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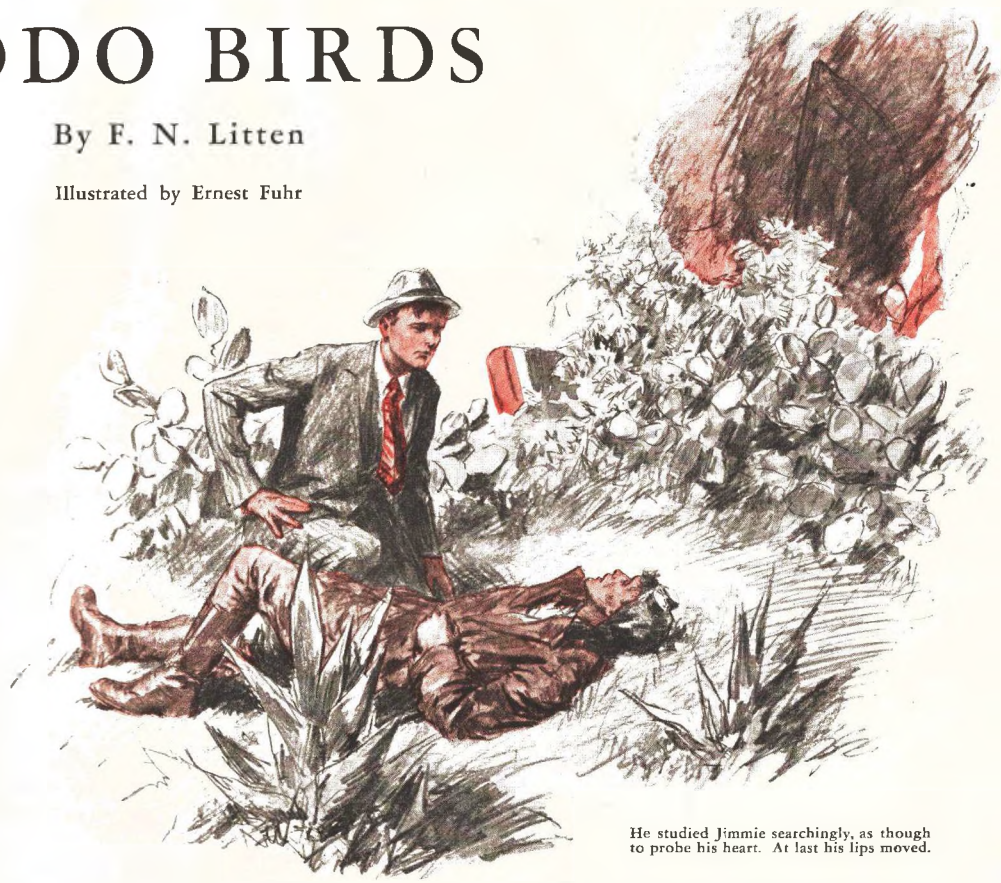
DODO BIRDS

By F. N. Litten

Illustrated by Ernest Fuhr



He studied Jimmie searchingly, as though to probe his heart. At last his lips moved.

AS the yellow trolley car bounced and skidded to a halt, the conductor, mopping sweat from underneath his visored cap, croaked a perfunctory:

"Hot Wells! All out!"

Jimmie Rhodes scrambled to his feet, gripped the two bags that filled the seat ahead, and quickly walked back through the empty car.

"How far to Brooks Field, Mistah?" he asked, an eager undercurrent in his voice. His eyes glowed with the anticipation of new adventures, just around the corner. Adventures as a cadet in the Army Flying School at Brooks and Kelly Fields. Boy!

The conductor left off mopping to stare for a moment at the square-shouldered youngster.

"A good two miles. You don't aim to walk it?"

An orphan nickel jingled against a key in Jimmie's pocket pointed his answer.

"Two miles—who cares about that?" he grinned. "Why, Mistah, in Virginia you have to walk that far for a postage stamp."

"They ain't got no Texas sun in Virginia, boy. You ought to took the Blue Bus in San Antone."

But Jimmie Rhodes had stepped down. He shook his head.

"I don't hold with busses. Too dangerous. Which way, Mistah?"

"Follow the pavement. It makes some turns. There's two field stone posts fin'lly—on the left—marked 'Brooks Field.'" The conductor pointed to a spot of blue—a car—far down the road. "Say, if you're joining up in the Flying Cadets, guess that's one of your buddies broke down. Them cadet cars is all junk!"

"I'll hurry on. Might bum a ride. Much obliged, an' so long."

The blue cap watched him trudging down the road. "Like all them army guys," he muttered. "Busted."

But lack of money was the least of Jimmie's worries. He had arrived. Now to come through! McHarg, a boy from his own school—Virginia Military Institute—had joined the Flying Cadets here at this same Brooks Field three years before. But McHarg had been discharged—"washed out"—and had disappeared. A dishonorable discharge—that much had leaked out. The student body resented it as a blot on V. M. I.

Jimmie—well, he would erase that blot, or know the reason why. His face was set. Jimmie had a hard square jaw and teeth that clamped together like a bulldog's. They were clamped tight now.

HE pushed on, head down against the dazzle of the blinding sun. The wind from the stunted trees called "mesquite" was hot—too hot for November. Suddenly his eyes, focused on the road ahead, caught the glint of something in a rut, half buried, something shining. He set down one grip and scooped the object from the powdery dust. It was a dagger, double-edged and horn-handled, fashioned with rude skill into the likeness of a bowie knife.

He looked up and noted that the distant car, that spot of blue, had backed, swung across the road, and was heading toward him. He wiped the dusty blade and dropped it into his coat pocket.

As the car limped into range, Jimmie observed with a widening grin the radiator of yellow brass, the body coat of seasick blue, and the hand-painted letters on the cowling just below the windshield reading, "My Blue Heaven." Opposite Jimmie, the car gave a last spiteful cough. Its occupant leaned out across the wheel, saluted Jimmie smartly, and said: "How're you?"

The words were spoken in a soft drawl so at variance with the snap of the military salute that a puzzled crease came to Jimmie's forehead as he raised his own hand to hat brim. The stranger's eyes were as sharp as his salute, blue, and with sun creases at the corners. His head was bare and there was scant hair above the high forehead. The naturally fair skin was stained red by the sun's rays. There was the downy shadow of a mustache on his lip. Solemnly, mournfully, it seemed to Jimmie, the driver of "My Blue Heaven" went on:

"This c-o-n-founded car jolted my suit case open. I had it roped on behind. Scattered things along behind for a quarter mile before I noticed. I've policed up the whole blamed road, but one thing I hate to lose is gone. It sure worries me. Kind of keepsake of my granddad's. A knife. I *always* carry it."

"A knife?" Jimmie grinned.

The driver blinked slowly, and as Jimmie drew the horn-handled weapon from his pocket, the sun-burned face lit up. But when the solemn-faced one spoke, his voice was still drawling.

"You found it! Say, I ought to be ashamed. It was my granddad's knife—he was a Ranger. Look—the knife has a hollow handle to hold poison herbs for arrowheads. You unscrew it at the haft, see—" he began to untwist the handle.

A low throbbing hum that had formed a background for their voices suddenly became insistent. Looking up, they saw outlined against the horizon to the south, and flying low beneath the sun, a white-winged plane. As they watched, her motor faltered, spewed a burst of black smoke that trailed out in frayed plumes. The ship's nose dipped; then the motor caught again, and once more she leveled off.

"He's awful low," said Jimmie, shading his eyes with cupped hands. "Sounds like his engine doesn't choose to run."

The plane swept nearer, the note of her exhaust a vindictive intermittent roar that held ominous warning. As she crossed the road above them, Jimmie saw her landing wheels turn indolently in the wind. She wasn't more than sixty feet above the mesquite thickets.

The roar of the exhaust stopped—then started—then cut again. Silence, except for the faint screaming whistle of the rigging. Jimmie stared up, heart pounding heavily. Somehow he knew that this was wrong.

The big ship slowed, shivered. Landing gear just above the mesquite, now. The left wing dropped. Suddenly she sideslipped—Jimmie felt his heart thud in his throat. Then a ripping crash. The white wing shattered in the mesquite. A dust cloud billowed up.

A numb instant. Then Jimmie followed his com-

panion,, vaulted the five-strand fence, raced through the stabbing cactus toward the crumpled ship. The wind blew toward him a rancid stench of carboned oil. They reached the plane. A smouldering wing section burst into flame. They climbed in through snarled wire and twisted steel to the crushed, telescoped cabin. The knife blade in the scant-haired cadet's hand slashed a wide gap from porthole to the framework of the jammed door.

Crumpled forward against steering wheel, feet still in the stirrups of the rudder bar, helmet and flying suit black with sooty oil, lay the ill-fated pilot. Jimmie sprang upon the fuselage, kicked through the stiffened fabric, and tore at the clasp of the safety belt. With his companion, he dragged the limp body to the ground.

They rested for a moment, but the fire crackled hungrily round the cowling, and Jimmie, with a hurried glance at the bright red stream trickling from beneath the pilot's helmet, cried:

"The gas tanks! Let's go from here!"

Between them they carried the injured pilot to the wire fence. As Jimmie knelt down, a fierce puff of wind hit him, and on its heels came a terrific rocking crash that made the air swing shut and open like a gate. Bits of the plane struck near them. Jimmie looked at his companion, who shook his head.

"We pulled a dumb stunt—goin' in there," the scant-haired one drawled, returning Jimmie's look with a solemn frown of disapproval. "Suppose that tank had burst a minute sooner. It sure worries me."

Jimmie grinned: "Dumb stunt is right, but *you* were the first through the fence."

The other looked at him blankly, then down at the pilot.

"I'll beat it back to the road house at Hot Wells," he offered, "phone a doctor."

He slipped through the fence, cranked up "My Blue Heaven," and disappeared, his engine coughing down the dusty road.

Left alone, Jimmie again looked down at the unconscious man. A rivulet of blood was still trickling along the oil-stained forehead. He unbuttoned the flying suit and thrust in his hand. His fingers touched a thin leather case in the breast pocket. At that moment the closed eyelids fluttered, the pilot's lips moved, and Jimmie caught a feeble word or two.

"Con rod—kicked her out through the case. Good-by, old ship—" then his vision evidently focused and he saw the boy. "Who the—"

"Easy. Hold everything," soothed Jimmie. "We've got a sawbones riding like Paul Revere for this place. You'll be all jake in no time."

The man groaned weakly, his eyes closed again, then snapped open. "The ship?"

"A total loss—burned."

"Who're you?" The man fought to make his lips form the words.

"A cadet from the flying field—at Brooks."

"Name?" The word was scarcely audible.

"Rhodes. Jimmie Rhodes."

The pilot's glazing eyes opened. He studied Jimmie searchingly, as though to probe his heart. At last his lips again moved: "Package—pocket—get it, Rhodes."

Jimmie withdrew the tiny leather case, and as he held it up the man whispered faintly:

"I'm special investigator—customs. Evidence—border cattle thieves here—brand blotters. Tell no one—give it no one—keep 'til I—call for it. Promise?"

Jimmie nodded soberly and the pilot's head fell back. The tiny wallet was new, and the leather creaked a little as the cadet wrapped it in his handkerchief and carefully placed it in an inside pocket.

Out on the road his two grips lay where he had dropped them just fifteen minutes past. A lot had happened in that quarter hour. Who was this pilot? A queer helmet and foreign-looking goggles. And the tiny wallet, evidence of cattle thieves. Jimmie glanced at the man's face. No, he was an American. A kind of reckless face, hard. Well, you had to be hard—

A car spun into sight. He jumped to his feet, and saw a second car, the blue bus, limping doggedly behind. The first car halted by the fence, and from it a man emerged with a limp Boston bag.

"Another crack-up, eh?" he said, nodding with cool professional calm. "Well, let's have a look."

He crawled through the fence and slipped the helmet. The pilot's eyes were closed, and he breathed heavily.

"Concussion—to start off with." The doctor pursed his lips. "Know who he is?"

Jimmie shook his head and thought uneasily of the wallet. He resolved not to produce it. The doctor searched the pockets. In one he found a few silver coins—Mexican pesos and half pesos.

"A charity case. Nothing to identify."

Jimmie turned to his companion of the blue car. They should be reporting at the flying field. There was nothing they could do here now.

"Would you ride me to Brooks Field?" he asked aside. "Guess we can't help here, and I want to check in to-night."

The doctor looked up.

"Give me your names before you go. Might need 'em later."

"Minc's Atlee—Walter Atlee," said the blue-eyed one, rubbing his scant crop of hair.

"James Rhodes, Ninety-six, Virginia," said Jimmie, a little defiantly.

