can be found in no other part of the country."**



At no other place in the world will one see such diversified year 'round flying activity.

Planes from Central and South America base regularly at the Ryan School of Aeronautics.

SAN DIEGO—THE CENTER OF YEAR 'ROUND AERONAUTICAL ACTIVITY

The ideal conditions that caused the government to establish its many aeronautical activities in San Diego have also influenced numerous other aviation developments to come here.

As early as 1911, one of the first flying schools in the world was established here. From then to the present date a long list of over seventy world's records and "firsts" in aeronautical accomplishments have been added to aeronautical history in San Diego.

In this semi-tropical clime the cold and climatic disturbances of winter months or the severe heat and thunder storms of summer are unknown. Warmed in winter by a friendly sun and cooled in the summer by gentle breezes from the Pacific Ocean, with clear blue skies and moderate temperatures throughout the year, this city is truly an aviator's paradise.

Commercially, San Diego holds an important aeronautical position. As the most southwesterly city in the United States, it is the southern and western terminal for major airlines with connecting links throughout the United States and south into Mexico and South America.

These are some of the reasons why the Ryan School of Aeronautics is located in San Diego.

OUTSTANDING AERONAUTICAL ACHIEVEMENTS—BY RYAN

T. Claude Ryan, founder and president of Ryan School of Aeronautics, has been identified with aviation since prewar days when he first learned to fly the early pusher type of plane.

He received Government training during the war and was commissioned with a rating of Army Pursuit pilot.

In 1922 Ryan came to San Diego and established his original flying school in southern California. This aeronautical school, which has remained in continuous operation, is now the oldest in America under the management of its original founder.

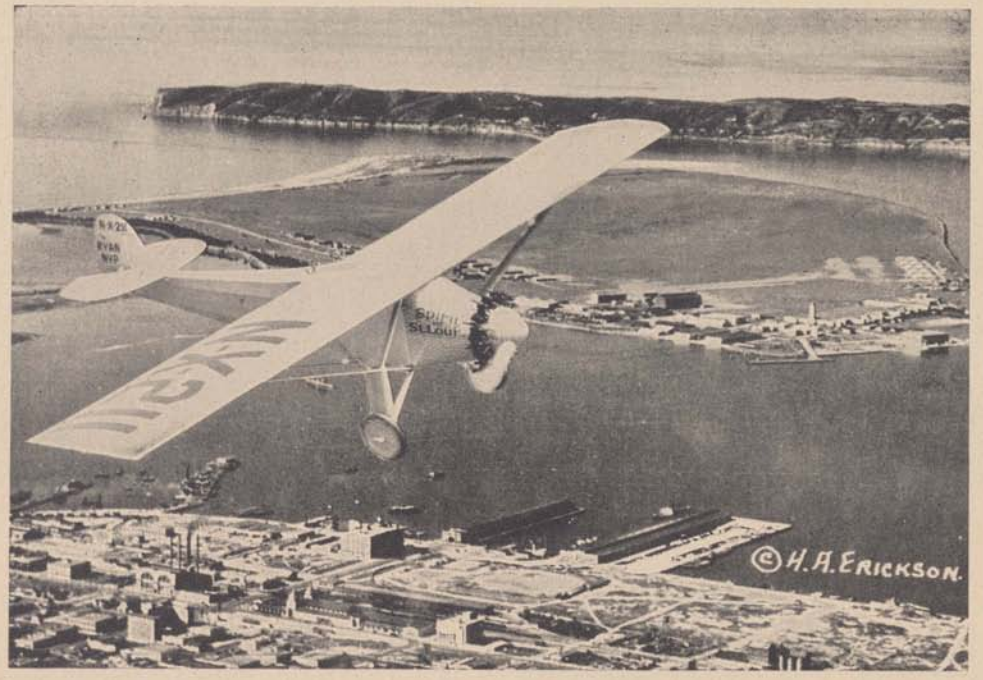
In 1924, he formed Ryan Airlines—the first daily scheduled year 'round inter-city airline service in the United States—and was the original designer and manufacturer of Ryan monoplanes.

In 1927 the Ryan airlines, of which Claude Ryan was the founder and active head, designed and constructed in San Diego the famous "Spirit of St. Louis" which carried Charles Lindbergh on his epochal flight from New York to Paris.

Through these years a superior system of training has been developed at the Ryan School of Aeronautics—a system that has prepared and placed Ryan-trained men in important aeronautical positions in nearly all parts of the world.

In 1929 the Ryan School was awarded the highest approval of the United States Department of Commerce—a rating it has consistently held since that time.

In 1932, the Ryan School of Aeronautics constructed its fine new buildings on $2,000,000 Lindbergh Field.



The "Spirit of St. Louis" in trial flight over San Diego. Built in this city by the original organization of which T. Claude Ryan was founder and active head, this famous airplane, bearing his name, is now on permanent exhibition in the Smithsonian Institute at Washington, D. C.

Ryan school buildings are surrounded by stately palms and semi-tropical foliage.

Ryan students witness frequent massed flights; 424 planes passed in review when Ryan buildings were dedicated.

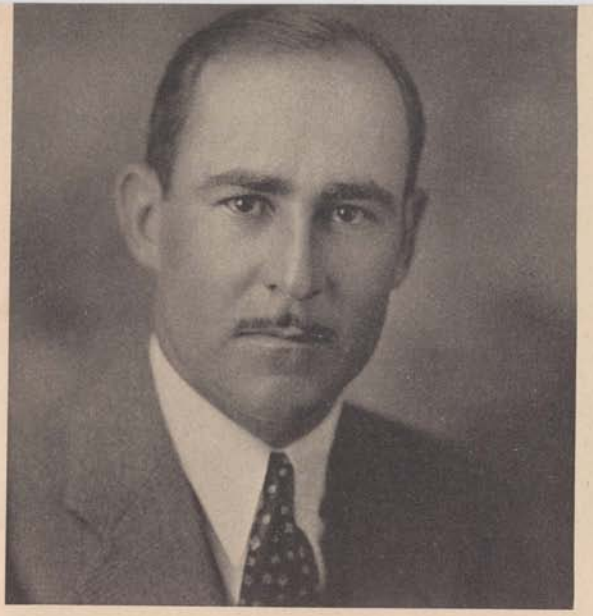
WHAT A "GOVERNMENT APPROVED TRANSPORT SCHOOL" MEANS

A "U. S. Government Approved Transport School" must meet rigid requirements regarding types of airplanes, ground school equipment, classroom facilities, extent of ground school lectures, airport lighting equipment and other features which have an important bearing on student training. Instructors must hold the "approved school" instructor's rating and must undergo periodic examination by the government. Regular reports regarding individual student records must be submitted to Washington at stated intervals. All training facilities and equipment must meet high standards set by the government and are subject to frequent inspection by Department of Commerce officials.

