

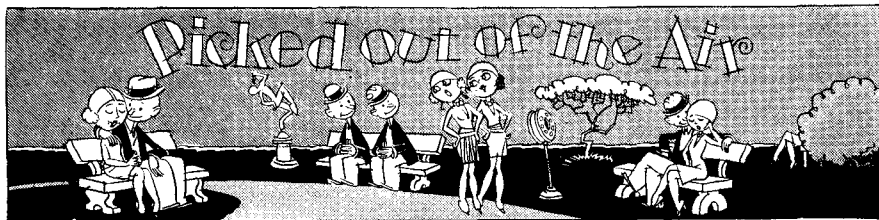
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Cunningham
RADIO TUBES
1915 - 1929



Parking Mike

OUT on the Pacific Coast one of the chains has put on a new afternoon feature entitled "The Park Bench" in which conversations overheard during a stroll through the park are broadcast—presumably. If this feature were really on the level it would run something like this:

"Whatjoo do las' night?"

"Ugh! nothing, 'cept take a jane to the movies."

Or else:

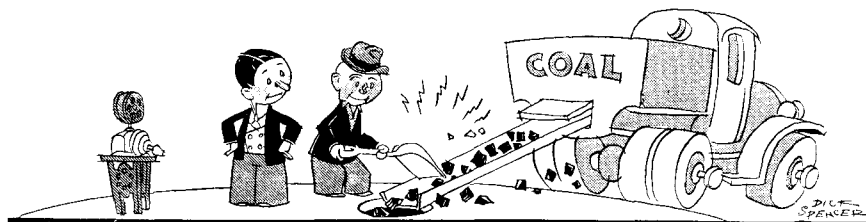
"Oh! my dear! You'll just simply die; honestly, you'd never believe it. You know that little Mrs. Jones? Well, really, my dear, you should have seen her. It was positively killing. She was

By
**Jack
Binns**

a perfect sight, my dear, if you know what I mean. I thought I would collapse. Honestly, I never saw anything just like the dress she had on. Really, my dear, it was the most delicious fright ever. You would have screamed. Honestly."

Finally, of course, there's the universal conversation on a park bench between the maid and her lovelorn swain—but what's the use, most of you know how it goes, and it should be experienced, not heard.

Ah, well! honestly now, although my old complexodyne will not reach the coast, I'm willing to bet "The Park Bench" broadcast does not broadcast a park-bench conversation.



Powerful Reasons

GEORGE WHITE of Chicago asks a question that seems to be puzzling a great many radio fans. "Why should any station have 50,000 watts power?" he inquires in his letter, and then continues, "and why give those favored stations exclusive channels?"

Well, George, your two questions are closely related to each other, and I feel sure that a little reflection will convince you that it would be a waste of valuable ether space to give a station an exclusive national channel without permitting it to use sufficient power to employ that channel for the benefit of the greatest possible number of listeners throughout the country.

Going back to your first question, however, I may say the answer is bound up in the term "reliable service." In the early days of broadcasting when no station was allowed to use more than 500 watts power the reception at the loud speaker was always accompanied with incidental noises closely resembling the racket made by a ton of coal slid-

ing down a chute into somebody's cellar.

The advantage of high power at the broadcast station is that it delivers the program to your radio receiver in such a condition that it stands out above this background of unwanted noise disturbance.

Now in answer to still another question in your letter as to why it is necessary to have powerful radio receivers if we have powerful broadcast stations, I may say this: Sensitivity and selectivity are closely related in the modern radio receiver. Therefore, as a general proposition you may say that a powerful receiver is also a very selective one. In this case when you are tuned into a powerful broadcast station you are using the power of your receiving set to employ its selective properties in keeping other broadcast stations out of your loud speaker. Sound engineering demands power at the transmitting end and properly proportioned power at the receiving end of radio broadcasting.