The doctor looked up.

"Ninety-six what?"

"Just Ninety-six. It's a town," replied Jimmie, and felt his face go red.

"Thought it was a patent medicine," said the M. D. bluntly.

As they climbed in "My Blue Heaven," Atlee spoke.

"Some people ask dumb questions, I'll say. I come from a small town, too. Silver City, New Mexico. Bet you never heard of it."

Jimmie sidestepped the answer.

"You went to a military school, didn't you?" he asked.

Atlee nodded. "N. M. M. I. New Mexico Military Institute. How'd you know?"

"That salute—West Point stuff."

"Well, yours matched it. Where were you a captain?"

"Nothing like that. I rated corporal at Virginia Military Institute."

The car coughed its way round a bend in the road and up a slight grade. Atlee's voice drawled on, but Jimmie was thinking of the leather wallet in his coat. He shook himself alert as Atlee said:

"They're all pretty hard, these officers. Understand this week they 'washed out' ten cadets on physical—the '609,' they call it. And if they don't get you on the 609, then it's on flying. They'll say you lack 'inherent flying ability.' 'IT.' One in five has 'IT'."

He paused and Jimmie thought he caught a glint of fun lurking in the keen blue eyes, but Atlee's voice mourned on to its conclusion:

"Tough! The July class graduated forty-one at Kelly out of almost two hundred starters. It sure worries me."

JIMMIE gave his companion a quick survey. A lot of things, it seemed, worried Atlee. As for himself, he could not forget the tiny wallet in his pocket. He wished suddenly he could be rid of it. During the next few vital days he wanted to think only of making good at the flying field. He wanted somehow to atone for the dismissal of McHarg—to wipe out the stigma on his school, V. M. I.

A mile, and they turned in between two stone posts on one of which was a sign that read, "Brooks Field." Before them stretched a long line of green and white hangars, flanking the right side of the paved road. To the left loomed a city of Sibley army tents. Farther on, low frame buildings.

Atlee stopped the car to ask an enlisted man the location of the cadet barracks.

"Straight ahead. Long green building opposite Hangar Sixteen."

By the white sign, "Flying Cadet Detachment," fastened to the side of a building, Atlee stopped again, and said nervously: "This must be it."

The two, carrying their grips, climbed the steps and went in through the little porch. A few men dressed in khaki, wearing black brassards on their arms and white bands around their campaign hats, watched them from the lawn. Jimmie heard them utter a strange word—"Dodos!"

Then the two were inside and a cadet officer—or at least he seemed to have authority—took their credentials. When he had examined them, he motioned the pair through an open door into a small office, crowded with three desks.

An enlisted man wearing corporal's chevrons looked up from his work, took their names, wrote rapidly, then handed each of them a slip.

"Order on the supply sergeant for your outfit. Report back for name tags in the morning."

Led by the cadet officer, they passed again into the adjoining room and from the long bay beyond heard the buzz of conversation. They caught a glimpse of khaki-covered cots.

The cadet officer bored Jimmie with a glance.

"Set those bags under a window—in order. You're in the Army now." As Jimmie hastily complied, impelled by something in the voice, the cadet turned sharply to Atlee.

"Your name, Dodo?"

The scant-haired boy turned slowly, then answered in his worried drawl:

"Atlee."

"Atlee what?" snapped the other.

"Atlee—W. R."

"Atlee, *SIR!*" barked his inquisitor. "When you address an upper classman, you say SIR—get that. How long has that cat's fur been on your lip?"

Atlee touched his mustache doubtfully.

"I've had it two years—Sir."

"Two minutes to remove it—after you check in your bay."

Atlee shot him a hasty startled glance, but the cadet, unheeding, went on.

"I'm Cadet O. D.—if you sorry Dodos know what that is. It's my misfortune to have the policing of you until 1 p. m. to-morrow."

He swung back and called through the open door, "Cadet Sloan!"

A bored-appearing cadet stepped up.

"Escort these Dodos to supplies. They look unusually dumb. See that they don't fall in the sewer by the way."

Jimmie smiled. A fatal smile. The O. D. saw it. "*Eyes front*—you Dodo with the gorilla look. Wipe off that monkey grin. I'll gig you two for that. Take 'em away, Cadet, they're sickening."

Cadet Sloan went out the door with a yawning, "Follow on, Dodos."

A cadet on the walk gave Atlee's arm a twitch.

"Try to walk like a soldier. Suck in those guts and take your chin off your tie. Terrible Dodos, these two."

Atlee looked more sad. Jimmie ventured an embarrassed question:

"What's Dodos mean—Sir?"

Cadet Sloan yawned again.

"Fifteen doctors over in the medical building been trying to find *that* out ever since this flying school began." He gave Jimmie a judicial squint. "Judging by the way they crack up when you let 'em have a ship, *I'd* say *most* Dodos mean bigger and better business for the undertakers."

Jimmie subsided, baffled.

THE supply sergeant proved to be a kindly man. He handed out a grin of encouragement along with the G. I. (Government Issue) underwear and said:

"When you get past the 609 and the Ruggles Pursuit Ship, come back for your flying equipment." To Cadet Sloan he added. "There's empty cots set up in the sixth bay—those last cadets who washed out got clearances to-day."

This sounded ominous and Cadet Sloan added to the gloom by saying:

"Well, hardly any use to assign quarters to these Dodos. They'll be gone from here—*and soon*." He paused. "A sorry lot they're sending down to Brooks these days."

In silence they passed out and down the road again beyond a plot of ground between two buildings, which, from the aged and decrepit cars parked in it, might have been a junk yard. Then Sloan crossed the road and led them into a long bay crowded with cots and buzzing with forty voices. As the door slammed someone yelled:

"'Tention!" There was a scrape of feet as the men rose. The room quieted instantly and the two followed Cadet Sloan through the lines of cadets, each man standing rigidly beside his iron bed. Sloan halted by a row of empty cots.

"This is sixth bay," he said. "Get a copy of the flying orders,

the regulations prescribed for Dodos, and study hard till lights out." He looked at the two commiseratingly. "Hardly any use to try to learn 'em, for the short while *you'll* be here." Shaking his head, he left them.

Jimmie set his belongings down. From the cot adjoining, someone said:

"Not on the bed. They gig you for that."

He looked up. The speaker was a pale slender fellow. His voice was without expression, but his eyes smiled with friendship. He went on:

"Here's my copy of the orders. Read Section 2—Discipline. It'll save you walking tours."

"What's 'tours'?" asked Jimmie.

"Corrective discipline. An hour's walk on the street back of barracks." The seated cadet quoted the rest of it: "'Maintaining soldierly bearing and a cadence of not less than 128 steps per minute.' You get one hour for each demerit over 5. Shoes not shined, bed out of line, button off on inspection, or what have you."

"Punishment! Who deals it out?"

"The Officer of the Day."

"That bird in the orderly room! I don't think I'm going to be strong for *him*."

"Oh, he's O. K. The next O. D. might be a lot tougher," returned the other. He rose. "My name's George Chandler. From Whitman College, state of Washington. What's yours?"

Jimmie shook hands. He introduced the solemn Atlee, and as Bay Six began the joyful task of imparting information to the greenest cadets, he asked Chandler:

"What is a Dodo, anyway?"

Chandler grinned. "A bird about the size of a turkey with insufficient wings," he explained elaborately. "We can't fly—neither could a Dodo. He's extinct—and some of us *will* be. His brains were A. W. O. L.—ours, so the upper classmen say, are likewise—"

A sharp buzzing ring cut short his words.

"Another formation—confound these bells!" exclaimed someone. "You new cadets don't have to stand Retreat to-night, but lie low—no noise in barracks."

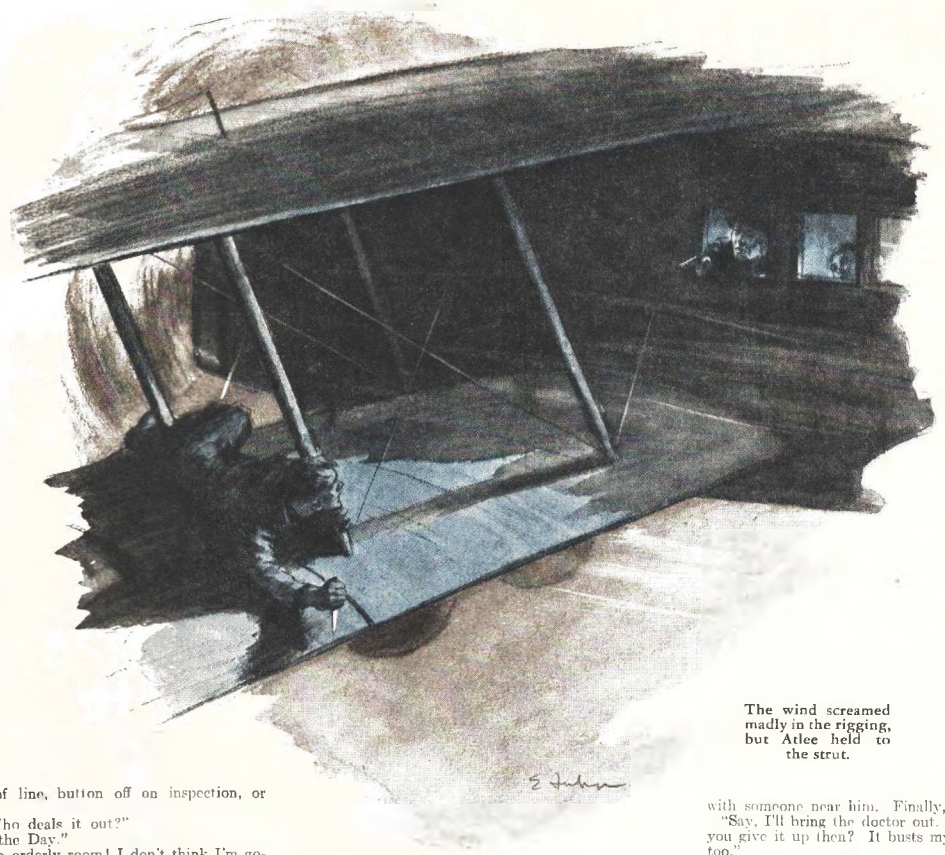
WHEN at ten o'clock, tattoo sounded from the megaphone on headquarters lawn, Jimmie snapped off the light above his cot with some relief. His head was full of new, queer sounding names and phrases—the 609, Gigs, G. I. More ominous than all the rest was the phrase, "he washed out." Already Jimmie sensed the tension in the lightly spoken words.

His thoughts strayed to the pilot's wallet tucked beneath his pillow. Evidence of cattle thieves. Resolutely he swept the thought of that cracked-up plane from him. He had to be rested for the "Physical" tomorrow. *That* was *his* battle. And as sleep crept upon him he conquered growing apprehension with grim resolution. *He* would not be washed out.

The next day in a squad of new cadets he was marched to the medical building. There they all went through the grueling "Physical." As Atlee put it in his pained and solemn drawl:

"It would have been less agony if they'd just sawed us into halves an' looked inside."

In the afternoon at Hangar 11, Jimmie met and fought the Ruggles Pursuit Ship, called by Army folks, the "orientator." It was a little car, containing stick and rudder, hung in a cage of tubular steel rails. It looked like a gyroscopic top he'd had once, only on a giant scale. Beside the orientator frame, a flying officer sat in a chair, one arm of which was studded with push buttons. Wires from a switchboard on the wall ran along the hangar floor and disappeared into a box beneath the officer's chair.



The wind screamed madly in the rigging, but Atlee held to the strut.

The stage commander, a veteran of five thousand flying hours, first spoke to them briefly:

"This orientator is operated by electric motors in the frame. With the controls—stick and rudder—you can move the car forward, to the left or right, down or up, exactly as an airplane moves. You will follow my instructions and go through certain elementary maneuvers. If in trouble, neutralizing your controls will right you. That's a good thing to remember when you fly. Rudder straight, stick centered between knees will right 'most any ship." Again he said impressively, "Rudder straight, stick centered. Remember that."

Mechanically Jimmie murmured to himself, "Rudder straight, stick centered."

Then, strapped in the little car, feet on rudder, right hand grasping the stick, Jimmie put the electric ship through its maneuvers while a group of officers took notes. He looped. He rolled. He made right and left turns.

Once the instructor in the armchair touched a button and the controls went wild. Jimmie spun dizzily around in zooms and dives that left him hanging foolishly, head down, from the top of the cage. He caught grins from the waiting squad. He didn't care. He had sensed that something they call "IT."

The drawling Atlee, in his turn, battled the orientator as coolly as if he'd done it every morning before breakfast.