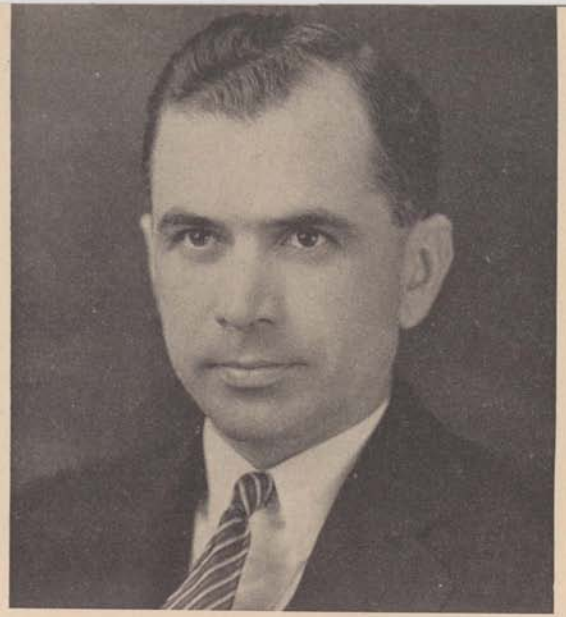
"Government Approved" training must proceed on a regular basis and a student must take his final examination within ten days after completion of his course to qualify as an "Approved School" graduate.

The government finds that an "Approved School" graduate is capable of passing his final tests and is qualified to receive his license after fewer hours of training than are required of students who have trained under unapproved methods.

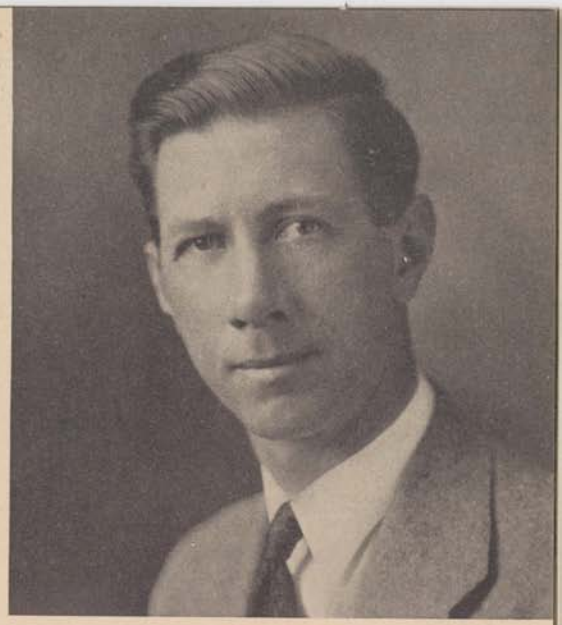
The Ryan School of Aeronautics holds the highest Government "Approved Transport School" rating issued by the United States Department of Commerce. This certificate covers flight and technical training for Transport, Limited Commercial, Private and Amateur pilot's licenses. This rating has been constantly maintained not only by strict adherence to government requirements for "Approved Schools" but by the installation of additional equipment and facilities, and by exceeding all requirements, with extra instruction for practically every phase of aviation training.



John B. Fornasero
Chief Instructor



T. Claude Ryan
President



Earl D. Prudden
Vice-President

THE RYAN FACULTY AND STAFF

T. Claude Ryan is the president and active head of this school which bears his name. Students train here under his personal direction and find that it is greatly to their advantage to be able to discuss problems with a man of his experience in aeronautics and business.

Surrounding him is a staff of carefully selected instructors and company personnel. Members of the faculty and staff aid students not only in securing thorough flight and mechanical instruction but assist in every way possible toward their well-being from the day of entering school until graduation.

The average good pilot or mechanic is not necessarily a good instructor. The instructors at this school have been selected on the basis of experience and special ability to impart knowledge to the students placed in their charge.

MEMBERS OF THE FACULTY AND STAFF INCLUDE:

T. Claude Ryan	President
Earl D. Prudden	Vice-President
E. A. Smith	Secretary-Treasurer
Orva Johnson	Assistant Secretary
John B. Fornasero	Chief of Flight and Technical Training
James B. Fornasero	Chief of Maintenance and Motor Instruction
Dan Burnett	Director, Shop Training
Millard C. Boyd	Chief of Aeronautical Engineering
William Vandermer	Assistant Aeronautical Engineer
Edwin Morrow	Welding
Chester Bratch	Metal Working
Melvin Thompson	Wood Working and Rigging
Robert Kerlinger	Motors and Inspection
Elwood Fraser	Recreation and Athletics
Royal B. Lee	Public Relations
Lt. Comdr. P. V. H. Weems, U.S.N., Ret.	Director, Weems Navigation Courses
Lt. Comdr. Paul Bates, U.S.N., Ret.	Advanced Residence Navigation Courses
Lt. Myron Eddy, U.S.N., Ret.	Aircraft Radio Instructor

Student progress is carefully recorded by an instructor at the completion of each flight.

Ryan students taking meteorological observations with a United States weather bureau official.

THE FLIGHT TRAINING DIVISION—AT RYAN

DEFINITE SCHEDULES

Systematic schedules and thorough instruction are features of Ryan courses. In no part of the training activities is this truer than in the flight division. The weather in San Diego enables students to train without interruption thruout the entire year. All Ryan flight courses proceed step by step, stage by stage, without delays, through the fundamentals to the most advanced type of cross-country flying. A proper and ample amount of advanced dual check flying is given in all courses, and all training is carefully supervised.

EXTRA TRAINING FEATURES

Ryan flight courses exceed U. S. Department of Commerce "Approved School" requirements in every phase—by providing more than the stipulated flying hours and other features not required by the Department of Commerce. For example: The Ryan Transport course, in addition to all required subjects, provides seaplane and amphibian flying, training in and use of radio equipped plane, flight experience in a wide variety of modern aircraft, and . . . .

Flying "under the hood" teaches Ryan students to rely on instruments entirely—if necessary.

Ryan students receive solo night flight training at this completely lighted airport.

INSTRUMENT OR "BLIND" FLYING

This important and valuable phase of advanced training is included in all regular Ryan transport courses. The student with a "safety" pilot spends ten hours flying under a hooded cockpit. During this time, he learns to rely entirely on his instruments for the control and direction of his plane—simulating the difficult conditions encountered when flying in a fog or clouds, and . . . .

RADIO BEAM FLYING

All Ryan Transport students receive special instruction on radio beam flying in radio equipped school ships. A part of this training is given under the "hood" in conjunction with the instrument or "blind" flying instruction. A government radio range station, located adjacent to Lindbergh Field, makes it possible for Ryan students to receive this advanced and important training under suitable conditions.

The Ryan School feels that the demands of present day commercial aviation make it highly important that the transport pilot who considers himself qualified for a position should have had proper training in both blind and radio beam flight.

An early morning takeoff on one of the school's two-day "cross-country" flights.