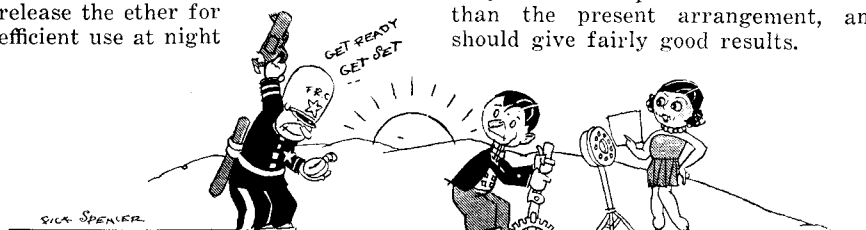
Daylight Operation

EITHER the Federal Radio Commission has no desire to employ its power to the extent of shutting down broadcast stations that are not operating in the public interest, or else its standard of what constitutes the public interest is extremely low. It would be much better if all stations using less than 250 watts power should be restricted to operation during daylight hours only on the general principle that such stations are extremely low. It would be much better in adequate program facilities.

Under this arrangement they could fulfill whatever local service they are rendering and then release the ether for efficient use at night

time for the stations giving programs of higher caliber. This would be an excellent solution as such stations would cause but very little disturbance because of the peculiar fact that daytime range is very limited and very steady.

Such a plan as this might make it necessary for certain stations to operate on a different wave length during the hours of darkness than the one they use during daylight, but that could easily be accommodated and should not cause any real trouble to the listener. The scheme would have a greater tendency to clear up the broadcast mess than the present arrangement, and should give fairly good results.



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the best TAT had found up to this stage no man could say, what with the swift progress in radio discoveries and technique, that April's method would not be obsolete by August.

The important thing from your point of view and mine is that passenger safety is the paramount concern of the air carriers. There is nothing of the old-time railroad pirates—who could say, "The public be damned"—about men like Henderson, Hanshue, Boeing, W. R. Ireland, Frank Robertson and the others who are organizing passenger aviation in this country.

Now you are reasonably convinced, we'll assume, that licensed air travel is safe and that the cost is moderate enough, figured in hours and distance and social and business values. So you grow curious as to just what you will find regular air travel like. What will be the sensations of flying in those huge tri-motored liners of the skyways?—will you be comfortable?—ill?—on time wherever you're going? Curiosity, as much as any other consideration, will probably impel you to take your first air trip.

It is a day in early summer, let's say, and you've just got a telegram summoning you, as soon as possible, to a city 500 miles away on urgent business. Having reached the momentous decision to go by air, as a novice you glance into the sky with some misgiving. Nary a cloud. No excuse. So you sigh a little, grin a little, and wonder about reservations.

A Model Terminal

You can phone the carrier's town office, or the airport; or, if it is handier, you can book passage at any railroad station. Before the middle of summer practically every railroad in the country will have wedded its service and some of its money to air carriers. For example, in the Winsted, Conn., railroad station you will be able to buy through tickets, rail and air, to Merida, Yucatan, on the Pan-American lines.

Presently a luxurious bus picks you up at your hotel, or at some central point in town, and you are on the way to the airport. The location of airports ten or twenty miles from the cities after which they are named, causing a loss of much of the time gained by air travel, has been a cause of justifiable criticism of passenger aviation in the past. The swift bus you are riding in now is one of the steps taken by the carriers to ameliorate this condition. And they are all bending every effort to find suitable fields close to civic centers. Kansas City's great airport is but six minutes by car from the heart of town; others are almost as favorably placed. And it is the belief of transportation and municipal experts that community business and residential development from now on will gravitate toward airports as in the past they have toward surface transit. However, say you have a fifteen-minute bus ride from your city to the airport; this gives you time to reflect.

So far everything has seemed efficient and businesslike, but you still cling to some doubt. Your impressions of aviation have been largely gained from those fine Sunday afternoons, soon after the war, when you drove the family out to the fair grounds or the local flying field.

You would park haphazardly and stroll around, stumbling over children, dogs and spare parts on ground lacking a tuft of grass. You'd wander into a hangar and lift little Clarence up to see the dofunnies in the cockpit; and if

no one were watching you'd surreptitiously climb in and do some ground flying.