After Retreat that afternoon, Atlee turned to Jimmie thoughtfully.

"Wonder how that injured pilot's making it," he said. "I'd like to know."

JIMMIE, absorbed in his new experiences, recalled with a shock the mysterious wallet in his inside pocket. He hadn't told Atlee about it. Perhaps he should. But his reply was cut short by a call from barracks.

"Telephone for Rhodes. Pass the word along."

Jimmie hurried to the booth in the third bay. A strange voice came through the receiver.

"Rhodes? Well, I'm the buddy of—" the voice paused—"the pilot who crashed Monday near Brooks Field. He's told me you got something of his. Wants me to get it. Can I get it now?"

It was Jimmie's turn to hesitate. The pilot had said to give the wallet to no one but himself—had made Jimmie pass his word. The voice broke in upon his musing:

"Well, what's wrong?" It was edged, now, like Atlee's dagger.

"The pilot said," began Jimmie slowly. Then gaining conviction, he went on firmly, "not to give it up to anyone but him."

There was anger in the voice.

"He's my partner. I'll bring a note from him. . . . You're holding up a big deal that'll cost him an' me both thousands."

This sounded wrong to Jimmie. A Secret Service man had no time for "deals" involving thousands. There was a lie to be unearthed between this man and the injured pilot.

"He said to hold it 'til he claimed it," repeated Jimmie stubbornly.

"Say—" the receiver crackled—"I've got to get that wallet. It's goin' to ruin him, I tell you!"

"Sorry," replied Jimmie, sweat starting under his barracks cap.

He *knew* the voice did not ring true. There was a second pause and a murmuring sound as though the talker were conversing with someone near him. Finally, the voice again:

"Say, I'll bring the doctor out. You know him. Will you give it up then? It busts my pal if you don't—me too."

Again Jimmie waited. Then, in compromise:

"You come out and we'll see," he said.

He told the full story of how he received the wallet to Atlee before mess call.

"Don't know if I should have told you this—I've passed my word," Jimmie concluded. "But there's something about this bird's voice that doesn't click with me. I hate to give the wallet up to him."

Atlee was silent. His foot locker against the wall beside his bed was open. Absently he reached within and drew out the dagger, watched the late evening sunlight flick its dual surfaces. At last he shrugged and, with wrinkled forehead, said:

"Somebody's lied. This man, or our pilot. . . . It sure worries me. Anyway, you ought not to carry that wallet on you." Then his face brightened. "See if it will go inside the handle."

He took the thin leather case from Jimmie and rolled it into a tight cylinder. It slipped within the hollow handle easily.

"That's the dope! Keep the knife in your locker 'til the pilot calls for it."

A call echoed through the bay.

"Rhodes wanted in the orderly room."

"That's the man—come on with me," whispered Jimmie, and Atlee followed.

A SQUAT touring car with side curtains on was parked across the street opposite the orderly room and a man under the wheel beckoned as Jimmie halted.

"You Rhodes?" he asked, and Jimmie recognized the voice that had spoken to him. He crossed over.

"Got it?" the man asked. He wore a dark battered Stetson, and his eyes beneath its black brim were hot and restless, like the eyes of a lynx in the night woods.

Jimmie was suddenly resolved *not* to give up the wallet. Something in that face spelled treachery if he had ever read the word. He hesitated. The man reached back and opened the door to the rear seat.

"Get in. I want you to get me right. We can talk it over, can't we? I see you're not sold on me."

Jimmie beckoned Atlee. "My buddy's in on this," he explained.

"Fair enough. Hop up, both of you, and take it easy."

The stranger's voice, with its assumption of heartiness, grated.

Jimmie stepped into the car reluctantly. Inside, he glimpsed the figure of a man crowded in a corner. The driver turned.

(*Continued on page 30*)

The Pants Slapper

By Franklin M. Reck

Illustrated by Grattan Condon

WITH his one free hand, Johnny Lambert pulled out his watch and held it under the dash light. The dial, cupped in lean brown fingers, read 11:36. With an involuntary exclamation he slapped his foot down on the accelerator and pushed his fifty-dollar roadster up to a nerve-shattering forty—every last mile the bus would do.

He'd promised the coach that he'd be back in bed by 11:30, and he was still a good eight miles from the State College campus. Fine example for a captain to set! Behind him he heard a challenging roar, and he veered carefully to the side of the concrete road—still going forty—to let the other car pass. Just then, around the sweeping curve ahead, he saw a pair of headlights swing. The car behind him had pulled almost abreast.

"Good night," he muttered, and slapped on his brakes.

The captain was too weary to understand. "You've gone crazy," he said in a tired voice.

Three cars abreast on a narrow road! The sedan beside him attempted to shoot ahead. There was a *zinging* scrape of fenders between the oncoming car and the sedan. Johnny ground to a shuddering stop; the sedan sped on and disappeared; while the other car, half off the road, slewed and bumped past, and came to a convulsive halt fifty yards away.

Leaping out of his flivver, Lambert strode lightly, speedily over to the car that had been forced off the road. He glimpsed a sport roadster with two men in the rumble seat and two in front.

"Anybody hurt?" he sang out.

"Guess not," retorted a peeved, faintly familiar voice, coming from the driver. "But it's a wonder you wouldn't give a guy his half of the road!"

Lambert, slightly taken aback, was slow in replying. "I refuse to take the blame," he said finally, with good nature. "It was just one of those things."

He peered closely and recognized the driver of the sport roadster as Russ Bergwin, scrub lineman on the State football squad, an intent, moody player who wasn't quite good enough to break into the strong State lineup. Bergwin was a Psi Gam; his fraternity house was across the street from Lambert's own.

"'Lo, Russ," Johnny greeted, thoughtfully. Russ, he noted, had a cigarette between his fingers.

"Oh—hi—Lambert," returned Bergwin, embarrassed. "My—my fender got a good scraping, I think."

"Sounded like it," grinned Johnny. His eyes swept over the other occupants. In the rumble he saw Bud Hill, halfback on the freshman team last year. Bud was also a Psi Gam. The captain greeted Bud, nodded to the others, and took a brief look at the scraped fender.

"Close call," he murmured. "Lucky. Guess I'll nurse my coughing chariot back home. See you to-morrow."

With a diffident parting gesture he hurried back to his flivver, hopped in, and started up. His mind raced with disturbing thoughts. Bud Hill and Russ Bergwin, members of the squad, going away from the campus at 11:30, dressed up suspiciously well! And smoking. They were evidently bound for Watertown, twenty miles away. Watertown was an all-night place, the haven of escape for bored students. But it was no place for aspiring football players during early fall practice, when competition was hot and cuts all too frequent!

BUD HILL had plenty of reason to watch his step. The good-looking cuss was down in Coach Richter's black book. Lambert recalled the incident that had put him there. It had happened last April, in the final scrimmage of spring practice. He himself had played only a quarter hour and then had stood beside Coach Richter to watch the preps and varsity fight it out. How those two teams had scrapped! Like savages.

Bud Hill, as safety man for the preps, played a powerful game. In carrying the ball he was as deliberate as a checkers champion and slippery as a water snake. He seemed to run slowly, but with a deceptive change of pace and a side step that maddened the varsity ends and backs.

And then, near the end of the scrimmage, when the varsity had the ball and Bud—his black hair hardly mussed, a joyous grin on his face—was standing near his own goal line in the safety position, the thing happened that had put Bud down in Coach Richter's black book.

Cy Young, varsity full, savage because the preps had scored a touchdown, slanted off right tackle and tore the prep line wide open. Two backs dove at him, but the piston-like pounding of his legs shook them to the ground. Only Bud stood between Cy and the goal line.

Bud cautiously angled toward him, stepping gingerly. Cy didn't dodge. He speeded up. His style was to crash into tacklers and ride over them. Cy was an impact player.

As the fullback thundered goalward, Bud stepped aside as though he thought Cy intended to dodge. Then, as the fullback passed, Bud dived at him, managed to touch his breeches, missed the tackle and rolled over and over on the ground.

To the spectator it might have looked like a heroic effort, but the coach had made a wry face.

"There's one boy who'll never do," he had said, a bit sourly. "He's a pants slapper."

Lambert had heard the remark and had known instantly that the boy was done. *Bud Hill, promising high school athlete from Spring Center, Indiana, pants slapper. No good.* Those words, Lambert knew, were deeply etched in the coach's tenacious memory. They erased the kid's good qualities.

Bud Hill hadn't made an honest effort—therefore he was out. That was Coach Richter's method. And it was a method that put the State College squad on its toes, made it eager to obey orders, eager to live up to a high standard. There was no shirking, no subtle lying down in the State squad. No grandstanding.

THE day after the near auto accident, after lunch, just as Lambert was stretching his rangy frame in a veranda rocker, the varsity captain saw Hill cross the street toward him. They greeted each other.

The sophomore was ill at ease. "May I see you alone a minute?"

Johnny leaped to his feet lithely. "Sure, c'mon up to my room."

He closed the door to his littered study and motioned Hill to a battered armchair. Then he waited, with a reassuring smile.

"I—last night," Bud began with difficulty. He shifted uneasily in his seat, then lifted his head with determination and looked squarely at the captain. "We were bound for Watertown last night—out for a good time. After the narrow scrape we had, we turned back. But—I want to make a clean breast of it. If we hadn't met you, we probably would have fractured the devil out of training rules. I came here to ask you not to tell the coach. I know we were nuts—and I want a chance."

Johnny looked at him soberly. He was appraising the sophomore and finding that he liked him immensely. The kid was direct and didn't play with words.

"What makes you think I'll tell?" he queried.

"Because you've a perfect right to," blurted Hill. "You're captain, and if you think a player's untrustworthy you probly ought to let the coach know. But I'm not untrustworthy, Lambert—" his voice was shaking a bit "—and I'll prove it."

"I won't say anything," the captain reassured him. "You'll have your chance." He cast about for a way to tip off Hill to his own failing. After a pause:

"It's going to be a tough year. State never had such a schedule. We play two intersectional games—the last one with Hartford." He hesitated. "There'll be a royal scrap for positions. The squad is loaded with first-class players."

They traded glances and Hill spoke. "I know what you're thinking. That I'll have to tend to my knittin' if I expect to make a letter. It may sound funny—but—I think I can do it."

Lambert didn't smile. "I won't say you can't, Hill. But you've never worked under Coach Richter, and I want to tell you something about him. He's a lynx-eyed Dutchman. He can watch a scrimmage and see everything!" The captain's voice was edged with warning. "If you slip up on an assignment or pass up a tough job he spots it and doesn't forget. He doesn't expect you to do the impossible—but he wants your best. A bluff doesn't get by. He—he's darn near the best picker of men in the country."

As he finished, he noted with disappointment that the warning didn't hit home. Hill's face radiated confidence. The sophomore was conscious of no weakness in his playing.

"I know how good the regular backfield is," Hill was saying. "Cy Young at full. Sanders at quarter—best field general in the conference. Robertson and you halves. But just the same—" he was insistent "—I think I can break in."

"If you feel that way about it," Lambert was slightly irritated, "you probably can. But did it ever occur to you that as long as Cy smashes the line the way he does, he'll stay in? And Sanders calls signals the way Coach Richter would if he were playing—Sanders is there to stay. Robertson kicks—and how that boy kicks! If you're going to win anybody's job, it will be mine. And I intend to make it as hard for you as I can."

Hill's black eyes snapped fire. "And I'm going to do my best to make a bench warmer out of a captain."

Lambert laughed sympathetically. "Fair enough. More than one State captain has warmed the bench. Only remember what I told you about the coach."

"I sure will, Lambert, and thanks." Hill's voice had taken on its embarrassed note again. "I guess I seem pretty cocky, but I know I can carry that ball. And I didn't want to ruin my chances because of my crazy stunt last night."

"How about Bergwin?" asked Lambert. "Did he feel any—ah—pangs of remorse?"

"I told Bergwin I was coming over to see you," the sophomore said soberly. "He didn't say anything—he seldom does."

DURING the first three weeks of the season a formidable ghost hovered over the practice field at State. He was dressed in yellow headgear, his shoulders were broad, and his moleskin-clad legs were long and powerful. As the season progressed, he loomed larger and larger. Carney of Hartford. State College players knew what he looked like, because papers from coast to coast carried his rugged picture. A chiselled face, with set lips and one eyebrow straight, one arched. Under one arm a football, almost hidden by the crouched body.

By the middle of October, Carney, Hartford fullback, had become the country's most noted player. He had made two touchdowns against the Southerners and three against Penn.

"We'll have to stop that baby," growled Coach Richter, "or we'll get a royal spanking."

