

Langley, Student of Flight

Smithsonian Institute Will Preserve First Flying Machine Developed by S. P. Langley, Who Solved Aerial Problems.

The story of Samuel Pierpont Langley's study and experiments in aeronautics is one that appeals not only to the engineer and others directly interested in the subject, but to the public as well. It is a story not generally known, since it starts back in the year 1857, before many serious-minded people considered aerial navigation practical for heavier than air machines, and continued for nearly 16 years. During that time Mr. Langley created and demonstrated many steps now invaluable to this modern and permanent science.

In 1886 he became assistant secretary of the Smithsonian Institution, and the following year upon the death of Professor Baird, he succeeded him as secretary of the institution, where he combined the administration of its various branches with his own investigations and experiments. In 1905, in recognition of his scientific researches, Mr. Langley was the recipient of degrees and medals from the foremost universities and scientific societies in Europe and America.

Wide Range of Experiments.
From his first studies with toy aeroplanes propelled by rubber bands to his final experiments with a man-carrying machine propelled by a gasoline engine, the like of which has hardly been surpassed to the present day, the story of his endeavors, hardships, failures and successes holds the attention of the reader with an interest not unlike a romantic narrative. The memoir just published deals largely with experiments and their results, which are now accepted as matter of course facts. At the time they were made, however, they were the first steps of a great scientist groping in the dark.

UNHAPPY CAREER COMES TO AN END
Having secured a grasp upon the elementary theories of wind resistance and matters pertaining to aviation, Mr. Langley started in 1890 to build a heavier than air machine, the first that had ever been built, since the nearest approach at that time to such a flying machine was an ingenious invention of the Frenchman Penaud, who fixed a paper toy, propelled by means of rubber bands, for 10 seconds.

Studying Flight Itself.
Secretary Langley undertook to build a larger and more practical machine, not simply for proving the theories upon which he had been working, but because he said it was impossible to learn more about the principles of flight without studying flight itself. In 1892 he started building the first of his steam driven models, but it was four years before successful flight was accomplished. The problem was difficult and discouraging, especially for one who had only a casual knowledge of steam engineering.

There was ample literature on the subject, but there might as well have been none for all the assistance it gave, with steam engines rated light at 500 pounds to the horsepower. What Mr. Langley needed was just about one hundredth of that weight.

Seeing no other way he set about building an engine himself, although practical engineers told him it was impossible, and he eventually produced one weighing only 23 ounces, which with the whole power plant, boiler, fuel and fuel, weighed seven pounds and produced one and a quarter horsepower. Success at last attended his efforts, but only after a tremendous loss of time and energy. Ten 20-horsepower and six many-horsepower engines were made and discarded before he secured a combination that would keep up a pressure of 120 to 150 pounds of steam for the time desired. And in the meantime he had built and thrown aside five machines before he succeeded in making one sufficiently light and yet strong enough to fly.

Even after the completion of the whole machine he had to stop using some method of launching which he devised. At last a launching apparatus was constructed which held the machine on an overhead track until ready to fly, when, by the means of springs it was shot out into the air over the water. The experimental ground was a small creek off the Potomac river near Widewater, Va.

First Flight of Model.
At the end of four years' incessant labor, on May 6, 1896, the first of these models flew. It was a model of a tandem biplane, with a wing spread of thirteen feet and a total weight of 30 pounds. The first flight was of a minute and 29 seconds' duration, while the machine covered a distance of 300 feet, although in subsequent flights this distance was increased to three-quarters of a mile, at a speed of about 30 miles per hour. No attempt at flight was made in high winds, but in a wind of 12 miles per hour the model flew well, circled and rose to a height of over a hundred feet, guided only by its own mechanism. Thus after a period of nine years of study and experiment the theory of mechanical flight was successfully demonstrated, and demonstrated, as Mr. Langley said, in the only satisfactory way, by a machine really flying.

The government became interested in Mr. Langley's work early in 1895, recognizing the possibility for the use of such a machine in time of war. Through the board of ordnance and fortification, President McKinley asked Secretary Langley to build a man-carrying flying machine. The secretary agreed to try, and coming reluctantly from his scientific pursuits, he commenced the work under an appropriation from the government. Many unforeseen obstacles were encountered and he began to despair in the construction of the model machine. Gasoline had been substituted for steam as a more practical motor power, and Secretary Langley, then at the age of 42, found it necessary to delve in the study of gasoline engine construction.

Seeking Light Engines.
He had no desire to build a gasoline engine himself, but after searching in vain, both in this country and in Europe, for an engine averaging in weight only 10 pounds per horsepower, he was forced to undertake its construction in the Smithsonian shops.