A student in overalls would importune you to take a trip for \$5. Perhaps you'd finally get the little woman's apprehensive consent, and climb in. You'd be belted by a thick leather strap that reminded you of the electric chair. The cockpit floors and sides were layered with mixed dust and grease. No one would think to lend you goggles. Your eyes, already stuffed with dust, would be stung by the wind. You'd grip the cowlings and see nothing.

Eyes bloodshot, ears deafened for lack of a bit of cotton, you'd come down and zigzag back to your admiring family—their hero. Your suit would have to go to the cleaner's on Monday.

You shudder a bit with the vivid memory of your fear and discomfort and dirt—then the stopping of the bus suddenly recalls you to the present. You blink at the unfamiliar surroundings. "Terminal—all out!" says the bus driver.

Then you are in a waiting-room as clean and well-ordered as the finest railroad station and with all the fittings, from marbled lavatories to news and fruit stands. There is a clock, and a despatcher's bulletin board. When your ship's time goes up you are escorted along a canopied runway at the end of which you make out a portable stepladder, such as pullman porters use, and an open doorway. It dawns upon you that this must be the plane. The steward shows you to your seat. You are a little overawed by the calm precision of it all, but you did manage, as you stepped in, to catch a glimpse of two heads in an upper compartment, forward of your cabin. The pilots, you tell yourself.

When you and your fellow passengers are comfortably settled in your chairs the starter closes and secures the door, then signals to the pilots, who "rev" up their motors. You know the motors must make a terrific blast—each of them being 400 horsepower or more—yet you scarcely hear it when the windows are closed, for your cabin is insulated. Different ships, different methods—some with rubber sheeting, some with building compositions. Fairchild has developed an exhaust silencer.

You are agreeably surprised to find that you can ask your neighbor for a match in almost ordinary tones. Perhaps you shout at first because you think you have to; then everybody turns to stare at you and the steward comes forward inquiringly.

No Dust or Soot

Before you realize it the huge ship, cushioned on enormous balloon tires, is rolling out upon a grassed, dustless, carefully policed field with red and green lights to regulate downcoming and upgoing traffic and keep the runways safe and clear at all times. Suddenly the ship picks up speed. You are telling yourself, a bit nervously, that you've never before traveled so fast over the ground, when the sensation of speed lessens abruptly. You press your nose to the window, and it dawns upon you that the ship has left the ground. Is that all there is to it?

Once aloft there is little sense of motion and none of speed. You are in a well-lighted, well-ventilated cabin with from nine to nineteen companions, each in a deep chair similar to yours.

You are wearing your lightest suit. There is no dust or soot up here, such

as begrime you on railroad trains. The motor exhaust is carried far behind the cabin. There is a rack over your chair for wraps and small parcels; your baggage is in the tail of the ship.

The steward, in addition to being a licensed pilot capable of spelling the regular flyers, is an information bureau, a handy man, a waiter, and—a cook! For if your trip is a long one he will prepare a course meal on the electric stove in his pantry and serve it, too.

If you complain that your eggs are underdone he will sigh and scratch his head and explain ruefully that the Fahrenheit boiling point of water, 212 degrees, varies every 300 feet, rising about 16 degrees to each 5,000 feet of altitude.

From time to time one or the other of the pilots comes down into the cabin to chat with you, just as the officers of an ocean liner fraternize in the smoking lounges and dining salons. Perhaps he joins you at this meal. You are filled with the wonder of your experience, and there are a million questions you want to ask him.

"I feel all right now, but I suppose I'll be sick before we land," you begin.

Air Bumps in Gusty Weather

The pilot smiles. "You'll be an exception, if you are. Less than one per cent of the travelers on regular air lines get sick. The things that turn a fellow's stomach—sudden ascents and descents, stunting, and the like—have no part in passenger flying, you see. Why, more than thirty per cent of us professional pilots can't stand acrobatics: that's why not all of us could make good military flyers."

"I climbed a mountain once," you tell him, "and it knocked my wind."

"Sure, great altitude causes shortness of breath and hurried heart action in most people. But these passenger ships will not fly at great altitudes. We probably average between 2,000 and 5,000 feet, and seldom would need to go as high as 10,000 in the East or Middle West. Sometimes in the West the ships have to climb to 15,000 feet to get over mountains, but that's not excessive. In general we don't fly higher than is necessary for safety."