Johnny Lambert, his muscles tightening, nodded. The season wasn't going any too well. In spite of her wealth of material, State had barely scraped through her early-season games. She'd overwhelmed Tech 30 to 7, but Tech had always been easy. Against Lampson, a small college, she had been lucky to win 13 to 6. Her first conference game against strong opposition had been a disappointing tie.

Hill, playing with the scrubs, gave the varsity ends continuous trouble. Coach Richter, his scant hair blowing and his level eyes narrowed to slits, marked every misplay, every bit of faulty execution.

"You Farrell—and Dean!" he raged at the ends. "If you let Hill get by you every time he carries the ball, what are you going to do when Carney comes around your end? Get him! Don't let him suck you in!"

After that, the ends did get him—but not every time. Hill was a jerseyed wraith, hard to touch.

The varsity backfield—Young, Sanders, Lambert, Robertson—wasn't getting away as it had last year. And yet, no other conbination seemed to do as well. Captain Lambert was particularly disgusted; and as he strode toward the field house after a grueling scrimmage, he opened up to Hill, who walked beside him.

"I'm not getting away, this year, and I don't know what's wrong. You've got something I haven't. How on earth do you slip tacklers the way you do? I haven't returned a punt more than ten yards this season!"

The sophomore's grimy face brightened. "I think I know what's wrong."

The captain looked up. "What is it?"

"You're running too fast," Hill asserted; and when Lambert's face showed bewilderment, he explained eagerly. "You go at top speed every minute, and tacklers get you all figured out. They can count on your speed. Start out fast, then change pace. Go slow—fast—slow—and you'll make 'em miss every time."

Johnny's eyes widened. "Let's try it out," he suggested.

And there in the gathering dusk, Hill punted to Lambert, and Lambert practiced changing his pace—changing it so subtly that it was almost imperceptible.

"You've got it!" the sophomore cried exultantly. "Let's work out again to-morrow."

AGAINST the strong Western university, Johnny gained a total of 110 yards and scored a touchdown. The entire team, heartened by his performance, played a smashing, machine-like game from the second quarter to the gun. The final score was 21 to 0.

Every evening, the following week, Johnny and Hill worked out for fifteen minutes during the warming-up session before practice.

"What are you two doing?" growled Young. "Playin' tag?"

And the captain, after each practice run, walked back to the scrub with a question on his lips. "How's that?"

From Bud, an enthusiastic grin, and a low-spoken "Better!"

THE following Saturday, in an away-from-home game, the captain ran back a kick-off for a touch-down, skidded off tackle for long gains through a bewildered secondary, and returned one punt for sixty yards.

On the train coming home, with the squad playing cards, humming tunes, and chatting about what they'd do to Carney of Hartford, two weeks hence, Lambert sought an empty seat and puzzled over a problem. Bud Hill hadn't been taken on the trip. So far, the sophomore hadn't played a moment. He was still on the scrubs; cheerfully, hopefully fighting for his chance. And yet Lambert felt certain that Bud was a better ground-gainer than he himself. Furthermore, Bud hadn't once repeated his pants-slapping stunt. Johnny decided to sound out the coach.

His chance came the following Monday afternoon. After a light practice, he strolled toward the field house beside the weather-beaten Dutchman.

"You've been doing a lot better lately," Coach Richter said. That was high praise, for him.

"I've gotten away once or twice," the captain admitted. "Bud Hill has shown me a wrinkle or two about changing pace—and sidestepping."

"Hill knows his stuff there," the coach readily agreed. "I was going to tell him to coach you—but you two beat me to it."

The captain paused. Then, knowing that it was useless to beat around the bush, he asked bluntly, "When are you going to use him?"

"A year from now—mebbe two years," the coach replied, unmoved.

Johnny sucked his breath in sharply. "Good gosh, Coach, he's a better runner than I am right now!"

"It takes more than a runner to make a State team," Coach Richter replied with a touch of Teuton stiffness. "Hill's a beautiful runner. But he's not sound inside. I gotta have men I can depend on, and I can't depend on Hill."

Out of the corner of his eye, Lambert saw Bergwin passing close by and thought that the moody lineman looked at him queerly. Bergwin had made the last trip with the team, but he hadn't yet played in a game. He just wasn't quite good enough. But Hill seemed different.

"Hill's heart will be broken in two years," he said aloud.

The coach scoffed with characteristic impatience. "If his heart breaks that easy he's no good around here."

Lambert knew that he was treading on dangerous ground, but he decided to risk another question.

"Couldn't you tell him just where he falls down?"

"Tell him he's a pants slapper?" the coach said. "He wouldn't believe it himself. He doesn't know it. I'd have to catch him in the act. It would have to be a glaring example before he'd see it. If I get the right chance I'll tell him. If I don't he'll have to warm the bench and see how State men play the game. It takes time to break some of these high school stars of their wrong habits. Hill has been permitted for years to save himself. It's unconscious with him—involuntary. In time he'll work out of it."

That was a long speech for the close-lipped coach, and Johnny knew he could go no further. But he decided to warn Bud fervently never to pass up a tough tackle.

THE captain and the scrub had become close friends. They'd worked out every afternoon on changing pace and sidestepping. Johnny, taking lessons from Bud, had become nearly as formidable a figure on the sports pages as Carney of Hartford. After each workout Johnny had asked, "How's that?" and nearly always the scrub had been able to answer, "Better." The words had almost become a form of greeting, to be used anywhere on the campus with an understanding grin.

The next afternoon, at the beginning of practice, Johnny snagged a high punt, tucked the ball under his arm, and yelled to Hill, who was standing about thirty yards away: "Comin', Bud!"

He started running, alternately speeding and slowing his pace. As he drew close to Bud, the scrub started for him and anticipating his change of pace, dived hard and brought him down with a crashing thud.

"Have a heart," grinned Lambert, half-humorously, as he rolled to his knees.

"Why?" whispered Bud, and the startled senior looked up to see an entirely new Hill looking down at him—a black-countenanced, angry Hill. The senior leaped to his feet, but the scrub turned and walked away.

Heartsick, thought Lambert. Heartsick because the season was nearly finished and he hadn't yet broken into the varsity line-up.

A half hour later the scrubs and the varsity scrimmaged. Acting as interference (*Continued on page 65*)

Against the strong Western University, Johnny gained a total of 110 yards and scored a touchdown.

Spies of Suleiman

By Donald and Louise Peattie

Illustrated by Frank Spradling

JOSTLING a rude way through the streets of beleaguered Rhodes, a hawk-like man came striding, behind him a slim brown-haired lad who staggered under the weight of the soldier's arms and armor. Halfway across the crowded square, the shield dropped from the overburdened boy with a loud clatter on the cobbles. His master wheeled in fury.

"Miserable slave!" he cried. "To drop the 'scutcheon of the great Riego in the dust! Down on your knees and beg for mercy!"

Instead the thin, brown-skinned boy stood straight and proudly faced the black-browed Spanish mercenary. "It was no fault of mine—the thong broke."

"You dare rebel—" The Spaniard's clenched fist shot out, full in the boy's face, and Oliver Durham went reeling down on the cobbles.

A murmur of laughter arose from passers-by, for such things furnished humor in the stern days of the Year of Our Lord Fifteen Hundred and Twenty-two, when Rhodes, championed by the Knights of St. John of Jerusalem, faced the bloody peril of the siege by all the armies of Suleiman I., Sultan of Turkey.

But in that motley crowd of Armenians, Greeks, Jews, Syrians, tradesmen, and slaves, one heart went hot with anger, and with the charge of a bull a broad-backed boy in English dress lunged out upon the Spaniard and sent him crashing.

"Quick!" he cried, pulling up the dazed Oliver, as Riego raised his head with a curse, groping for his sword—and the two boys took to their heels down the twisting streets, Riego hot in pursuit.

At a great door blazoned with heraldic arms, Oliver's defender halted, thrust it swiftly open, and drew him in.

"Now," he laughed, panting, "let that fellow knock, if he dare, at the door of Sir John Gaunt!"

Oliver looked gratefully at his stalwart rescuer, instantly liking the broad honest face under the thatch of yellow hair. "Are you Sir John Gaunt, then?" he asked.

"My faith, no! I'm only his equerry, Benedict Lindsay—your servant—of Ilfracombe, in Devon."

A flood of homesick emotion, stifled during the long year of his bitter slavery, swept over Oliver. His thin sensitive face quivered as he said: "Devon—I'm Devon too. Exeter, I come from."

"Exeter—why, I was tutored at Exeter!" cried Benedict, and clapped the other on the shoulder. "Come with me, and let's anoint the bruises that fellow gave you."

FROM the high window of Benedict's chamber, rich in Arras weave and Turkish rugs, Oliver's keen young eyes looked gravely down upon the town where for weeks he had been a starved and beaten thrall. It lay spread out like a map, gleaming in the brilliant Aegean sunshine.

Benedict pointed out different places of interest: "The chapel—the houses of the Knights—the foreign quarter—the walls of the city—and the moles of the harbor. And there, see, the ships of Suleiman ride at anchor! May God destroy the infidel! Beyond the French bastion you can see the tents of his leaders. That tower there is Turkish built, to fling Greek fire into the city. They harry us on every side, and the island is honeycombed with their sneaking mines and tunnels. At any hour, hordes of Turks may spring up within our walls and pull the city down upon us."

"I'd give my right arm to strike a blow against them," said Oliver tensely. "For months I all but broke my back rowing in their accursed galleys."

"A galley slave! You, a Devon boy!"

"We Durhams are seafaring people," Oliver told him, his eyes dark with the memory of his experiences. "I set sail with my uncle on a merchantman bound for Aleppo from Bristol, but off Cyprus we were boarded by Turkish pirates, my uncle slain—" his voice stopped for a moment before he mastered himself—"and I taken to row under the whip. In Aleppo I was sold at auction to a Greek slave dealer. That Spaniard Riego bought me from the Greek in Crete, to be his armor-bearer. Then he came on here to sell his sword in defense of the Knights of St. John."

"He was an evil-looking brute," reflected Benedict, "but we need every sword we can get. We have only one Knight to twenty Turks. And there's worse—"

He drew Oliver down beside him on the couch, and his voice sank to a cautious murmur as he went on:

"There is treachery on foot. There is a steady leak from the high councils of the Knights. In all they plan they find the Turks have forestalled them. Somehow even their most secret sessions are betrayed. I tell you this because you are now one of us."

"Yes," Oliver said, very quietly. His hand met Benedict's in a close grip. After an instant he spoke again.

"I'm not soldier build like you, but in this black year past I've got my tongue round Turkish and Greek both, and I can be quick and quiet as a shadow."

"Then you're the very fellow for us!" Benedict's broad face lighted for a moment; then sobered again. "There's spy work to be done, and the Master can spare none of his men from the defenses. What's more, the Knights themselves could never pass unnoticed in the city. The task must fall on such as we. Sir John has told me to

The Spaniard's clenched fist shot out, full in the boy's face, and Oliver went reeling down on the cobbles.

be ready to go before the Grand Master to-night for orders. He'll welcome you, with your Turkish and your wits, as twice the worth of me, for all my twelve stone."

"And I shall welcome a chance to risk my life in the service of the Knights Hospitalers of Jerusalem!" Oliver's voice tingled.

Benedict caught the tingle, saw the glow in the other's eyes, and — half-shamefaced, yet filled with high enthusiasm — ventured his greatest confidence:

"It is the dream of my life to win my way some day into the high and holy Order."

Swords drawn and torches aloft, the Knights came pouring in. The Spaniard, with a groan, fell to his knees.

AND that dream entered the heart of Oliver Durham, in the hour when, with Benedict and Sir John Gaunt, he stood in the presence of Villiers de l'Isle Adam, grand master of the Order of the Knights of St. John's Hospitalers, hearing that voice, sonorous yet sweet like the ringing of Devon church bells, looking up into that stern face touched to strange radiance by a shaft of light from the high stained glass windows. Behind him, against the semicircular wall of the chapel, were ranged his bodyguard: Knights motionless as bronze statues, in full armor, with drawn swords. They stood silent while the Master spoke—of the deadly peril hanging over the city of Rhodes, of the creeping evil undermining it, of a task delicate and dangerous, calling for wits and stealth, for strength and swift initiative. He who won through on such a mission might render to Christendom service as great as ever an olden Crusader.

So it was that before moonrise next evening two young strangers, sons of some Greek oil merchant, to judge by their dress, came swinging into the Street of the Scythemaker's, into the unknown menace that lurked hidden somewhere among these twisting narrow ways of the beleaguered city.

The bigger of the two looked a bit sheepish. "By St. John, Oliver, the prickles run down my back at every pair of eyes we pass. I'd swear they can see English skin through this outlandishness, for all we stained our faces swarthy."