T. Claude Ryan awards the gold Precision Medal to a student for outstanding performance.

THE FLIGHT TRAINING DIVISION—

CROSS-COUNTRY FLYING

One of the outstanding features of Ryan training is the extensive cross-country flying experience included in the Transport courses. From 2,500 to 3,000 miles are flown over all types of terrain, including mountains, desert and ocean shore. This is a type of varied experience that cannot be secured elsewhere. Flights are routed so as to give the student experience in landings and takeoffs from all types of fields. From this cross-country training he will retain never-to-be-forgotten remembrances of this invaluable flight experience in Southern California. Typical overnight journeys include flights to metropolitan San Francisco; to the Boulder Dam at Las Vegas, Nevada; to historic Death Valley; to Phoenix, Arizona; and to Ensenada in romantic Old Mexico. These student flights, under the personal direction of a school instructor, are usually made in groups of three to five ships.

RADIOTELEPHONE AND RADIOTELEGRAPH TRAINING

The Ryan School offers its students two elective courses in preparation for the radiotelephone and radiotelegraph operator's licenses. For additional information, see Ryan booklet entitled "Outline of Courses and Tuition Schedules."

STUDENT CONTESTS

An interesting adjunct to Ryan training is the camaraderie and competition which is developed through frequent student contests at the airport. Through these flight competitions, students develop self-confidence and skill in preparation for their final flight tests given by Department of Commerce inspectors. Special student awards, such as the coveted Ryan Gold Precision medal, are given to the winners of these events.

Blue skies above, a California landscape below, and your hand on the throttle of a responsive, modern plane—this is life at its best!

Top—The five-place Ryan Brougham familiarizes Ryan students with heavier cabin plane flying. Bottom—Seaplane training is another feature which Ryan Transport students enjoy at no extra cost.

AT RYAN (Continued)

A WIDE VARIETY OF PLANES

A variety of well chosen modern aircraft is maintained for the training of Ryan students. Fundamental instruction and advanced maneuvers are given in late-type Great Lakes planes. This is the make of ship which is so sturdily constructed that it holds the enviable world's record of 131 outside loops.

Other types of aircraft available include: the famous Ryan Brougham cabin plane with Whirlwind motor; Challenger powered Curtiss; Kinner powered Savoia-Marchetti amphibian; late type Wacos and a special high-performance ultra-modern low-wing ship for advanced training, as well as a number of other new and modern types which will vary from time to time. This school prides itself on maintaining its flying equipment in perfect condition. The planes have full air-wheels, brakes and complete instruments. Air-cooled motors of both radial and inline design are used exclusively.

OUTLINE OF RYAN FLIGHT TRAINING

RYAN STUDENTS RECEIVE EXTENSIVE PRACTICAL EXPERIENCE IN EVERY PHASE OF FLYING

STAGE ONE

1. Preliminary explanation to student in cockpit before flying.
2. Following instructor on dual controls with demonstration of action in flight.
3. Straight and level flying.
4. Gentle turns with demonstration.
5. Medium banked turns—from and returning to straight flight.
6. Normal glide with demonstration of steep and flat glide.
7. Normal climb.
8. Spiral glide.
9. Normal climbing turn.
10. Stalls, with and without power.
11. Steep banks (approx. 75°).
12. Approaches to landing—following instructor on landing.
13. Takeoffs.
14. Landings.
15. Taxiing.
16. Forward slips.
17. Side slips.
18. Simulated forced landings.
19. Dual spins.
20. Solo.
21. Landing practice—solo.
22. Solo practice in 6, 7, 8, 9, 10, 11, 16 and 17.
23. Advanced dual on gentle and steep figure eights.
24. Solo on gentle and steep figure eights.
25. Advanced dual on 180° and 360° spiral spot landings.
26. Solo on 180° and 360° spiral spot landings.
27. Advanced dual spins.
28. Solo spins.
29. 2,000 ft. spiral spot landings.
30. TEST FOR AMATEUR LICENSE.

STAGE TWO

31. Vertical bank practice.
32. Spins—precision.
33. Vertical 8's.
34. Wingovers.
35. Jenny Immelmans.
36. Loops.
37. Cross-wind landings and takeoffs.
38. Strange field landings.
39. Advanced simulated forced landings.
40. Primary cross-country.
41. Front seat flying.
42. Cabin ship flying (3,000 lb. class).
43. Third type flying (light cabin or amphibian).
44. Precision 2,000 ft. spiral spot landings.
45. TEST FOR PRIVATE OR LIMITED COMMERCIAL LICENSE.

STAGE THREE

46. Practice and check on precision maneuvers.
47. Advanced cross-country.
48. High altitude fields.
49. Formation flying.
50. Advanced cabin ship flying (3,000 lb. class).
51. Cabin ship strange field practice.
52. Advanced flying in additional types (amphibian, cabin, and open).
53. Advanced aerobatics.
54. Night flying—dual.
55. NIGHT FLYING—SOLO.

STAGE FOUR

56. Hooded cockpit instrument flying.
57. Radio beam flying and radio operation in open cockpit plane.
58. Flying the beam (blind) under the hood.
59. Solo blind flying through high cloud layers.
60. Cross-country in Ryan Brougham cabin.
61. Advanced amphibian flying with practice in landings and takeoffs.
62. Advanced miscellaneous flying practice in various types of ships.
63. Review and practice on all maneuvers included in Transport test.
64. Dual check flight with instructor covering all Transport maneuvers.
65. FINAL TEST FOR TRANSPORT LICENSE.

An ample variety of modern planes kept in good condition on a clean, modern airport assure Ryan students of well-regulated, systematic flight schedules.

Interesting daily classroom lectures supplement Ryan flight and mechanical instruction.

The experience which Ryan students receive in the shop is practical as well as thorough.

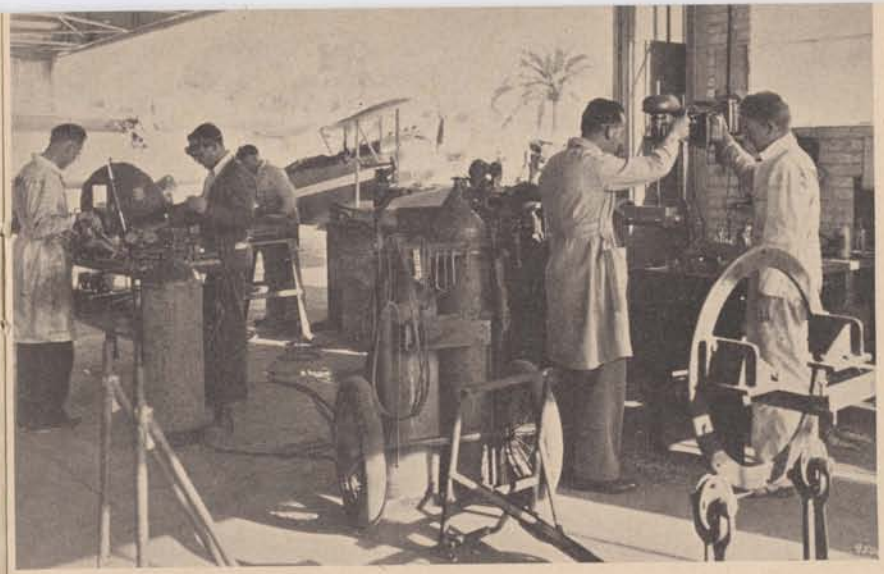
THE TECHNICAL TRAINING DIVISION—AT RYAN

WHY RYAN TECHNICAL TRAINING IS SUPERIOR

There are four factors that tend to make Ryan technical training outstanding: (1) the number of important technical subjects covered in the Ryan courses and the thorough attention given to each; (2) the exceptional ability and experience of each instructor in his specialized chosen field; (3) the clean, well-lighted, well-equipped shops and classrooms in which instruction is given; (4) the opportunities to acquire "extra" aeronautical experience by contact with the many military and commercial aviation activities in San Diego.