"Somebody told me the air pockets would make me sick," you insist.

"Well, even if you're one of the one per cent that get sick, you'll never be bothered on a quiet day like this. The air is very smooth now. Air pockets are only upward and downward currents of air. They make what we call bumps. When it's gusty there are a lot of bumps. But they're not unpleasant as a rule. They make the ship rise and fall suddenly and roll from side to side. Experiments are being made with the gyroscope to stop rolling. If that doesn't work, Lufthansa is trying a system we may adopt. There's a tube at each chair, which you grab up and suck if you begin to feel rocky. It gives off fumes of oxygen and cinnamon. They quiet the nerves of the diaphragm."

"Well, I have read," you admit reluctantly, "that airsickness at its worst isn't as bad as seasickness. And that one of the reasons the London-Continental lines were heavily patronized from the beginning is that travelers can thus avoid the Channel boat crossing."

"Reminds me of my old friend, Charley Niles," says the pilot. "You may or may not remember Charley, but he was one of the greatest flyers in the early

(Continued on page 56)



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What the Faces Show

The answers to the questions on pages 12 and 13 and a few additional guideposts to character reading

Character test compiled by Doris Webster and Mary Alden Hopkins, authors of I've Got Your Number

1. No. No.

Carrie Nation leaped into fame by smashing up saloons in Kansas with a hatchet. This photograph, like all others which were taken of her, shows a firm and rock-bound face and figure, indicating CHARACTER. She has a fanatic's mouth and an idealist's forehead. Her pose suggests energy, which can keep still hardly long enough to be photographed.

2. Yes. No.

Alfred Charles William Harmsworth, Lord Northcliffe, was a dominant personality in English journalism until 1922. This face shows strength and power with a hint, also, of weakness. The bull neck, the obstinate mouth and the forward thrust of the head show the fighter. All the lines of the face slope downward and the expression lacks kindness.

3. Yes. No.

Glenn Frank is the president of the University of Wisconsin. Before that he was editor of the Century Magazine. Still earlier he was a research worker and writer on industrial and sociological matters. Five years from now he may be something else entirely; but of this one is sure, it will be a position uniting two characteristics not often found in one man—abstract thinking and executive action. Do you see the combination in his face? A college president's forehead, a manager's chin and a go-getter's eyes.

4. Yes. Yes.

George Hossfeld won the world's championship for professional typewriting in 1927. His photograph shows him as a man of the business type, intelligent but not scholarly, determined but not unpleasantly aggressive. His eyes are alert and pleasant and his expression is that of humorous pride without complacency. The story of craftsmanship can be read in his hands, which are worthy of study.

5. Yes. Yes.

Edward H. H. Simmons is president of the New York Stock Exchange. You get his complete trustworthiness in his straight gaze, his firmness in the outline of his jaw, and his friendliness in his expression. Notice especially how generosity is combined with determination in his mouth.

6. No. Yes.

Charles Ponzi offered to pay 200 per cent interest in about 60 days to investors in his land syndicate. He was known as "The Financial Wizard of Boston." About the time that he owed over \$2,000,000 the courts got busy and he went to prison. He is a good mixer. His pose is energetic and self-confident, his mouth indulgent and sensual, and his expression cynical. He looks smart rather than intellectual.

7. Yes. No.

Hetty Howland Robinson Green, who died in 1916, was said to be the richest woman in America, and one of the great financiers of her time. She personally managed her large property in stocks, bonds and real estate in Chicago, New York and elsewhere. She was thrifty to the point of parsimony. Her face shows the negative traits of worry and suspicion. She was clearly one to whom riches brought no happiness but it is doubtful if she would have been any more cheerful had she been poor.

8. Yes. Yes.

Mrs. Jane Deeter Rippin, National Director of the Girl Scouts, is the leader of 200,000 girls. When she took office with this organization, she invited a group of New York business men to advise her how she might best apply the principles of business administration to a character-developing agency. With their assistance she has strengthened and enlarged the organization. One sees both leadership and executive ability in the way she holds her head, the determined line from cheek-bone to chin. The joy-of-life in her eyes suggests that she is especially successful in dealing with human beings.