Oliver chuckled with a suppressed excitement. "They're all admiring what a handsome Greek you make. Now to find what lies closest to the chapel, and what unseen ear is at the secret sessions."

The quarter of the town where they found themselves was so mongrel that it absorbed them without remark; unwise, too, in that dubious neighborhood to question overmuch the business of others. A door opened now and then, sending a flood of orange light across the cobbles, to let in a workman coming home late, a woman returning to her children. All of the houses looked alike to the two boys, dingy buildings huddled under the shadow of the great enclosure wall of the church.

"These three," said Oliver below his breath, with a covert gesture at the nearest doors. "Behind these three the enclosure wall lies closest to the chapel—if we can judge by their distance from the cross on the chapel roof. Now, lie low, and sniff for a scent."

Unnoticed in the shadow of a deeply recessed doorway, for an hour they gave their concentration to the activities of everyone who came and went along the street or in and out of the houses. Benedict was beginning to yawn when Oliver leaned close to say softly:

"There have been three people come out of that middle house, and gone very quietly away. And do you hear the babble of talk inside when the door opens? Something's afoot behind that door."

Benedict stared at the uncommunicative flat wall opposite. Pale golden light slanted in narrow oblongs from the high slits of windows. "I could climb up to those windows and get a look in," he suggested, tightening his belt for the scramble.

"Numbskull, you might as well label yourself spy!" Oliver's whispered laugh turned tense. Suddenly he pinched his friend's arm in warning. A group of ten, perhaps a dozen, shadowy figures was approaching silently, and now the leader paused at the door of the middle house and rapped.

Knock! Long pause. *Knock-knock-knock* — rapidly. Pause, then one more *knock*.

The door opened slightly, and in that crack of yellow light the boys glimpsed a swart old face, Armenian perhaps, wrinkled as a dried quince. At sight of the cowled figure leading the visitors, the old head bobbed and the door opened wider to let them enter.

And before Benedict had time enough to be astonished, Oliver, arm in his, had swung in boldly on the heels of the strangers, as though members of the party, and the door shut heavily behind them.

THEY were in a low-ceiled smoky room, where men at little tables talked and drank—Greeks, Syrians, Jews, a motley lot. The boys slipped unobtrusively to a table in a dim corner, an air of confidence hiding hearts that beat like Turkish war drums.

The old Armenian host, when he had served the larger group, approached them, his opaque brown eyes in wizened pits searching their faces while he obsequiously asked their pleasure. Nonchalantly, in his best Greek, Oliver ordered wine, and when it was brought, Benedict, copying laboriously his nimble friend's air of ease, lifted the cup to his lips.

"Don't drink it," breathed Oliver, above the rim of his. "There's the smell of mischief in this place."

"They're a kennel of mongrels. I'd like to clean out the lot," murmured Benedict belligerently as he set down his cup half emptied by cautious spilling.

"Strange there should be a monk amongst them."

Covertly they turned their eyes to the cowled figure that had led them in, and with a shock realized that the eyes beneath the cowl were fixed on them. It cast a shadow so deep the face could not be seen; only the burning light of the dark eyes was visible. Oliver shivered, with a fear he could not name, and turned his glance about the room.

"Benedict," he muttered cautiously, "there are men in this room who were not here when we came in."

Benedict stared. "But the door hasn't opened," he objected.

"There is a door at the back—look, behind that drunkard with the zither, near where the cutlass hangs on the wall. It's opening now—"

Benedict craned his head slightly, to see a newcomer, in Greek dress, slip in at the little back door with a nod to the Armenian.

"I'd give my weight in gold," murmured Oliver into his cup, "to know what lies beyond that door."

The new arrival had come up to the table nearest theirs and was engaged in talk with those who sat there. Benedict caught his breath as he recognized the Turkish tongue. Then he saw an aghast look creeping into Oliver's eyes as the boy sat straining to hear.

"What is it?"

"Something," Oliver told him in a breathless undertone, casually refilling their wine cups, "about an understanding these treacherous Greek merchants have secretly made with the Turks, that their trade shall not be disturbed when the city falls."

"When the city falls!" Benedict's fist clenched. "Is the danger so close, then?"

Oliver listened. "Suleiman has been waiting for reinforcements. They talk as though the time of an attack were near," he muttered, and then under the table suddenly kicked his friend in warning. From the seat next the hooded monk's a man had got up and was strolling toward them, a Syrian with a hooked nose, drooping mustaches, and prominent eyes. The monk sat back and watched.

The Syrian lounged up to the table and greeted them smilingly. "You are strangers here, eh?" he asked in Greek.

"We came lately to Rhodes, just before the siege." Oliver answered him pleasantly. "In a ship with oil and skins. Is trade brisk these days in the city?"

The Syrian eyed first one and then the other covertly. "It may be better when Suleiman and his Janizaries take it over—eh?" He nudged Benedict, with a confidential wink.

IT was plainly a test question, and Benedict, clumsy enough with Greek, was speechless. Oliver came swiftly to his rescue, countering warily with a query of his own. "How soon will that be?"

The Syrian changed his face to insulted righteousness. "How should I know, how should I know?" He turned with an effect of anger and returned to his table.

The boys sat pretending to drink, Benedict silently sweating, watching the Syrian who sat, knotty arms folded on the table, bent in low conversation with the monk.

"We are suspected," said Oliver briefly.

"It was my dolt's dumbness, Oliver. You think quick as a hare's jump, but I never can make my tongue wag. Let's be out of this."

"No, we've just caught the scent, and the danger is nearer than anyone dreamed." Oliver's eyes were darkly bright with the excitement on which he thrived. "And look—we dare not crowd through that lot hanging around the door."

For the wine shop had been emptying, in little groups, and now the last of the drinkers, save the monk and the Syrian and three with them, was loitering out the door. The old Armenian at the back of the shop put out one lamp and then another; still by the dimmed light, the five at the center table sat watching the boys.

Oliver drew in his breath sharply. "You are right, Benedict. We must get out. Those villains will wait to follow us, however long we stay, and we'd better be swift and try escaping in the street outside. The devil knows what they mean toward us."

"If it comes to a fight," agreed Benedict grimly, "I'd choose to be out in the open, where there's room to swing an arm."

They arose, carelessly, tossing a coin upon the table in payment for the wine, and sauntered toward the door. As they passed the silent watchers, Oliver caught the glint of a dagger hilt at a thick waist, the flash of white teeth in a grin of mockery, the grim shadow of a bent cowled head, and shivered. But Benedict, as the door closed behind them, breathed loudly with relief.

"Quick!" urged Oliver. "They'll be on our heels at any moment. No, don't run—" he panted—"you'll rouse the chase."

With long strides they slipped along past the dark houses, themselves but darker shadows. Behind them, came the swift pad of footsteps. Oliver glanced over his shoulder, and by the starlight saw the cowled head fifty paces in the rear, with other heads crowding close upon it.

"Shan't we stand and make a fight for it?" panted Benedict.

But Oliver suddenly caught his friend's wrist, and with a hissed word of warning drew him into a darker alley that here turned off the Scythemaker's Street. "Up with you, quick!"

Benedict scrambled up the masonry that rose here in the arch of another street that passed overhead, in the honeycombed way of this crooked, ancient city that for two thousand years had built upon itself. The footsteps thudded close in the lane outside, as Benedict reached down strong arms and swung the slighter boy up into the niche made by the arch's keystone. They shrank back, huddling into the shadow, at the very moment that five figures padded under the arch below them.

The monk paused, looked about, and spat out his disappointment in a curse. "They've slipped us," he said in an undertone. "They've taken to their heels up this way, where it's black as a whale's belly. Scatter, and after them!"

And the footsteps broke into an uneven rhythm of running as the figures disappeared into the darkness. When the last had vanished, Benedict stirred, but Oliver caught him by the ankle.

"They might come back—wait!" he breathed.

THEY lay low, their muscles aching with cramps, their hearts pounding. There was no sound. Oliver lifted his head and was shifting his body for the jump down, when a heel scraped upon the cobbles. They lay frozen, and the monk strolled out from under the arch, where he must all those perilous minutes have been waiting. He stood just beneath them, watching and listening, while they tried to still the beating of their hearts; then apparently satisfied, he moved at a leisurely pace on down the lane and out of sight. After another long five minutes, the boys dropped down.

"Benedict," said Oliver slowly, "there's black evil under that monk's cowl—the sight of it starts the cold creeping over me."

"My skull is thicker than yours, but I'm fighting against fear of what's aboard to-night," confessed Benedict. "Shall we hasten back and tell the Master there's more than drink brewed in that wine shop?"

"That's too little news to take to him. We must learn more. We must get behind that little door in the back of the room."

And as they slipped silently back along the lane, Oliver swiftly mapped out their plan.

The grilled window slits, when they came to the house in the Scythemaker's Street, showed no light.

"There will be no one there, then, but the old Armenian," Oliver said. "It should be easy." And he stepped up to the door and rapped:

Knock! Long pause. *Knock-knock-knock.* Pause, then a final *knock.*

A shuffling sounded inside, and a faint light wavered through the windows. The door opened a crack, on the wizened face of the Armenian, holding a lamp. Benedict stealthily thrust his foot into the crack of the door.

"Yah! Get out!" shrilled the old man, seeing their faces. He tried to slam shut the door.

But Benedict's broad foot held, and he set his mighty young shoulder to the door, pressing, pressing, while the old man struggled, cursing. Suddenly it gave way—both boys fell into the room, to see, by the light of the lamp on the floor, the Armenian crouched against the opposite wall, in his hand the great cutlass he had wrenched down.

Benedict caught up a chair, and holding it as a shield before him began to edge forward. Oliver caught up another, and on panther feet circled the wall to the rear of the enemy, who crouched still, his opaque eyes glistening, his blade gleaming ready. Suddenly he made a rush—the cutlass rang against Benedict's chair, and the Armenian cursed as he sprang aside and turned on Oliver. The swing of Oliver's chair just missed the grizzled head and, unshielded by his own attack, the boy was for a second left unguarded. He saw the cutlass flash above him, as he reeled vainly to cover himself, and then the blade wavered as Benedict's merciless hands grasped the Armenian's wrist, bending it back, back, till the cutlass fell with a clatter. One hand muffled the old man's outcry, Benedict threw him with a practiced thrust, and held him, one knee on his chest.

"A gag, first," Oliver panted. "Hold him while I tear some of his outer clothes into strips so that we can bind him."

IN a few minutes they had the furious Armenian gagged, blindfolded, and trussed up helpless. Benedict rolled him with scant ceremony into a corner and turned, panting, exhilarated by the fight.

"Now then," said Oliver, "for the door and what's behind it!"

Benedict retrieved the cutlass, and Oliver took the lamp. They opened the low little door, their breath coming fast. Darkness and a musty smell came up to them, the odor of damp stone and stale wind. Steps led into it, and they ventured cautiously down.

They found themselves in a low cellar, a mere hole in the ground. Instantly, surrounding them on all sides, stout silent figures loomed out of the darkness. But—

"Wine vats, that's all," said Benedict disappointedly. "It's just a cellar, an empty pit."

"Then where did those men come from?" propounded Oliver. "What were they doing here where there's nothing but wine casks?"

Benedict stared at him, his eyes puzzled in the lamplight as he tried to follow Oliver's swifter thought. The boy was moving about among the casks, tapping one and then another. They gave out the thick gurgly sound of full vessels. Here and there one lay on its side, and these, when they responded hollowly to his knock, he examined minutely. Suddenly he cried:

"Benedict! Look here! This cask won't move—it's joined to the masonry of the wall!"

He tapped the head of it, and the note was as hollow as a great drum's. The sound echoed away into menacing silence. In a second Benedict was wrenching away the cask's great round top.

Out of the interior, a little cold, damp-smelling current of air blew up to them.

"Whatever is in here is not wine," said Oliver. "Hold the light for me." And making small his supple shoulders he slipped within, his heels disappearing before Benedict's startled eyes as he worked his way along what seemed to be a tunnel.

Pushing the lamp before him, dragging the cutlass, Benedict followed.

Suddenly the tunnel opened into a low passage, and Benedict scrambled to his feet, to find Oliver standing waiting for him, panting, and scanning their strange and shadowy surroundings. The glitter of underground seepage dampened the dark basaltic walls. And these walls, this low cell, had plainly been hewn out by patient hands, working by stealth in the secret dark.

"Benedict," whispered Oliver in tense jerks, "for all we know this passage may lead us under the city walls, into some Turkish countermine. To death— or worse."

Benedict nodded grimly, for tales of Turkish tortures were rife in the city. "Do you choose to go back, then?" he questioned briefly.