The finished engine, which was designed and constructed by Charles M. Manley, an engineer assisting Mr. Langley, was a five cylinder one, producing 45 actual horsepower, and weighing with radiators, batteries and 20 pounds of cooling water, only 267 pounds, averaging a little less than four pounds per horsepower. The memoir gives the details of construction of this engine, which even the builder of modern gasoline engines could study with great advantage.

Test of Practical Machine.
Nearly every one is familiar with the termination of the experiments made with the man-carrying machine. Early in October, 1903, the aeroplane was completed and tried out at the testing grounds at Widewater, Virginia. Professor Langley insisting that the flight be made over the water in order to afford protection to the aviator in landing or in the event of an accident. Although several tests had been made previously on the launching apparatus, there was some undiscovered flaw, and the machine was twice precipitated into the water directly from the launching

ways before it got fairly into the air. At the time of the launching the engine was running smoothly, but as the machine started down the ways the aviator in his car felt a sudden retardation, due to the fact that one of the wings came in contact with a part of the projecting launching apparatus, and although the aviator, Mr. Manley, attempted to adjust the balance of the machine with the rudder, the aeroplane tipped downward and plunged into the river before he could secure control.

Following its recovery and repair almost identical events occurred in connection with the second launching, about two months later. As before, it was conceded by all who saw the flight that the machine would undoubtedly have flown if it had been for the defective launching apparatus.

Preserving First Machine.
Nearly all modern aviators who are familiar with the type and construction of the Langley machine readily accord to the pioneer in the science of aeronautics that his first heavier-than-air machine would unquestionably have flown and would fly today if fairly launched. The Smithsonian authorities, however, have decided that the machine will never be experimented with again, but will be preserved as a monument to the scientist who conducted these original investigations.

The Langley memoir on mechanical flight, which forms publication 1948 of Smithsonian Contributions to Knowledge, is in two parts, the first by Professor Langley himself, dealing with the preliminary work and experiments up to the first successful flight of model No. 5 in 1896. The second part is by Mr. Charles M. Manley, Mr. Langley's assistant in the construction of the large gasoline motor and the man-carrying machine and who acted as aviator at the two attempted flights in 1903.

George Bowen, Once Rich and a Mason of High Degree, Dies at Kennewick.

(Special to The Journal.)
Kennewick, Wash., Sept. 2.—The body of George Bowen, at one time the head of a happy family and a man of wealth and prominence, lies in the morgue of the Kennewick Undertaking company, unclaimed by relatives. Bowen died Monday morning following an illness of several days in his little home on the waterfront in this city, and as yet the local authorities have been unable to locate any of his relatives. A sister of the dead man formerly lived at Deef Park, Wash., while a brother lives in Texas. His wife and children, from whom he has been separated for many years, live in Scotland.

Bowen was at one time a Mason of high degree, but never affiliated with the local order, which is now endeavoring to trace his membership in his home lodge.

He has made his home in this country for more than 20 years and at one time was one of the wealthiest men of the Columbia river district. Domestic troubles, however, precipitated financial reverses and Bowen died, penniless, but a small remnant of his former fortune. For the last seven years he has lived the life of a recluse, taking no part in the affairs of the community and accepting the friendship of but a few men.

P. R., L. & P. MAY STOP 1000 FEET FROM PRISON

(Salem Bureau of The Journal.)
Salem, Or., Sept. 2.—Rumors that the Portland Railway Light & Power company in rebuilding the State street line preparatory to the paving of that street to the penitentiary, is planning to run the new line only to 25th street, 1000 feet from the penitentiary station, where the cars have heretofore been stopping, is awakening a protest in official circles. Officials of the penitentiary declare that the existence of the institution brings an average of 30 visitors daily who travel over the car line. In addition orders are phoned to the stores of Salem and sent out on the cars, thus adding to the revenue of the company. If the company cuts off 1000 feet from the end of the line state visitors will be discommoded.

PERUNA SAVED MY LIFE.

"I Recommend It Wherever I Am."
Mrs. John M. Stabler, Millersburg, Ind., writes: "I have been cured of a very bad case of catarrh of the stomach and constipation, and a complication of ailments that I have had for several years. I ever did in my life. I was cured with three bottles of Peruna, who did me not much good, so I quit doctoring. 'I bought a bottle of Peruna and commenced taking it. I found I was getting some better, but thought I was not doing as well as I might. So I wrote The Peruna Medical Department to see what they thought about me. They gave me special directions and medical advice. To our astonishment I improved and am today a well woman and weigh as much as I ever did in my life. I give them Peruna with success.'"