9. Yes. No.

Dr. Albert Einstein is paid \$4,500 a year "to do nothing but sit and think." His thinking discovered a new application and proof of the theory of relativity. One notes the seeking look of the eyes, the scholarly forehead, and the sensitiveness of the upper half of the face. One suspects that he might have worked in music, literature or any other art removed from direct contact with the public.

10. Yes. Yes.

Ralph Adams Cram is an architect; that is, he is a combination of artist and engineer. The Cathedral of St. John the Divine, New York City, is nearing completion under his direction. He is an artist who works with derricks and engines. He has also written delightful books about beauty in different countries and ages. Do you think that that chin can deal with the boards and committees which make life miserable for some builders? Yes. His ability to see beauty, to express it in words and in stone, is backed by self-confidence and the strength to carry responsibility.

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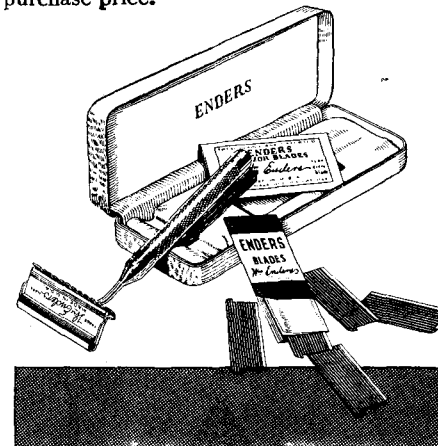
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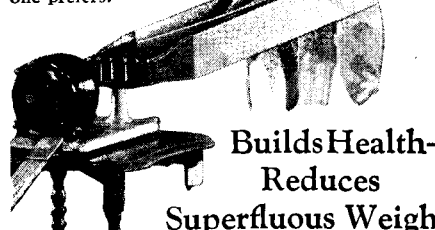
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days. Fifteen years ago I stood beside General Leonard Wood as he watched Charley put on an exhibition. Moisant, the famous French builder, was explaining Charley's maneuvers to Wood. The old general looked puzzled and skeptical—this was just a few months before the World War, mind you. Flying upside down and looping were the daredevil stunts of those days, and how Charley loved 'em! He came down O. K. The open exhaust had shot muck all over his freckles and his red hair. While I helped him unstrap he suddenly caught sight of a fellow all alone in a motorboat that was getting quite a tossing out in New York Bay. "Gee," said Charley, "that fellow's got spunk! I'd hate to be out there. I'd be sick as a dog to my stomach!"

You are amazed to hear this young-looking pilot talking of things so ancient: "Why, you seem to be just a boy. You don't mean to say you were flying fifteen years ago."

"Just learning," he grins. "I flew all through the war, and in the air mail up to the time I got this job. As a matter of fact our company won't hire pilots who have had less than ten years' experience. I guess there isn't a carrier in the country who'll take on a man who has had less than 1,000 hours."

Go Anywhere You Want by Air

The pilot saunters away and you settle back feeling much safer. You find an individual ash tray beside your chair; every little appointment, in fact, that you'd have on a fine pullman. You move about the cabin at will; there is a washroom and toilet in the rear.

If you are in the South on the Pan-American lines you will find the cabin finished by interior decorators to complement the semi-tropics: wicker chairs, palm fronds, ceilings done in delicate opalescent tints as if reflecting the shimmering blue and lavender Gulf Stream. On northern runs in winter—Boeing, NAT, Universal, and any of the others—your cabin will be heated. You will be in an overstuffed chair, with bright reading lights for the dark hours and more than the comforts of home.

You'll be sorely tempted to nap—as some of the old hands are doing. But this first trip is too interesting to waste. You stare down upon the landscape with fascinated emotions and realize that in an hour you've suddenly acquired a better sense of physical geography than all the relief maps in your old school books ever gave you. You trace coast lines and you look down upon the beds of rivers and harbors and roadsteads forty to a hundred feet below the surface of the water. In the South you may spot a shark any moment. Presently you ring for the steward and ask him whether he has a general air timetable—you'd like to see the extent of this service you are employing today for the first time. He brings you a fat folder.