Students who enroll for Ryan "Government Approved" flight and technical courses devote the major part of each day, five days a week, Monday to Friday inclusive, at the airport. Ground school training is required for the majority of the courses, unless the student has had previous instruction at another accredited school. Classroom sessions are held each morning from 8:15 to 10 o'clock. The balance of the day is divided between flight training on a prearranged schedule, and shop and technical instruction.

Outlines of Ryan Flight and Technical Training have been filed with the United States Government at Washington guaranteeing the complete scope of subjects given to students by Ryan courses. For specific subjects included in each course, see pages 20 and 21 in this catalog and also see the Ryan booklet entitled "Outline of Courses and Tuition Schedules."



All Ryan technical training includes instruction in welding and the use of power machinery.

Metal replaces wood and fabric in modern airplanes. Ryan students keep pace with latest developments.

TECHNICAL TRAINING EQUIPMENT AT RYAN

Ryan School buildings, classrooms and shops are new and modern in every respect. Built of masonry and steel, they undoubtedly are the finest training quarters occupied by any civilian school of aeronautics. Attractive and orderly, these classrooms and shops are fitted with equipment costing thousands of dollars.

Ryan shops include equipment and facilities for the repair and complete rebuilding of airplanes—and the manufacturing of practically every component part of an airplane. Equipment is included for the following general classifications of work: aluminum alloy structure, steel tubing structure, aluminum alloy fittings, steel fittings, wood structure, sheet metal, fabric covering, doping and finishing, and final assembly.

The following machinery and special equipment is noteworthy: metal working machinery, extensive welding equipment, compressed air riveting hammers, testing apparatus, heat treating equipment, woodworking machinery, power fabric machines, specially constructed doping and finishing rooms and equipment, and other devices of an extensive nature, all of which are here available for students to operate as they proceed with their practical mechanical instruction.

The Ryan School shops resemble an airplane factory with its equipment and highly trained personnel. It is here that completely new and experimental types of airplanes are developed, built and put through the exhaustive Department of Commerce tests for Approved Type Certificates. This includes strength testing of parts with special apparatus; sand loading of wings, control surfaces and other parts; drop testing; weighing; balancing and supervised flight testing.

A "GOVERNMENT APPROVED" REPAIR STATION

Ryan shops exceed the standards of the U. S. Government for an Approved Repair Station, which is another rating that has been awarded the Ryan mechanical department.

OUTLINE OF RYAN TECHNICAL TRAINING

TECHNICAL TRAINING DIVISION (Continued)

Pages 20, 21, and 23 give a list of the subjects covered in the Technical Training Department. The sub-headings show only the main points included.

All of these subjects are included in the Transport, Limited Commercial, Private and "Airplane and Engine" Mechanic's courses. The Amateur Pilot's training includes a special short lecture course in Air Law, Airplanes and Engines.

AIR LAW

Licensing of Aircraft.
Inspection and Operation of Aircraft.
- Line Inspections.
- Periodic Inspections.
- Laws Regarding Operation of Aircraft.

Marking of Aircraft.
Licensing of Pilots.
- Privileges and Restrictions of Various Classes of Pilots.

Licensing of Mechanics
- Privileges and Restrictions of Various Classes of Mechanics.

Examination.
Air Traffic Rules.
Miscellaneous.
Final Examination.

AIRCRAFT ENGINES

Engine Principles.
- Discussion of the working principles of the Internal Combustion Engine.
- Two and Four Cycle Engines.

Engine Structure
- Cylinders, Pistons, etc.
- Crank Shafts, Crankcase, Fittings.
- Multiple Cylinder Designs—Cylinder Arrangement.
- Bearings, Material and Designs.

Valves and Valve Gear.
- Valve Timing and Camshaft Setting.

Lubrication.
- Oils.
- Oiling System.

Engine Fuels.
Fuel Systems.
Carburetion.
- Principles, Carburetor Designs, Adjustment.

Superchargers.
Electricity and Magnetism.
- Ignition, Generators, Batteries, Lights.

Cooling.
- Air, Water, and Special Liquids.

Engine Troubles.
- Inspection and Servicing.

Installations.
Propellers.
- Wood and Metal.
- Adjustable Pitch Models.

Unconventional Types.

AIRPLANES

History of Aviation.
Nomenclature of Aerodynamics.
Theory of flight.
Airfoil Sections.
Wing Arrangement.
Parasite Resistance or Drag.
- Theory of Air Resistance of Non-lifting Parts.

Stability.
Controls.
Spins and Spin Prevention.
Theory of the Tailspin.
Nomenclature of Airplane Structures.
Use of Wood in Plane Structures.
Fabrics and Dopes.
Fuselage Construction.
Wing Construction.
Wires and Cables.
Landing Gears and Shock Absorbers.
Tail Skids and Wheels.
Inspections.
- Methods, Items, and Intervals.

Maintenance and Repairs.
- Repair of Fabric, Covering, Dopes and Finishes.
- Repair of Small Wood Parts, Ribs, etc.
- Splicing and Repairing of Wood Beams.
- Splicing and Repairing of Metal Fuselage and Parts.
- Wire Work and Splicing.
- Care of Various Parts of the Airplane, Prevention of Rust and Corrosion.

Department of Commerce Regulations—Pertaining to Alterations and Repairs.
Accidents.
- Their Causes.

Stresses on Airplanes in Flight.
- Loads Caused by Acrobatics, Landings, etc.

Airplane Strength Requirements.
Rigging.
- Assembly and Alignment of Monoplanes.
- Assembly and Alignment of Center Sections.
- Assembly and Alignment of Main Wing Cell.
- Assembly and Alignment of Wing Panels.

Brakes.
- Care and Adjustment.

Discussion of Characteristics of Modern Designs including Theory of Flight of Autogiro.

TECHNICAL TRAINING DIVISION (Continued)

METEOROLOGY

Introduction.
- Importance, Nomenclature.

The Atmosphere.
- Its Composition and General Circulation.
- Pressure Temperature.