Gadsbys' September Sale

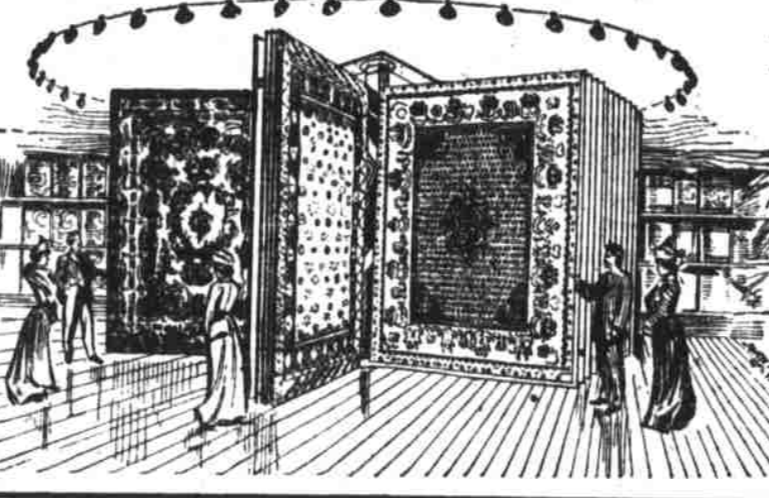
HOW YOU CAN FURNISH YOUR HOME WITHOUT READY CASH

If you are going to have a home at all, why not make it cozy and comfortable? You must spend the greater part of your life in it; and, after all, it is the only place you can go to for recreation or rest. The surroundings of the home should be cheerful and pleasant, and if they are not you ought to make them so. **YOU DO NOT NEED READY CASH.** Maybe some one piece of furniture, a new rug, new draperies or lace curtains is all that is lacking to complete the comfort of the home. Whatever your needs, great or small, **GADSBYS** are prepared to supply them. We offer you the advantage of our **CONFIDENTIAL CREDIT ACCOUNT SYSTEM.** There is nothing about it that would cause you any embarrassment—nobody hears of the transaction, nor is there any extra charge or interest for this privilege. **GADSBYS' prices are NO HIGHER** than cash stores', and you can arrange to pay **IN SMALL AMOUNTS, either WEEKLY OR MONTHLY,** as you wish. Every article throughout our five spacious floors is marked with a plain figure tag at the lowest possible price. Note the prices on the following:

"GADSBY SELLS IT FOR LESS"

650 Different Patterns of Room Size Rugs

Five racks like picture—each carries 125 patterns. Rugs from 12x15 to 6x9 feet on display. Anglo-Persians, Indians, Arabians, Royal Worsted, Bagdads and Tepracs—all here at bottom prices.



- Special Bargains**
- BAGDAD WILTONS, 9x12 \$29.50
 - SANFORD'S AXMINSTER, 9x12 \$23.00
 - EXTRA AXMINSTERS, 9x12 \$25.00
 - SAXONY AXMINSTERS, 9x12 \$18.50
 - SUSSEX VELVETS, 9x12 \$17.50
 - METROPOLITAN BRUSSELS, 9x12 \$18.00
 - EUREKA BRUSSELS, 9x12 \$12.50

High Grade Dining Set for \$58.00

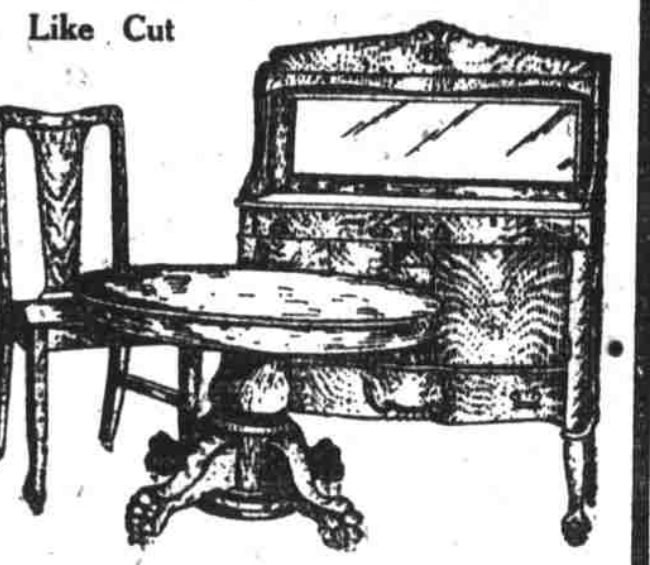
Remember, that furniture buying is an investment—not a mere expense, and that the better the grade the better and more permanent the investment. Here's a set of solid quartered oak in a handsome design.