"No! Let's run the traitor's burrow to its end. Rhodes is in danger."

Slowly they pushed ahead, the passage growing tortuous, finding its blind way through solid bed rock. The passage grew still lower. They were forced to their hands and knees again. Then, at last emerging, they found themselves in a vast and chilly vault, a dark, bewildering forest of great pillars that gave the place an endless labyrinthine mystery.

With awed and beating hearts they began, two shadows among the shadows, to find their way through the massive masonry. Within two minutes they were completely bewildered amidst the maze of columns.

"Is there no way out but back through the tunnel?" wondered Benedict in a whisper.

"Look! There's a door!" Oliver pointed to a heavy wooden panel in the wall, at the top of a little flight of stone steps. He led the way up, and both boys carefully examined the door, with its enormous wrought iron hinges and studded nails. A great spider web, with the dead spider lying at the center of her mesh, was spread across the bolt.

"It has been long since anyone passed through," said Oliver. "Open it, Benedict."

With one thrust the stalwart Benedict drew up the ponderous iron bolt from its socket; it fell with a clanking sound that echoed startlingly through the chill crypt. But wrench as he might at the great wrought handle, the door stood fast. "It must be bolted on the other side," he said at last. "Hold the lamp higher, Oliver—I can't see."

The light in Oliver's hands wavered and dimmed. "Benedict," he said in a shaken voice, "the oil is failing. The light is going out—"

In another moment they were in darkness.

BENEDICT let out his breath in a long, soft whistle. "Can we ever find the tunnel again in the dark, Oliver? I've no mind to meet my end in the earth, like a cornered fox."

For answer, there in the darkness, Oliver's fingers closed warningly on his wrist. "Do you smell that smell, Benedict? Now in the dark my nose is sharper, I think."

Benedict sniffed. Faint and bitter, there came to his nostrils the odor of terror and violence, of war and disaster. "Gunpowder!"

"Yes." Oliver's voice came from a little distance. "I've found some kegs of it here. And here—there's more farther on! Benedict, there's enough here to blow a breach in stone walls thicker than these—enough to blow a breach big enough to let all Suleiman's armies through here!"

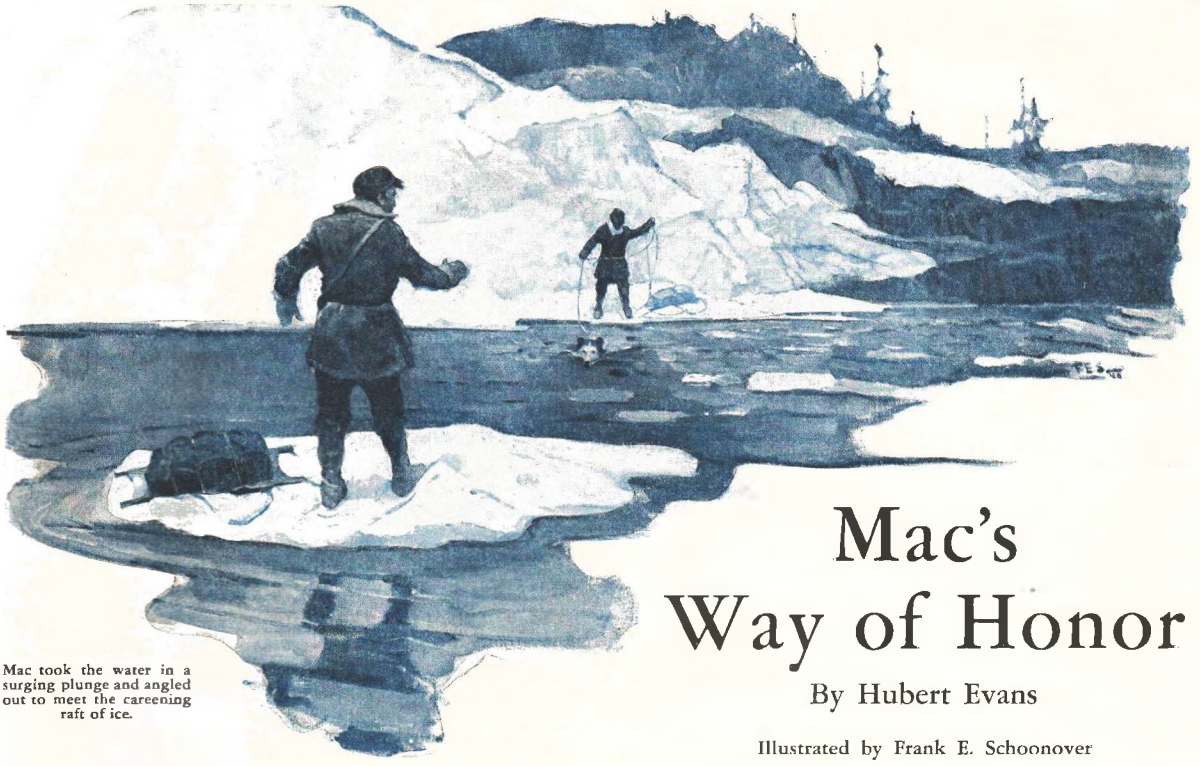
Benedict's voice was shaky in the dark. "You mean—?"

"I mean a plot is hatching in these powder kegs that will bring Rhodes down in ruins! I'd swear that the man who laid the plot is that monk who is no monk. And the hour, we know, is not far off." Oliver's voice was low and rapid, as his thoughts ran ahead. "What building in Rhodes is great enough to stand upon such mighty pillars as these? The chapel of St. John, and that alone. They'll set the blast to blow the Knights to eternity while they're at services—these kegs tell the story!"

A groan broke from Benedict.

"And we, the only ones who know, are cornered here, helpless in the dark! Must we die here, like rats, without warning the brave men above us?" Benedict struck a desperate, futile blow upon the pillar near him.

At that moment, from above, there drifted down a low, eery chanting. It rose to waves of awesome melody—deep bass voices and higher winged ones soaring exultantly upward. To the breathless boys, those sonorous waves of song sounded like the singing of angels; they might have been dead, *(Continued on page 62)*



Mac took the water in a surging plunge and angled out to meet the careening raft of ice.

Mac's Way of Honor

By Hubert Evans

Illustrated by Frank E. Schoonover

WHEN they had all filed into the shabby office of the Comet garage, Hoskins, the proprietor, turned the key and pulled down the tattered blinds. Young Ed Sibley with Mac, his gigantic Husky-and-Newfoundland cross, grave and watchful beside him, sat on the long bench near the door. Both he and the dog were outside the oil lamp's circle of mellow light and Ed was silent while the others, like most old-timers when the excitement of a high moment has cast its spell upon them, talked of trifling things. They spoke of fur prices, of the blizzard which was raging, but all the while beneath their pose of casualness, their minds dwelt on one thing alone—the furtive summons that had brought them here under cover of the angry night.

Then when old Bert Olson cleared his voice so raucously that Mac's ears lifted in surprise, Ed knew the dallying was over. Olson, his hands suddenly firm on the arms of the barrel chair in which he sat, leaned forward and as if on a signal the meaningless conversation ceased. "Let's git down t' business," he said to Hoskins. "Let 'em see the stuff."

Hoskins drew a moosehide bag from his pocket and as his blunt fingers plucked at the thong that bound it, only the sprightly crackle of jack pine in the heater and the angry drone of the blizzard under the eaves interrupted the expectant hush.

From the shadows near the door Ed Sibley watched the weathered faces grouped about the table. He knew that Gil Drummond, Hoskins, Olson, and two others had toiled over the Chilkoot on the Eldorado trail of 'Ninety-eight, and that fortune had mocked them then. Yet now at the sight of that spoonful of dull yellow nuggets those years of vain seeking were forgotten and hope surged up again. Even Berkett, Olson's brawny nephew from the upper country, who was said to have done some placer mining, leaned forward as eager as the rest.

Ed Sibley smiled quietly. These were the same old sourdoughs who more than once when the rumor of some rich find had fired his imagination, had bitterly advised him to keep his head. "Fer every dollar comes outa the ground," they had warned him, "two goes into it."

Absently Ed's hand strayed to the head of the dog beside him. "Gold fever," he grinned. "We're due for another epidemic." The massive dog pushed Ed's knee with his muzzle as if he, whose ancestors had drawn the sleds of more than one gold-maddened horde, understood the vainness of the quest.

BUT during the next half hour, if Ed Sibley and Mac sat indolent and calm, they were the only ones who did in that shabby rendezvous with fortune. This poke of pay dirt had come to Hoskins in an obscure and roundabout way, but gold was gold. They thought they knew the location of discovery on the distant Wolverine Creek and with the likelihood of others outfitting to stake ground there, they'd be old fools, they agreed, to dally with such a chance as this.

"It's up to us t' git a lay on Wolverine quick's we can," Olson urged. "None of us old stiffs kin travel fast—but my nevvy here, he's *skookum*. Me an' him's talked it over and he'll stake ground for us—for wages. That's fair enough, ain't it?"

They nodded gravely. In weather like this, through untraveled country, it would be a hard trip.

"What's your time worth?" Drummond asked.

Ed detected the anxiety in the question for Drummond, like most of these old-timers, was a poor man.

"Why," Berkett began pompously, "any mushin' I did in the upper country fetched me ten bucks a day." He was standing now, thumbs hooked inside his soiled leather belt, his canvas coat pushed open so that its sheepskin lining showed. Whether consciously or not, there was a suggestion of swagger in his pose.

The big dog in the gloom beside the door knew that his master had suddenly become alert and watchful. They had shared moments like this when on the trail some half-sensed sight or sound had put them on their guard. And, dog of the wild that he was, though he himself had received no warning sign, he came swiftly to his feet, noiseless as a cat. His intent, understanding eyes were now on his master's face, now on the group across the room. One of those men there in the lamplight had said something or done something that did not please his master. Again Mac looked at Ed, tried to follow his glance so that he too could mark that man. But Ed's eyes gave him no clue and in spite of himself a puzzled whine trilled through the silent room.

"What's he hear? Somebody comin'?" Hoskins exclaimed.

"More likely the storm," Berkett volunteered. "Some of them big Huskies is naturally nervous."

"Nope. It ain't the storm," Ed said meaningly and leaned forward to stroke the thick fur of his dog's back.

As his fingers idled through the clean white and black hair he was thinking rapidly. Did this Berkett think the rest of the old-timers had as much money as Olson? Ten dollars a day, for a twenty-day trip—why, it would cost them over fifty dollars each to take this long shot at fortune. To most of them fifty dollars was a lot of money but they'd spend it if they had to starve themselves. He knew the spirit of these staunch old men; they'd been good to him when he was a homeless kid. In spite of the avaricious Berkett they should have their chance.

Mac saw one of Ed's moccasined feet stop its soft tapping on the floor. Then Ed was speaking.

"Mushing must pay good in that country you come from, Berkett," he said abruptly, with a crisp cheeriness that veiled a challenge. "I've always had a sort of hankering to set eyes on that Wolverine Crick—so if the boys are all willing, I'll take on the staking job. For nothing."

There was an expectant pause. Then before any of the others could speak Berkett did a surprising thing. He came quickly across the room and turning Ed away from the others with a patronizing hand on Sibley's shoulder, he winked and nodded understandingly. "I get you now, buddy," he whispered. "Nobody tipped me off the bunch was hard up. I had 'em doped out wrong. You're a good guy, the kind I like to travel with.

"Sibley'n me'll make that trip for you together, boys," he said, as he turned toward the others. "I want you to see I'm no piker." He was boisterously genial and as he went back to the table he did not notice the big dog in the corner—the dog who, no longer puzzled, was able to mark his man.

Nor did Ed, half ashamed of the hostility he had felt against this bluff young man, see that the puzzled look in Mac's eyes had given place to one of cold understanding and intentness.

WHEN Man perfected the ornate medium of speech he did so at the expense of the intuition that had served him well when all the world was primitive. So as day followed day and Berkett and Ed Sibley shared the privations of trail and winter camp, Ed's first doubts of the other's motives faded into obscurity while in the half wild dog, who did not understand the fine shadings of glib words, that first suspicion strengthened.

"What's the matter with you? Don't be so blinkin' crusty," Ed admonished Mac with gruff pleasantry one noon when, upon their stopping to make tea, Berkett went a little way off the trail for birch bark to kindle their small fire. "This side-kick of ours is decent enough. Terrible man to talk, but at that he's all right. The way you keep your eye on him makes a feller think he's pinched one of your pet bones or something. Lay off glaring at him."