Winds.
- Causes, Temperature Effect, Obstructions.
- Prevailing Winds, Change with Altitude, Velocity.
- Wind Conditions in United States.

Fogs and Clouds.
- Radiation and Advection Fogs.
- Various Cloud Formations, Causes and Classifications.
- Altitude, Thickness, Most Dangerous Types.
- Ice Formation, Visibility.

Cyclones and Anti-Cyclones.
- Direction and Rate of Movement, General Characteristics, Air Conditions within Pressure Gradients, Storms.

Meteorological Instruments.
- Weather Observations and Reports.

Weather Data.
- The Weather Map, How to Read It.
- Airways Weather Service and U. S. Weather Bureau.
- Application of Weather Data in Selecting a Route and Procedure.
- Department of Commerce Teletype Maps.
- Forecasting.

NAVIGATION

Introduction.
- Discussion—Different Methods.

Nomenclature.
- Names and Terms used in Navigation.

Chart Construction, Reading Markings.
- Explanation and Discussion of Customary Signs.

Piloting and Dead Reckoning.
- Line of Position, Fixes.

Magnetic Compass.
- Compensation, Errors and Adjustments, Compass Problems.

Winds and Drift.
- Drift Problems.

Course Plotting.
- Practice in Course Plotting.

Theory of Celestial Navigation.

AIRCRAFT INSTRUMENTS

Tachometer.
- Centrifugal—Pioneer.
- Chronometric.
- Electric.

Pressure Gauges.
- Oil.
- Water.
- Thermocouple.
- Ice Forming Indicator.

Level Gauges.
- Fuel—Oil.
- Hydrostatic.
- Float.
- Rule.
- Fuel Flow Meter.

Altimeter.
- Common Type.
- Paulin.
- Sonic.

Airspeed Indicator.
- Pitot—Static.
- Electric.

Ground Speed Indicator.
- Drift Indicator.

Compass.
- Card.
- Aperiodic.
- Earth Inductor.
- Sun.

Turn Indicators.
- Turn and Bank Indicator.
- Directional Gyro.

Inclinometers.
- Gyroscopic.
- Liquid.
- Pendulous.

Rate of Climb.
Artificial Horizon.
Flares.

RADIO—AS APPLIED TO NAVIGATION

Radio Compass and Radio Beam.
- How Used in Navigation.

Radio Beam Maps and Symbols.

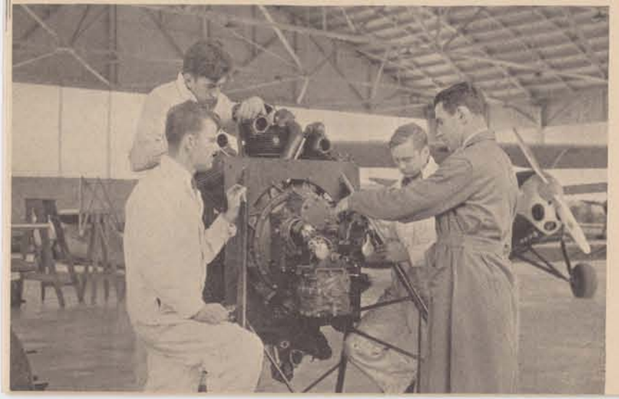
PARACHUTES

History and Development.
- Early Parachutes.
- Different Types.

Theory and Specifications.
- Material Standards.

Handling and Use.
- Fitting Harness.
- Handling in Descent.

Designs.
Care and Preservation.
Examination.



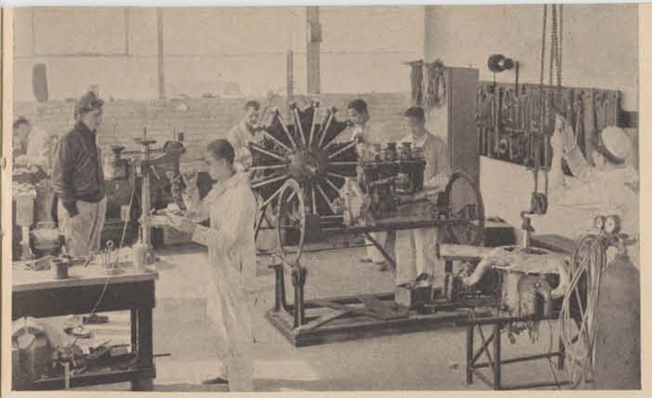
Above—To fly a plane is one thing—to understand its construction is another—Ryan students know both. Upper left—A coordination of engineering and maintenance departments produces better trained graduates. Lower left—The "Wasp" is one of the higher-powered motors on which Ryan students receive instruction.

PRACTICAL EXPERIENCE IN THE RYAN SHOPS

TECHNICAL TRAINING DIVISION (Continued)

This division of Ryan training is of vital importance to student mechanics and is also highly valuable for student pilots who wish to receive complete instruction. It is strongly recommended by the school for student pilots although it is not compulsory under the "Approved School" regulations of the Department of Commerce. This instruction consists of actual experience on airplanes in the Ryan shops under the direction of skilled instructors or mechanics who direct the students' individual activities.

"Dummy" equipment, of an obsolete nature, has no place in this school. Students learn to do by doing, under expert supervision, the same duties that they will later be called upon to perform as licensed mechanics. Airplanes on which students work are modern ships in regular service or undergoing overhaul. Varying types include land and seaplanes, high speed ships, large cabin planes and autogiros.



Ryan technical training is approximately 40% engines, 40% airplanes, 20% allied subjects.

Ryan fabric and dope rooms have extensive equipment and special drying and ventilating facilities.

The following outline indicates some of the high points of students' work being done in Ryan School shops.

ENGINE EXPERIENCE

Disassembly.
Cleaning and inspection of parts.
Valve refacing and reseating.
Valve guide installation and reaming.
Valve grinding.
Bearing fitting and installation.
Piston ring fitting and installation.
Wrist pin installation and fitting.
Oiling systems—checking and repairing.
Assembly.
Valve adjustment and timing.
Magneto repairs and timing to engine.
Carburetor repair and adjustments.
Engine installation.
Trouble shooting, tuning and adjustments.
Engine maintenance and service.

AIRPLANE EXPERIENCE

Disassembly.
Cleaning and inspection of parts.
Rib making, repairs and installations (wood and metal).
Spar splicing and repairs, (wood and metal).
Wing assembly and alignment.
Repairing aluminum alloy parts.
Repairs to tubing structure.
Making and repairing steel and alloy fittings.
Welding.
Fuselage alignment and repairs.
Seaplane hull repair.
Sheet metal work.
Templet making.
Jig making.
Wire work, including cable splicing.
Doping.
Finishing.
Assembly.
Rigging.
Maintenance and inspections.
Propellers—wood and metal.
Inspection, maintenance, repair, finishing, balancing and tracking.
Instruments.
Maintenance, repair and adjustment.
New construction work—steel, aluminum alloy and wood.
Making parts from blueprints, subassembly including dural riveting, testing of parts, and general assembly.