You heft it with astonishment—then run over its pages with even greater astonishment. You will find chummy little footnotes that you've always associated with suburban railroad timetables: "F—Stops on signal only." "Daily except Mondays and days after holidays." "Twelve-o'clock run omitted on Sundays," and the like.

You glance at a map attached to the booklet and suddenly appreciate the new destiny the air age holds for certain American cities whose strategic location gives them dominion over vast territories—Chicago, Kansas City,

Evansville, Salt Lake City, Los Angeles, Seattle, Dallas, Albany, Cleveland, Hartford, Miami, Atlanta, Tucson.

You have done a good deal of rail traveling in your day, so you pick through the timetables at random to make comparisons: Denver to Los Angeles is nine hours, by Western Air Express; Kansas City to Los Angeles is twelve. You can fly from St. Louis to St. Paul over the Universal Lines this spring in less than seven hours. The train would take you there in seventeen. You will be able to fly from Los Angeles to Seattle in fourteen hours on the Pacific Air Transport lines; it would take you nearly forty hours by train. So you can skip around the country: New Orleans to Houston in less than four hours. Louisville to Evansville in an hour and a quarter. Nashville to Atlanta in less than three. If you are in Cuba and have business in Porto Rico you can fly it in six hours, whereas heretofore you would have to go back to New York and reship to Porto Rico; time, two weeks or more.

But these are just statistics and they bore you after a while. This timetable has proved to you that you can go nearly anywhere you want by air, about three times faster than by train.

Presently one of the friendly pilots comes down. You try to assume the offhand manner of a veteran as you hail him: "Captain, are we going to land on time?"

"About twenty minutes ahead of time," he smiles. "We've had the benefit of a lively tail wind all the way." "Of course it's a nice, clear day—you begin deprecatingly.

This seems to be a sort of amiable red flag to the pilot, who lingers, eager to talk to you. Bright, smart fellows in their own right, and full of interesting anecdotes of their barnstorming days, the transport pilots you will encounter in your air travels this year will be salesmen of air-mindedness, under instruction from their companies to be informative as well as courteous. Steeped in the lore of the air and airways, they will in addition be supplied with statistics. Too, they've led a lonely life thus far, these young men—in mail planes on dark, stormy nights over the Alleghenies, with only the sacks for company; in snowy twilights over the Rockies; on hot days over the southwestern deserts. They will be glad for your company and your questions. So don't be surprised because you've provoked your pilot into a speech:

A Good Record for the Mails

"Flying has been libeled a lot," he smiles. "There are many people who've been led to believe that planes must stay in the hangars if there's a stray cloud around. But did you happen to read in the papers last February what happened in Germany? Some North Sea islands were cut off by gales and blizzards and seas that were too much for shipping. The inhabitants were going hungry. Lufthansa heard about it and sent planes. The pilots dropped food and supplies by parachutes because most of the islands were too small and rough for them to set their ships in."

"But certainly plane service isn't as regular yet as train service?"

"Planes of course can't go out in some weather that doesn't stop the trains, yet in 1927 the air mail planes completed ninety-five per cent of their scheduled flights. Not bad? And I remember a comparison that somebody made a few

years ago, when planes and engines weren't as good as they are now. The planes made a six per cent better 'on time' record than the trains.

"Something funny along this line happened last December. I was in Washington at the International Civil Aeronautics Conference, which was timed with the twenty-fifth anniversary of the Wrights' first flight. A couple of hundred aviation chiefs from all over the world were sitting in the Chamber of Commerce building waiting for Orville Wright to show up. He was to be the guest of honor, you know. He was due at ten, but there wasn't any sign of him and everybody wondered where he was, because the weather was O. K.

"After a while Mr. MacCracken—and just let me tell you now, that's the man who is more responsible than anyone else in the country for the fine passenger service you're getting today—got up. Somebody had just handed him a telegram. He read it, then told us:

"I'm sorry, but Mr. Wright will be delayed four hours. The train he is on is stalled near Baltimore."