Mac's ears went limp and his head drooped slightly at the soft rebuke of Ed's voice. A great white foreleg came up and the blunt claws raked Ed's clothing in a harsh gesture that was half play, half fierce affection. He seemed to be mutely saying that whatever else went amiss, his relations with this one man, at least, would never falter. Then, seeing Ed's quick grin, Mac feigned at him, leaped clear and, rolling in the dry snow with waving paws, barked an invitation to tussle.

This ninety-pound dog trying to frolic like some puny kitten tickled Ed's sense of the absurd. "You waltopin' heavy villain—trying to clown it!" he shouted and

dived for Mac in a flying football tackle.

The bodies of both of them were almost hidden in the smother of snow when Berkett came jogging back to the camping place.

"Soak it to him, Mac," he cheered, but Mac, sobering abruptly, got up, braced his legs and shook the snow from his splendid coat. Then with bushy tail curved high he stalked off the trail and sat upright in the cold sunlight of the winter noon, tongue dangling, great mouth open in a sinister, mirthless grin.

All that afternoon they mushed slowly toward the top of the height of land, miles beyond which lay the big river and its tributary Wolverine Creek. Berkett and Ed, each with heavy packs, took turns at breaking trail and Mac, back-packing thirty pounds of grub, stalked slowly in their rear. The recent blizzard had transformed isolated evergreens into glistening spires of white and between the irregular meadow trees were grouped beneath one grotesque roof of sagging snow. The sun, even now close above the southwestern rim, launched its cold shafts down those twisting avenues of white, left sharp-edged, fantastic shadows sprawling eastward from the tree clumps like hooded watchers, and filled each depression in the snow surface with ethereal, bluish light. It was a hushed and immobile land, neither vindictive nor friendly, merely serenely aloof to the three dark figures toiling up its mile-long slopes.

Even the loquacious Berkett was silent under the spell of that splendid isolation. But Mac, treading the packed snow behind him, never kept his eyes for long from the hunched figure of this man whom he distrusted. And late that afternoon when camp was being made in the vaulted shelter of a hemlock clump, Mac learned that his distrust was vindicated.

WITH Ed he had gone to the far side of the clump behind the silk cruiser's tent. Before its open front, Berkett was scraping away the snow with one of his shoes to clear a place for the fire. As Ed started back with his armful of wood, Mac bounded into camp, chancing to pass close to his master's pack. As if halted by some sharp word of command, the dog stopped, then circled the pack to sniff the scent that lay fresh and heavy upon it. The next instant with neck low, head outthrust and hackles rising, he started to close with Berkett.

A low growl, ominous as distant thunder, rumbled from his throat. Like a crafty boxer maneuvering for an opening, he set each paw down carefully. He seemed to glide toward the man who, so his nose told him, had opened that pack and carefully lashed it into place again during the few moments he was alone in camp.

"You would, eh?" Berkett rasped in a whisper of consternation. "Back you, you devil, or I'll drill you!" He was fumbling with the flap of his homemade holster when at the crunch of Ed's snowshoes behind the tent, his hands left his belt and his manner was transformed to one of tolerant bewilderment. "Gosh, boy," he began as Ed stepped into sight. "This dog o' yours is gettin' the distemper or something."

Mac had halted now, but his sinister purpose still showed in the crouch of his body and in his blazing eyes. Amazed, Ed looked at him. It was thus he had seen Mac first, the defiant outlaw among a pack of Malemutes at a far-off Indian village. His Siwash master had declared he could never be broken, had called him a man killer and because of that rebellious spirit which no clubbing could kill, had been only too glad to sell him for a few dollars. Was this the same Mac who had saved him from a ghastly death a month ago? And would those conflicting instincts of wolf and loyal-hearted dog make him always an enigma—would they mould him into a creature never to be trusted?

Sternly Ed ordered him away. But before he turned to go, Mac's anger found expression in a snap—and the solid clipping sound as tooth met tooth was more threatening than any growl could be.

"Whew!" exclaimed Berkett, grinning weakly as Mac stalked behind the tent. "Thought he was going to nail me sure. Hate to say anything against another man's dog, but I don't trust that boy any more. I'd hate to get crippled when I was on the trail alone and find him standing over me. Never did see a Husky that wasn't tricky."

Almost before he had finished speaking, Berkett saw he had made a mistake for Ed, even with the weight of evidence overwhelmingly against Mac, would not turn against his dog. Tolerant as he had been of Berkett's glib wit, there were bounds beyond which the other should not go unchallenged.

"My dog ain't tricky," Ed blurted out. "Me and Mac stand together. You lay off him, see?"

"Make him lay off me then."

"Mebbe he has reasons. Mebbe you went to hit him."

"Never laid a finger on him. But, by gorry, if he tries that game again I'll plug him sure."

"You do and—"

Unexpectedly Ed stopped. Often he had heard old-timers joke about what they dubbed the "partner complaint," the bickerings of two men alone in the wilds quarreling like pouting children over trifles and fancied slights. He wouldn't get down to that, he told himself.

"Forget it, Berkett," he said. "Me and Mac'll take a walk down the trail and cool off. Might snaffle a rabbit for supper."

"Good idea," Berkett agreed formally. "I'll keep the fire going."

WITHOUT waiting to put on his snowshoes, Ed whistled for Mac and started quickly along the trail. When they were well out of sight of camp he stopped, squatted on the packed snow and, taking Mac's ears in his mittened hands, waggled his head from side to side with rough affection.

"You old rough-house artist," he chided. "You'll get me into trouble yet."

Straining against the hold on his head, Mac looked across the long meadow, on beyond the fringe of timber to where blue wood smoke was idling upward into the frosty dusk.

"Sure, sure," Ed soothed. "I savvy you don't like him. Can't say I'd choose him for a partner either. That smooth gab o' his gets on my nerves. Pretty near went off the deep end myself when he talked of plugging you. Now let's forget him and go have a *nanuich* for the old rabbit."

Ed drew his long-barreled, twenty-two caliber pistol from his side pocket. "Sniff the old meal ticket, boy," he told Mac.

But Mac, ears pricked and eyes snapping at the prospect of a hunt, needed no second look at the worn old weapon to tell him what was wanted. In obedience to Ed's wave he bounded breast deep through the soft snow and started to search the nearest clump of trees. Ed waited in the open across which the loping forms must pass. Mac would not hurry them, and confident of their fleetness in the deep snow, the rabbits often sat and looked back with alert ears as if to tantalize their toiling pursuer.

But rabbits were scarce that evening and when approaching night made further hunting impossible they started back to camp.

The last contrasting thread of light and shadow had long been merged into the time-worn tapestry of dusk as they headed up the easy slope of the ridge. The dark tree clusters were steep-shored islands; the snow had turned to dim ponds and lakes and ghostly rivers winding past them on and on into the formless sea of night, and from far beyond its unseen shores the ears of Mac and Ed heard the eerie call of coyotes like the maniacal chantey of hunger-maddened castaways. The thin fingers of the night wind were thrumming minor chords upon the evergreens and Ed involuntarily turned up the collar of his mackinaw. Then the reflected light of the fire on the branches above their camp cheered them.

"To heel now," he warned Mac as they approached. Then he called out, "Going to be a snappy night."

No answer came from the gloom inside the tent.

"Sure going to be a cold 'un," Ed repeated, cheerily determined to meet Berkett more than half way.

Still there was no answer and he was about to give a perplexed "hello" when the unruly Mac bounded past him.

"Out of it!" Ed yelled, fearing Berkett had fallen asleep. Then his eyes fell on his snowshoes lying almost in the fire. The webbing of both shoes had been slashed from toe to heel-bar. Ed leaped toward the tent. His pack, its contents scattered, was open

(*Cont. on page 28*)

All that afternoon they mushed slowly toward the top of the height of land.

They Gave the World Wings

The Story of the Wright Brothers

By Mitchell V. Charnley

Illustrated by Ernest Fuhr

THEY called the Wright brothers cranks. From the government down, nobody took this business of flying seriously. What could two Dayton bicycle makers know of a science that Samuel Pierpont Langley, one of the greatest of American scientists, had been unable to solve?

The "cranks" themselves, Wilbur and Orville Wright, *knew* what they could do. As boys in Dayton they had built a toy helicopter and flown kites. As young men they had become interested in gliders, and they had spent hours and days and weeks studying everything there was to study on the subject. They wanted to soar on the wind—but they wanted to be mighty sure their glider would soar and not dive, as other men's had!

So, from 1896 to 1900, they had studied. Then, late in 1900, they had gone down to the North Carolina coast and, on the Kitty Hawk beach, they had started gliding experiments. Two years here—and they realized sadly that they had to start all over again. For other men's figures were wrong.

So start again they did. They experimented with models, they figured, they tested. They built another glider—and how it flew! They built still another, and put a motor in it, with two whirring propellers—

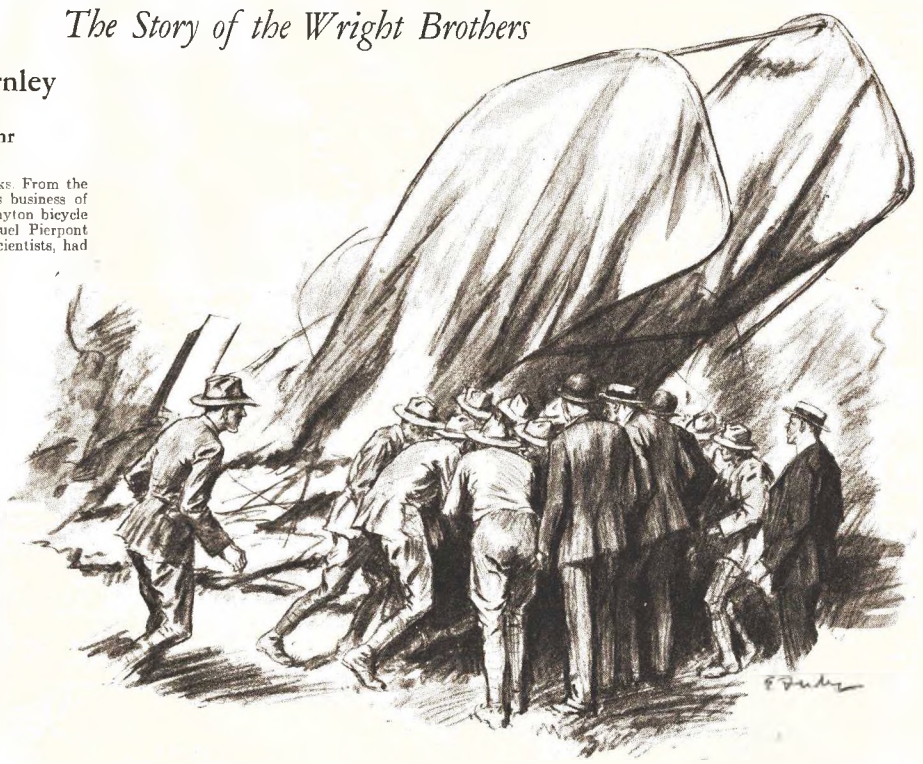
And on December 17, 1903, man made the first successful power flight!

But the world barely noticed, and such of it as did notice was hard to convince. Even in Dayton, their home town, it was rarely believed that there wasn't some catch in it all. "They've filled the wings with balloon gas," whispered skeptical spectators.

Will and Orv Wright did not let skeptics worry them. They built another machine, and another. That of 1905 was the best of all—it flew for 24 miles. It rose and circled and soared and came down, just as the brothers wished.

And then, to win back some of the money they had spent on the machine—almost every cent they possessed—they decided to build and sell their machines. It seemed only right, they thought, to offer them first to their government. They wrote—and wrote again—to Washington; and finally they got an answer.

"We can't be bothered by Ohio cranks!"



When they reached the shattered remnants of the airplane, they found that Lieutenant Selfridge had died instantly.

XIX—Spies

IT was a lean and discouraging year that the Wright brothers spent after that governmental rebuff and the termination of experiments in 1905. Financing was now the important thing; and long hours of discussion decided them that they must try to interest an European government in their work. They knew that Europe believed in heavier-than-air flying. Several years before England had made advances to them—Will and Orv had turned the British down because they thought their own country should come first.

And France was experimenting frantically with airplanes in an attempt to gain world leadership in the knowledge and use of this new instrument of war. M. Santos-Dumont, Charles and Gabriel Voisin and Henri Farman were the French aviators of most repute; before the end of 1906—but nearly three years after the first Wright flight—they had succeeded in getting flying machines to make promising performances. Their machines, in most essentials, followed the Wright principles. It was that idea of "wing-warping," first developed by Wilbur and Orville, that enabled them to fly. They varied and improved it; Farman is credited with flying the first machine with "ailerons," the hinged flaps at the rear wing-corners that acted as did the Wrights' flexible wings. But the suggestion, without question, came from the gliders and flyers of the Kitty Hawk sands.