Ryan students profit by the systematic orderliness of the school's well kept surroundings.

Weather Bureau, in the Ryan tower, gives valuable assistance to students and visiting pilots.

SPECIAL FACILITIES AND EQUIPMENT AT RYAN

Ryan School buildings, of Spanish architecture, are set in a grove of towering California palms. The Administration Building, with its four-story tower is topped by a beacon—which spells SAN DIEGO to the night pilot. In this building are the Ryan general offices, school classrooms, accessory department, lobby and airplane display room, airline ticket offices, modern cafe, U. S. Customs and Immigration offices, U. S. airway weather bureau, Department of Commerce teletype service and U. S. Department of Commerce aeronautical inspector's headquarters.

Approximately 300 feet distant, across concrete parking areas and wide paved walks, is the Ryan hangar with its extensive unobstructed floor area, Government Approved shops and repair station. In this building are housed aircraft of almost every description.

As an airport of entry, Lindbergh Field is the destination of all planes in this area which fly to or from Mexico and South American points. Students who are interested in commercial aeronautical activities learn by constant observation of actual conditions as planes arrive and depart at this busy airport and clear through the customs at the Ryan Administration Building.

Weather bureau and teletype departments are on the second and third floors of the Ryan Administration Building. Ryan students become fully familiar with the methods used in compiling and dispatching weather forecasts to pilots in the air and to other airports throughout the United States. Headquarters for Department of Commerce inspectors are also located in this building. These officials are accessible to students who seek assistance in special problems relating to government regulations.

The Ryan School is conveniently located—a short distance from San Diego's business center.

Portion of crowd at one of the mid-winter flying events staged annually by Ryan students.

A WORD ABOUT LINDBERGH FIELD

"The most beautiful airport in America" is the title which has frequently been given to Lindbergh Field—the home of the Ryan School of Aeronautics. This $2,000,000 municipal flying field is unique in its location and is famous as the largest airport situated adjacent to the main business district of a metropolitan area. Built on the picturesque shore of San Diego bay, it is only one mile from the center of the downtown area, as well as excellent residential sections. This airport was named in honor of Col. Lindbergh and his epochal flight to Paris in his San Diego-built Ryan monoplane.

Extensive paved areas fronting all buildings, paved runways, fencing for protection to the public, telescoping loading canopies, landing area for seaplanes, and complete lighting facilities for night flying are some of the features that make this one of the most popular airports in America. The constant orderliness and lack of dust are contributing factors in the proper upkeep of Ryan aircraft and the maintenance of student flying activities under ideal conditions.

Directly across San Diego bay, approximately one mile away, is North Island with its tremendous government aeronautical activities. Lindbergh Field is the terminal of national and international airlines. It fronts on Atlantic Boulevard, one of the city's main thorofares. Easily accessible by street car or motor transit, it is also within easy walking distance of private homes where Ryan students obtain excellent living accommodations at extremely reasonable cost.

From the loggia, students see constantly an aerial review of military and commercial planes.

Ryan student planes are equipped with modern, carefully maintained, seat-type parachutes.

SETTING HIGH STANDARDS

Student standards at a school are usually in accord with the standards which the school sets for them. The thorough courses, long-established reputation, and modern buildings, equipment and facilities at the Ryan School have attracted to it a high type of student personnel. These students have come from homes throughout the United States where they have learned that the quality of a product is determined by the responsibility and reliability of its sponsors.

Ryan courses appeal to students who seek the finest training with minimum expense.

SAFETY MEASURES

This school has established an unsurpassed record for student safety during its 12 years of existence due to thorough, conservative training methods to which it steadfastly adheres. All planes and equipment are kept in perfect condition under the constant surveillance of a highly efficient maintenance department. Every plane undergoes routine inspection daily.

Department of Commerce regulations require that students wear parachutes during the practice of necessary aerobatics. Seat pack parachutes are used instead of cushions in Ryan student planes. These parachutes are inspected by a licensed parachute rigger every sixty days, and an electrically heated storage cabinet keeps them in constant perfect condition.

NO BONDS REQUIRED

The tuition quoted for each course covers all training costs including the full use of planes and instruction equipment. No bond or insurance is required.

Winter is only a name to these students who seek the shelter of a school palm from a January sun.

Beautiful Balboa Park is only a mile from the Ryan school and five blocks from student rooms.

PLANES FOR FLIGHT EXAMINATIONS

Under the Ryan system of training, frequent flight tests and examinations are given. After the necessary hours of flight instruction, final tests are given by the Department of Commerce for government licenses. Ryan students are privileged to use school planes for these examinations—without extra charge— and, upon passing their tests, are awarded their government pilot's license immediately.

CREDIT FOR PREVIOUS INSTRUCTION

Students with previous training at other schools frequently enroll at Ryan for the more advanced instruction available here. Such students are given credit for the training received elsewhere, allowance being made for intervening elapse of time, types of ships flown, quality of instruction previously received, and other factors which have a bearing on the acceptance of such students into this school on an "approved" basis. When inquiring, list in detail the extent and nature of previous training.

GRADES AND REPORTS

Careful grades are recorded showing the progress of students in both flight and technical departments. A passing grade of at least 70% is necessary to graduate or to secure a Government license from the United States Department of Commerce. Definite reports regarding each of its government approved students are forwarded by the school to Washington, D. C., at regular intervals.

IS PART-TIME EMPLOYMENT ADVISABLE?

An examination of the Ryan daily schedule for students reveals that classes, including flying and ground school activities, begin at 8:15 o'clock in the morning and continue until 5 o'clock in the afternoon. This allows very little time for part-time employment. The school recommends that students make necessary financial arrangements for tuition as well as board and room before coming to San Diego. By so doing, they can take full advantage of their training opportunities and devote the time necessary for intensive study or observation of the many aeronautical activities which are open to them in this city.

Even a pilot will get a thrill from aquaplaning on San Diego Bay.

The San Diego Club offers Ryan students exclusive club privileges at moderate cost.

The nearby surf and ocean beaches afford countless hours of healthful relaxation.

WHERE RYAN STUDENTS LIVE

The Ryan School does not maintain a dormitory system. It prefers to have its students enjoy the privacy of individual rooms in attractive private homes near the airport. The school has a variety of suitable accommodations to which students are personally directed by the registrar upon their arrival in San Diego.

Many of these homes are located approximately eight blocks from the airport, midway between the school and famous Balboa Park—scene of the California-Pacific International Exposition—and now one of the nation's most beautiful recreation centers. Single rooms in this choice residential section range from $10 to $15 per month. The majority of students secure their meals at the airport cafe in the Ryan Administration building. Students who prefer to reduce their expenses may do so by securing room and board in private homes at a cost of approximately $25 to $35 per month.