Fog is the Greatest Enemy

"Mr. MacCracken looked at everybody. Then all of a sudden he grinned—that explosive grin of his that makes you expect to see his teeth fly out. Well, everybody grinned back—and you could hear a chuckle running all around the hall.

"Saturday night everybody piled on the boat and went down the Potomac on the way to Kitty Hawk for the final ceremonies. We were due at Norfolk at seven in the morning. At eleven o'clock we were still poking around Hampton Roads, lost in the fog. I was standing near Mr. Wright on deck. I heard him say, kind of gently:

"It seems that airplanes are not the only things delayed by fog."

"I guess that reproach was many years in the making," you smile. "But fog is the airplane's greatest enemy?"

"Yes. But we've a good chance of beating it eventually."

"What's being done to beat it?"

"The government, and many private companies, are conducting all kinds of experiments. Neon lights, buried under iron grilles on landing fields. Theoretically they are visible for many miles through fog. Radio beacons that will draw a pilot in a bee line for his field, while a new kind of altimeter tells him exactly how high he is above the ground, not above sea level, every instant. Then Jimmy Doolittle is making exhaustive blind flying tests for the Guggenheim Fund. Believe me, before long we'll be flying and landing with perfect safety, fog or no fog."

The pilot goes forward to the flying compartment. We're certainly on the threshold of a great age, you tell yourself, and you can feel your blood pounding to the thrill of it.

The next thing you know you are sitting bolt upright with a startled impression of landscape rushing past the windows. Good lord, what has happened? Then you grin sheepishly—you are landing. You must have dozed off.

When you step out at the journey's end you will find the two smiling pilots, in their smart uniforms, waiting to shake hands with you. You assure them that you've never enjoyed anything so much in your life—and you add, looking at your watch, that you never found anything so valuable in point of time.

"I'm going back in a day or two," you tell them, "—by air!"

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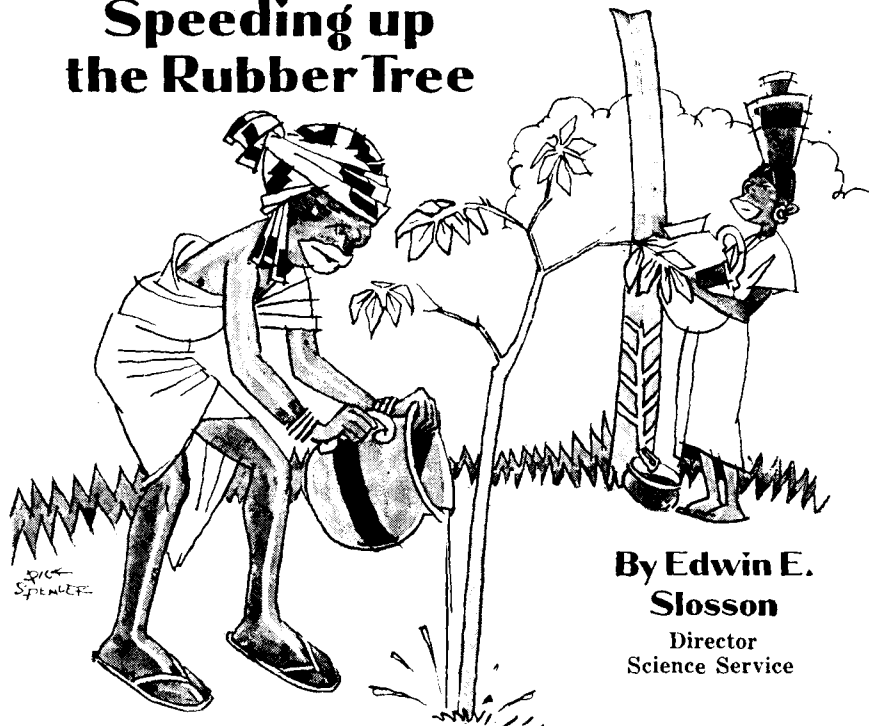
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Speeding up the Rubber Tree