THE TABLE is pedestal style, 6-foot extension, nicely finished. Special \$15.00

BUFFET, with large mirror, handsome design, solid quartered oak. Special at \$25.00

SIX CHAIRS to match; low price \$3.00

THE ENTIRE SET priced for this sale \$58.00



Gadsbys' Great Sale of Handsome Bedroom Outfits at \$26.00



The bed may be had in several finishes, just like cut, with continuous posts, large size tubing, a handsome yet plain design. The special price alone \$7.50

THE DRESSER comes in oak or maple \$12.50

THE WASHSTAND, also in oak or maple, special at \$6.00

THE BED may be had in the cream finish to match maple dresser and washstand.

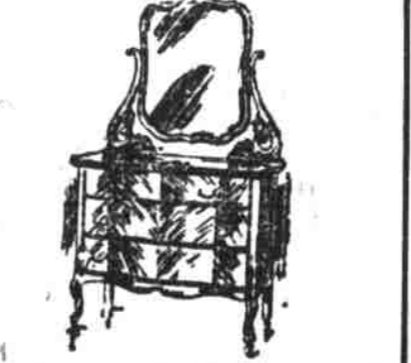
We have metal beds in all sizes, and all colors of enamel. We're famous for the values we give. We're famous for the values we give. We're famous for the values we give. \$1.95 to \$18.00

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Rocker Bargains—Beat These if You Can for the Money. Three styles of Rockers—take your choice—oak or mahog. any finish. Extra special \$2.00

A Dresser Bargain Only \$7.50



This Dresser, finished in a rich golden oak color, with French beveled plate mirror. Retail value \$10. Gadsbys' price..... \$7.50

Automatic Davenport Bed Special at \$22.50



Upholstered in Chase leather, full spring seat and back, oak frame; \$35 values. Gadsbys' special low price is \$22.50

Other Davenport in velvet, special \$18.50

Couch Special \$7.85



Couch is upholstered in two-tone velours; beautiful greens, reds and browns; Gadsbys' price \$7.85

A Sale of Fine Bookcases



- \$35.00 SOLID OAK BOOKCASE, now..... \$26.50
 - \$30.00 SOLID OAK BOOKCASE, now..... \$22.50
 - \$25.00 SOLID OAK BOOKCASE, now..... \$16.50
 - \$20.00 SOLID OAK BOOKCASE, now..... \$14.50
 - \$18.00 BOOKCASE, now..... \$13.50
- Others as low as \$3.50

China Closet \$17.50



We are offering special price this week on solid Oak China Closets, all reduced. Our special \$17.50

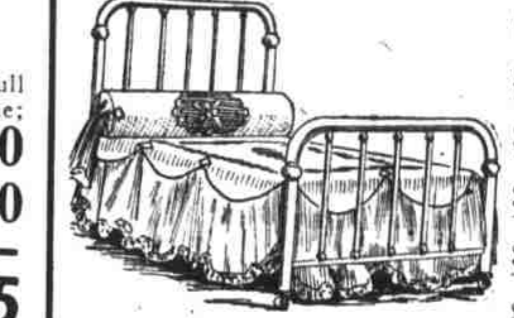
China Closet is a bargain.

Solid Oak Buffet \$18.00



Solid Oak Buffet, fumed, early English or golden oak finish; regular price \$35. Special this week \$18.00

Special Sale of Iron Beds



- \$3.50 Iron Beds..... \$1.95
- \$4.50 Iron Beds..... \$3.50
- \$5.00 Iron Beds..... \$3.75
- \$7.00 Iron Beds..... \$5.75
- \$20 Brass Beds..... \$14.50
- \$25 Brass Beds..... \$18.00

\$40 Leader All Steel Range \$27.50



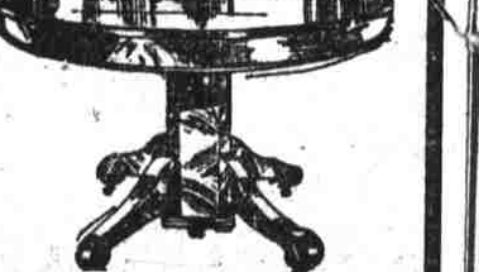
Equal to any \$40.00 Range in the market, oven 20x16 inches, asbestos lined throughout. You cannot break the lids. Special at \$27.50

\$16 Dresser \$11.50



Princess Dresser, with oval or shaped French bevel mirror, finished golden; regular \$16 values. Special this week for \$11.50 only

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Solid oak, pedestal Table, golden oak, polished finish; extends 6 feet long, 32-inch top; heavy pedestal base, giving table strength and design; Gadsbys' special price \$10.00

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