By special arrangements with the Y. M. C. A. and the San Diego Athletic Club, Ryan students are also privileged to select single rooms with either of these organizations at extremely reasonable prices for the accommodations offered. The Y. M. C. A. reserves a portion of one floor where Ryan students can obtain single rooms for approximately $12 per month, or a large double room for $10 each per month. Those who prefer the exclusive accommodations of a club will find the single rooms and full club privileges at the San Diego Club to be superior to hotel facilities. Both the San Diego Club and the Y. M. C. A. are in the downtown section of the city, about one mile from the airport.

Student dances in the Ryan building and week-end outings afford interesting diversion.

Sailing is a favorite sport on the smooth waters of San Diego Bay—adjoining Lindbergh Field.

RECREATION AND ATHLETICS

The Ryan School believes in fostering wholesome recreation of an inexpensive nature for its students. At frequent intervals the entire student body and school organization participate in such activities as swimming, picnics, horseback rides, roller skating parties, moonlight boat rides and dances. The city maintains free tennis courts and golf links and students who enjoy these sports are advised to bring necessary personal equipment. In addition, the school furnishes to each student a membership in the Y. M. C. A. with full use of complete athletic facilities including swimming pool and gymnasium, without cost to him. Here students meet to take part in competitive basketball, handball, squash, swimming, etc.

The Pacific ocean or smooth waters of San Diego harbor provide sailing, motor boating, aquaplaning, swimming and deep sea fishing. Agua Caliente—an internationally popular resort, situated just below the Mexican border, only 17 miles away—provides the lover of horses with one of the country's fastest tracks.

Students who drive their cars to the school will find California paved highways taking them through nearby timbered regions of mile-high mountain parks, along the shores of the blue Pacific, or over the flower-bedecked floor of the desert below sea level.

Here is nature's playground at its best . . . Blending the history of early Spanish days in California with modern opportunities and accomplishments; blending gentle ocean breezes with great natural facilities for rest and recreation; blending aviation training with the joy of good living. No wonder aeronautical students and experienced travelers come to San Diego from all parts of the globe! There's so much to see, so much to do, so much to learn and enjoy.

In San Diego, ocean, orchards, and mountains bask in the luxury of a semi-tropical sun.

Brush up on your Spanish—for Mexico and famous Agua Caliente is only seventeen miles away.

PLACEMENT OF GRADUATES

No reputable college, university, or technical school will represent itself as guaranteeing positions for its students. Guaranteeing a position to a student in advance of training, and even in advance of personal acquaintance with the applicant, indicates a poor understanding of necessary qualifications or a deliberate use of unethical methods for the sole purpose of inducing students to enroll at a school. The Ryan School of Aeronautics will not guarantee a position in advance to a student. However, it will guarantee to give one of the most thorough courses of commercial aeronautical training that it is possible for the student to obtain.

Ryan enterprises and Ryan courses are held in the highest regard by the aviation industry. Because of this, contacts are frequently made through this school that could not otherwise be established—and each Ryan student is assured that every reasonable effort will be made to place him in the branch of work he desires to follow.

Though the Ryan School has never promised a position to a student in advance of training, it is justly proud of the large number of former students and graduates who are now holding important positions in the aeronautical industry—not only in the United States but in foreign countries as well. It is evident that the aeronautical industry recognizes that the Ryan School has always attracted a higher type of student personnel. Ryan graduates, invariably, are assets in positions which require dependability, skill and sound judgment.

Students who wish to engage in independent aeronautical operations after graduation are urged to give special consideration to the Ryan Deluxe Combination Course. This course gives the student the finest of Transport instruction—and a modern new airplane. With these assets he can conduct commercial operations and develop the many opportunities presented by airports where trained pilots are needed with initiative and modern planes.

By special arrangement, Academy cadets receive aeronautical training at Ryan.

San Diego, one of the fastest growing cities in the U. S., is proud of its metropolitan skyline.

SAN DIEGO ARMY & NAVY ACADEMY AFFILIATION

Mutually recognizing the value of aviation in the training of modern youth, an affiliation has been made between the Ryan School of Aeronautics and the San Diego Army and Navy Academy. This nationally recognized military school is one of only two such schools on the Pacific Coast which are Junior Units of the R. O. T. C. and hold the Class M—"essentially military"—classification from the War Department. Now, students who wish, may enroll here for complete academic training through high school and junior college grades under the selected advantages of well supervised boarding school regulations and at the same time arrange for government approved daily flight and ground school instruction at Ryan. Special details will be mailed upon request.

ADVANCED ACADEMIC TRAINING

Students who do not wish the complete academic training of a Military Academy, but who wish to augment their aeronautical training by courses in subjects which they have not completed in high school or in college, may take advantage of special night classes at the State College in San Diego or at the San Diego High School. These classes cover a variety of academic subjects and are usually held two evenings each week in the main San Diego High School buildings, which are located approximately two miles from the Ryan School. Arrangements for this type of training can best be completed after student's arrival in San Diego. There is no tuition charge for these courses.

FOREIGN STUDENTS

The Ryan School of Aeronautics is approved by the United States Department of Immigration and Labor for the training of non-quota immigrant students. Prospective students from foreign countries are requested to write to the Ryan School immediately, stating course for which they intend to enroll and approximate date when they will leave for the United States. A special letter stating that they will be accepted at Ryan as a non-quota student will be forwarded to them to present with their application for passport.

ENTRANCE REQUIREMENTS

HOW TO ENROLL

Students of good moral character, over 16 years of age, are accepted for enrollment. While a high school education is not essential, this amount of previous training, or its equivalent in practical experience, is beneficial if the student wishes to receive the maximum of value from his instruction. Flight students are required to pass the physical examination as prescribed by the U. S. Department of Commerce. The name and address of your nearest authorized examining physician will be forwarded to you upon request. However, if this is not convenient, students may defer this examination until their arrival in San Diego.

Although it is not compulsory, it is advisable to mail your application for enrollment to the school in advance. No deposit is required with this application. Indicate the course you wish to take and, if possible, the date and hour of your arrival by boat, train or plane, so a school representative can meet you and assist with preliminary arrangements and living accommodations.

DIPLOMAS

Each Ryan graduate receives an individually inscribed parchment diploma—with the gold seal of the school, and signatures of the president and chief instructor thereon; also a valuable Certified Log Book of flying time, which sets forth the student's record as a pilot.

A PERSONAL WORD
to Prospective Students

In the preceding pages we have endeavored to give you an accurate summary of conditions, equipment, personnel, and system of training which exists TODAY at the Ryan School of Aeronautics, at San Diego, California.

Students who desire a superior type of aeronautical instruction come here from every state in the Union and from many foreign countries as well.

We shall be happy to welcome you, too, at this school where every effort will be made to make your stay in San Diego a profitable and pleasant one.

Each student at Ryan receives personal, individual attention. We are not interested in graduating large groups of students as hurriedly as possible—but prefer to train each student for outstanding leadership, so that he may become an asset to the aeronautical industry and a credit to himself as well as this school.