By Edwin E. Slosson
Director
Science Service

A BOTANICAL question that concerns all Americans who own automobiles or ever ride in them is how to increase the supply of rubber and make it accessible to all nations on even terms. Four years ago, when the price of raw rubber jumped suddenly from 18 cents a pound to \$1.20, we woke up to the fact that the United States was using about three quarters of the world's rubber and growing none of it. This caused a great scurrying around. Mr. Hoover protested against the British monopoly, held under the Stevenson act. Mr. Firestone started a plantation in Liberia. Mr. Ford started one in Brazil. Mr. Edison tested 2,400 kinds of milky plants for their rubber content. On his eighty-second birthday he announced that 1,200 of them would produce rubber and that 40 varieties would be cultivated extensively in the South.

As a result of the protests, the Stevenson restriction has been abolished, and the price is down to a more reasonable figure. But we are still somewhat scared over the situation. As a young botanical friend of mine, Frank Thone, expresses it:

We go to the tropics to fetch it,
We cook it with sulphur and stretch it,
But our efforts synthetic
Are poor and pathetic,
For somehow we never quite ketch it.
What botanists call *H. Brasiliensis*
Is driving us out of our senses;
It goes on the wheels
Of our automobiles,
And horribly swells our expenses.

When a dairyman wants to increase his output of milk, his first thought is to buy more cows. His second thought is to buy better milkers. The rubber man is now entering upon the stage of second thought. He has long known that some of his trees yielded more milk when tapped than others, but so far he has not applied this knowledge generally. The rubber plantations of the British and Dutch possessions in eastern Asia, which now supply about 95 per cent of the world's rubber, were practically all stocked from the descendants of the seeds of the rubber tree, *Hevea Brasiliensis*, which a young botanist, Henry Wickham, succeeded in smuggling out of the Amazon about fifty years ago. They were planted in the Kew botanical garden in London, and the seedlings transferred to Ceylon, where they have been grown ever since. The 70,000 seeds so secured were a chance lot, probably not the best in the Brazilian forests. But one tree of the lot turned out to be a wonder. It still

lives in the old botanical gardens of Ceylon and holds the world's record for having produced, in its prime, an annual yield of 96 pounds of dry rubber for a period of five years, while the ordinary tree on the plantations yields only about 4 pounds a year.

Unfortunately the seedlings of this phenomenal tree are but little above the average. Propagation by cuttings is not successful, and bud grafting is not much better. The most promising method so far for improving the breed of rubber trees is by microscopical examination of the six-months-old seedlings. Those that have the largest latex tubes in their stems produce the largest yield of the juice when they grow to full-sized trees some five years later.

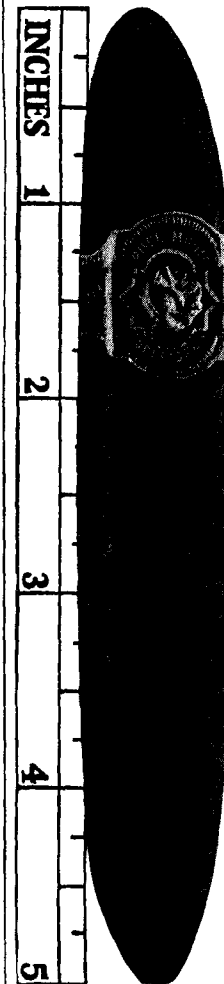
Shut, Sesame!

SESAME is familiar to most of us only as the magical formula that unlocked the robbers' cave for Ali Baba. It seems there is another sesame. According to Prof. K. Escherich of Munich the sesame seeds are being cultivated in South America to discourage the leaf-cutting ants, which rank in destructive power second only to grasshoppers. They cut away and carry home pieces of leaves, which serve in their underground gardens as fertilizer for the crops of fungi they raise for food. Their depredations are so great as to wipe out crops and even prevent the development of forests. The only way to stop them is by large-scale attacks with war gases. But when the colonies are young, Prof. Escherich says, the Brazilians sometimes plant sesame among them. The ants carry home chunks of the leaves, but apparently the fungi don't like the taste of them, for they refuse to grow on this kind of fodder. So the ants are starved out—a fitting penalty for their failure to study botany.



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