If this is the type of training you desire, you will thoroughly enjoy your instruction here.

T. CLAUDE RYAN, President
Ryan School of Aeronautics.

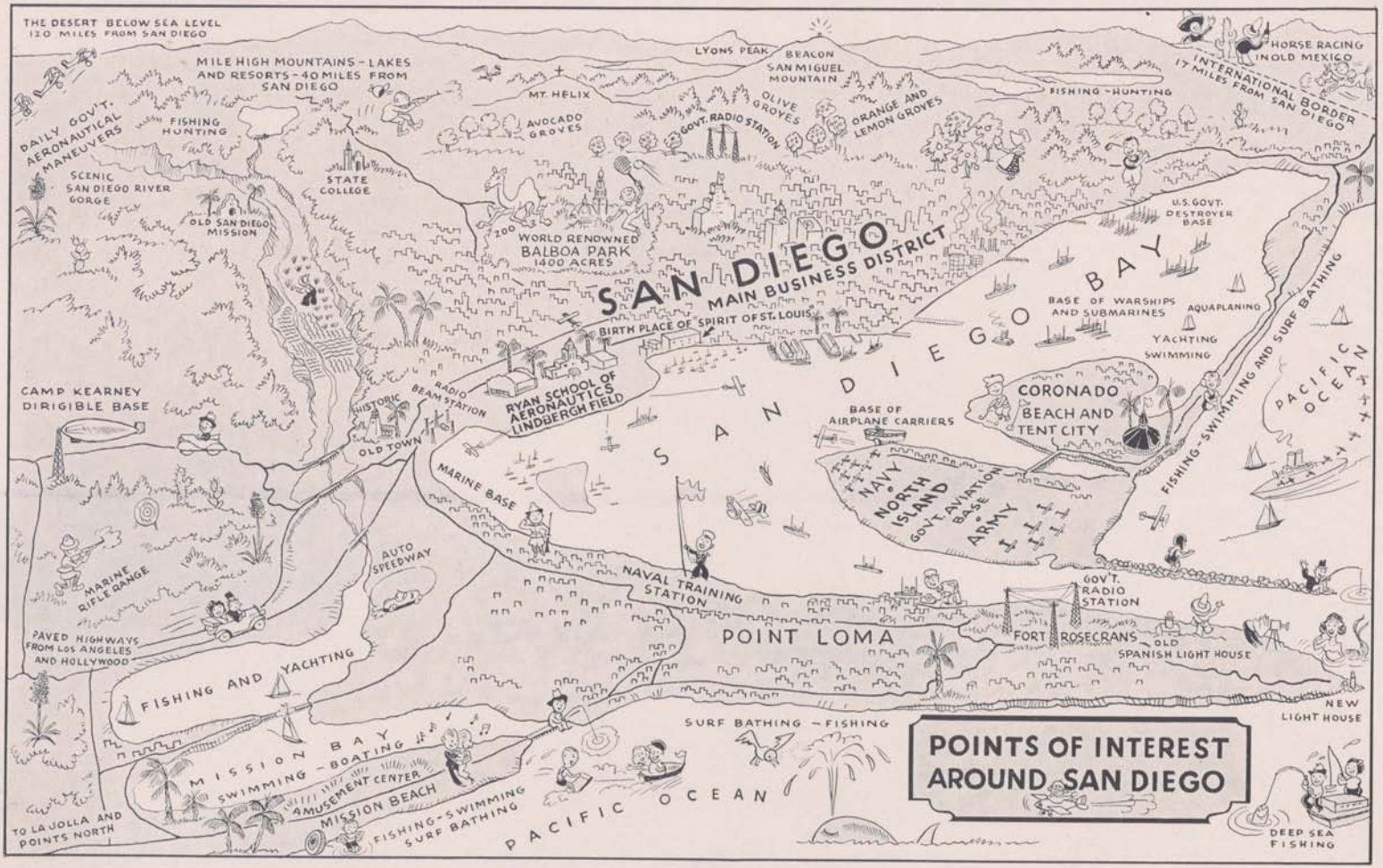
ADDRESS ALL COMMUNICATIONS TO

RYAN SCHOOL OF AERONAUTICS, Ltd.

LINDBERGH FIELD · SAN DIEGO · CALIFORNIA

FOR TUITION RATES: See Ryan Booklet Entitled "Outline of Courses and Tuition Schedule"

[FRYE & SMITH, LTD. – SAN DIEGO]


POINTS OF INTEREST AROUND SAN DIEGO
THE DESERT BELOW SEA LEVEL 120 MILES FROM SAN DIEGO
MILE HIGH MOUNTAINS - LAKES AND RESORTS - 40 MILES FROM SAN DIEGO
LYONS PEAK
BEACON
SAN MIGUEL MOUNTAIN
HORSE RACING IN OLD MEXICO
INTERNATIONAL BORDER 17 MILES FROM SAN DIEGO
MT. HELIX
FISHING - HUNTING
DAILY GOV'T. AERONAUTICAL MANEUVERS
FISHING HUNTING
AVOCADO GROVES
GOV'T. RADIO STATION
OLIVE GROVES
ORANGE AND LEMON GROVES
SCENIC SAN DIEGO RIVER GORGE
STATE COLLEGE
OLD SAN DIEGO MISSION
ZOO
WORLD RENOWNED BALBOA PARK 1400 ACRES
SAN DIEGO
MAIN BUSINESS DISTRICT
U.S. GOV'T. DESTROYER BASE
SAN DIEGO BAY
BIRTH PLACE OF SPIRIT OF ST. LOUIS
BASE OF WARSHIPS AND SUBMARINES
AQUAPLANING
YACHTING
SWIMMING
FISHING - SWIMMING AND SURF BATHING
PACIFIC OCEAN
CAMP KEARNEY DIRIGIBLE BASE
HISTORIC
RADIO BEAM STATION
RYAN SCHOOL OF AERONAUTICS LINDBERGH FIELD
OLD TOWN
BASE OF AIRPLANE CARRIERS
CORONADO BEACH AND TENT CITY
MARINE BASE
NAVY
NORTH ISLAND
GOV'T. AVIATION BASE
ARMY
AUTO SPEEDWAY
MARINE RIFLE RANGE
NAVAL TRAINING STATION
GOV'T. RADIO STATION
POINT LOMA
FORT ROSECRANS
OLD SPANISH LIGHT HOUSE
PAVED HIGHWAYS FROM LOS ANGELES AND HOLLYWOOD
FISHING AND YACHTING
NEW LIGHT HOUSE
SURF BATHING - FISHING
MISSION BAY
SWIMMING - BOATING
AMUSEMENT CENTER
MISSION BEACH
FISHING - SWIMMING SURF BATHING
PACIFIC OCEAN
TO LA JOLLA AND POINTS NORTH
DEEP SEA FISHING

Aerial view of San Diego California-Home of the Ryan School of Aeronautics