Thus it was to Europe that the Wrights were looking. And late in 1906 they found an ally—no other than Charles R. Flint, whose proposal for a flying circus they had rejected a year or so earlier. On Thanksgiving Day an emissary called on them in Dayton and asked them to see Flint in New York. They decided speedily to make the trip East.

It was early on a biting morning that Will and Orv arrived in New York. They wasted no time. Though it was barely seven o'clock—the story goes—they presented themselves at his fashionable apartment.

Flint, himself accustomed to doing things with dispatch, was neither embarrassed nor irritated. He received them in his dressing gown, and they got down to business at once. The outcome of their visit was that the financier agreed to back their work to the extent of $10,000—which looked like a small fortune to the Wrights, so low was their capital—and more if they needed it.

Flint at once approached Lord Haldane, British minister of war, with an offer to build ten planes, each guaranteed to fly fifty miles, for $50,000 a plane. He bettered this offer; he suggested an exhibition before Ambassador Bryce in Washington. But Lord Haldane, with British caution, refused to be convinced by what he termed "Yankee tall talk," and nothing came of it all. So Flint and the Wrights went to other foreign governments—and still without success.

IN France, at length, a different tack was taken. A group of three men—Hart O. Berg of Philadelphia, Lazar Weiller of the French Astra balloon factory, and Leon Bollee, French motor car manufacturer—became interested. In 1907, as a result of their interest, Wilbur and Orville went to France, and arrangements were quickly made for exhibition flights in France, to take place the next year.

"And we haven't yet made exhibition flights in our own country!" the brothers mused ruefully.

This meant work at home for the two. They needed a bigger, stronger machine—several of them. So their Dayton workshop buzzed with activity that winter. The 1905 airplane was the model; but the new machine had a more powerful motor, larger fuel and water tanks, greater structural strength. Not only was the operator provided with a seat; an additional place for a passenger was built. A new steering device was worked out.

Then came the question of renewed flying practice.

"It's nearly three years since those flights at Huffman's Prairie," said one of the brothers. "We'll have to get our hands in again. Will it be here, or at Kitty Hawk?"

They decided in favor of the sand hills. So, in April of 1908, the 1905 machine was crated and shipped; soon after, the brothers followed it to the camp they hadn't seen since 1903. They had, now, definite goals. There were the flights in France—French patents had been granted them in January.

And, at last, there was interest at home. In December the United States war department had asked for bids on a plane which, carrying two men, would fly for 125 miles at forty miles an hour. Will and Orv went into conference on this, figured and planned, came to a decision.

"We can build such a plane, to be ready next August, for $25,000," they told the government.

Then, with infinite pains and patience, they started to make the final test flights that were to mean so much.

XX—Across the Atlantic

ON May 7, the *New York Herald* took a chance and published on its first news page a story sent to it by a casual correspondent.

"Two men, Wilbur and Orville Wright, flew in a box-like machine with two propellers for a distance of a thousand feet, down on the Carolina coast, on May 6," the story said. "They made a speed of forty miles an hour, and landed safely."

Cautious editors were a little afraid of such a story as this. It probably was a fake. . . . And yet, if it were true, it was one of the biggest things of the year. They couldn't take chances, several of them. Soon after the publication of that *Herald* yarn, a little group of correspondents was on its way to Kitty Hawk Beach.

The natural thing, once these men achieved the long, arduous journey, was to go direct to the inventors and find out about the story. But the reporters and photographers were hastily warned away from this very thing by the local correspondent who received them.

"They mustn't know we're here," he whispered. "If they saw us, they'd shut up like oysters and stop their experimenting dead!"

So, uncomfortable and impatient, the correspondents set up camp in the swampy woods a mile from the Wright camp, took out their field glasses, and waited. For two days nothing beyond the occasional distant clack of the motor had come to them. This odd-looking machine showed no signs of rising; and the newspaper men were beginning to wonder whether they had been deceived. Then, on the third day, something happened.

"We heard the sound increasing with sharper stac-

cato, and as we looked we saw the machine glide swiftly along the monorail and across the white sand, saw men racing along by its side, heard their shouts, and then we saw the machine rise majestically into the air, its white wings flashing and glistening in the morning sun. On it sped at an altitude of about fifty feet. I have never experienced another moment with like sensation."

Thus the papers reported those flights of May, 1908. From their camp—believing themselves unseen, though Will and Orv chuckled each time they observed the occasional head that stuck itself above the distant sand hill—they watched; when they saw a flight they marveled, checked speed, height, distance. Then there was a race to Manteo to get the big story out to the world. And with a rush the world came to know of the flights of the Wright brothers.

THE interest newspapers and their readers took, suddenly, in the flights of the Wright brothers is a curious commentary on the apathy with which they had greeted previous news. In fact, so little was the earlier Wright work known that these flights were widely considered to be their first successful ones. Flights of two and three miles caused the newspapers to go into columns of appreciation; they never seemed to know that, three years earlier, and in this same machine, the brothers had made far better records.

"This flight (of three miles) beats the two-mile record made March 21 in Rome by Henri Farman," exulted the *New York Herald*. "There is no longer any chance of questioning the Wrights' leadership. Their flight was seen by two separate groups, hidden at different spots. It is the first time that disinterested outsiders have seen them doing what they have told others they could do!"

So enthusiastic did the newspapers become over the new sensation that there was almost a note of tragedy in the story of May 15. For it announced a "history-making eight-mile flight" that ended with a crash. Wilbur, piloting the plane, was uninjured. But the machine itself was almost a total loss.

Reporters, however, soon found bright linings to the clouds. Wilbur said that the accident was not wholly unexpected—he had known the control device to be faulty. Moreover, this was not the only flying machine the Wrights possessed. They had "new and stronger machines" at Dayton.

So the public, skeptical and doubting about the possibility of aviation ten days before, now became enthusiastically convinced of its future. And events day by day helped this conviction. A. M. Hering, years before an assistant to Octave Chanute, announced that he was building a miraculous machine in his workshop on upper Broadway. And Alexander Graham Bell, with Glenn H. Curtiss, Lieutenant T. E. Selfridge and others, built and flew a successful machine at the Bell laboratories, Hammondsport, New York. On the days following the Wright accident, this plane made several successful flights.

Rumors, by this time, were flying fast. Wilbur came to New York, and maintained a consistent silence in reply to the bombardment of reporters' questions. From Dayton, whither Orv had gone after that Kitty Hawk smash, came a long interview, however—a conversation in which the younger brother expressed his views on aviation's possibilities.

"The airplane will scarcely revolutionize transportation, displacing railroad and steamboat. It should have its chief value for warfare, for reaching inaccessible places, for carrying mail. Its eventual speed will be easily sixty miles an hour; it may even be forced up to a hundred. . . . The airplane of this speed will have surplus lifting power enough to carry fuel for a long journey. We can and possibly soon will make a one-man machine carrying enough gasoline to go a thousand miles at forty miles an hour."

Then, on May 29, came the announcement that Wilbur had landed in France. In Dayton Orville was preparing for the tests to which they must submit a plane if they were to sell to the United States army; in Le-Mans, France, Wilbur was making ready for exhibition flights for his French and American backers. England, for the second time, sent an emissary to Dayton.

The day of the Wrights had dawned. They were ready to show the world that at last man could fly. And the world was keen to hear of it!

XXI—The World Believes!

FOR the first time, now, the brothers were ready to exhibit their planes in public, and to talk about them. Aviation had reached the point, they felt, where it needed public approval. So Wilbur in France and Orville in America went about gaining it.

In France, at the little village of LeMans, Wilbur set up his camp. With a simplicity that amazed the French, he lived and worked there. He put the airplane, parts for which had been shipped from Dayton, together himself. And on August 8, he was ready to answer the vague French suspicions that he was a *bluffeur!*

His first flight convinced the nation. Not only did the Wright machine do what they had come to expect of a Farman or a Voisin biplane; it did the same things better, and added accomplishments of its own. It rose to a height of three hundred feet; on September 6, with Wilbur and a passenger, it flew for an hour and four minutes. Unheard-of records, these.

At this time the Wright plane was using its monorail on which to gain starting impetus, and the ingenious brothers had added another feature—a tower with a pulley at the top and a heavy weight hung over it. The weight was pulled up, and the end of the rope was attached to the airplane. When a catch was released, the weight plunged to the ground, and the plane was started along the rail at a speed that enabled it to get into the air immediately.

The brothers knew that using this method of starting—instead of using wheels—lightened their plane and so gave it endurance. They believed, also, that the skids of landing were more effective than wheels would be. For some time after 1908 they stuck to this theory. But at length they gave it up, in favor of a wheeled undercarriage.

While Wilbur was thrilling France, Orville was doing the same thing at home. With one of the new Dayton-built machines, he had gone to Fort Meyer, near Washington, to have his tries at passing the governmental tests. At once his flights became national events. When he made two spectacular air-voyages on September 9, one of fifty-seven minutes and another of more than an hour, the whole nation rejoiced. And, on September 17, a nation mourned the thing that came like a bolt from Woden's fist.

Orville had ascended in his plane with Lieutenant T. E. Selfridge. The machine was soaring as usual; the admiring throng below was noisily enthusiastic. Then, suddenly, the big white kite faltered; there was a ripping, crashing noise as a chain broke and thrashed its way through the flimsy wing. . . . When the horror-stricken soldiers and mechanics reached the shattered remnants of the airplane, they found that Lieutenant Selfridge had died instantly—the first man in the world to meet death in a power flying machine accident. Orville was terribly injured; and while attendants were carrying him off the field on a stretcher the spectators stood in penetrating silence.

But good news came. "He will live."

And soon afterward somebody asked Orville whether he believed the accident would kill his "flying nerve." His answer was typical:

"The only thing that worries me is that I may not get well in time to finish the government tests this year!"

HE made no more test flights that fall. But Wilbur, in France, continued his record-breaking performances. On September 21, he covered twenty-five miles in fifty-six minutes. On December 18, he flew for two hours—the longest flight in history. On the last day of 1908 he won the Michelin trophy at Auvours with a flight of ninety miles in two hours twenty minutes and twenty-three seconds—a feat that required the conquering of most of Europe's greatest aviators.

And that fall French rights to the Wright patents were sold for $100,000. The Wrights were beginning to be recognized not only by the applauding public but also by business, by scientists, even by royalty! Wilbur flew for Alfonso of Spain at Pau, France; he exhibited before Victor Emmanuel of Italy. Early in 1909 Italian rights to the patents were sold for $200,000 by the brothers—both of them were in Europe now, for Orville had gone late in 1908 as a convalescent.

And Charles S. Rolls, later a world-famous automobile builder in England, became the world's first private purchaser of an airplane when, with other English sportsmen, he agreed to pay $25,000 for a ship for himself. In America Robert J. Collier, of *Collier's Weekly*, was the first private owner of an airplane.

By the spring of 1909 Orville was ready to fly again. He made exhibitions before Edward of England, before the Kaiser of Germany. And the Kaiser gave virtual orders to his staff for the purchase of the German rights to the patents.

The return of the Wrights and their sister Katherine to America was a miniature of the receptions Lindbergh, Byrd, and other heroes of the air received nearly twenty years later.

As their liner steamed up New York Harbor, flags waved, cheers echoed and re-echoed, whistles broke into wails and screams and shrieks. Two quiet men who preferred the peace

(*Continued on page 33*)

Will and Orv chuckled each time they observed the occasional head that stuck itself above the distant sand hills.

"The best I can hope," says Cola, "is to arrive before harm comes to the boy."

Mark Tidd in Sicily

By Clarence Budington Kelland

Illustrated by Dudley Gloyne Summers

"PRESS the Lion's Claw!" Mark Tidd says again, all excited. "You're sure, John Peter, that that's the m-message your pa s-sent to Donna Vanna for you j-jest before the Maffia g-got him?"

"That's what she told me to-day," says John Peter, "but I can't make head or tail out of it."

I didn't wonder. It was hard to make head or tail out of anything in that mystery we'd gone and mixed up in there on the island of Sicily. You wouldn't have thought one island could hold so much mystery, with so many people muddling around in it.

There we were, Mr. Tidd and Mark and we other three fellows from Wicksville, Michigan—just travelers, we were. And there were our new friends, John Peter Sense and his guardian, Mr. Grecco, who came from New York City but were really Sicilians. And then there was a bunch of Sicilians who'd always lived there who seemed to be more or less running the mystery. There was John Peter's father's spike-bearded cousin, Mr. Cenci; and there was the fine old fellow who was called Cola the Rock-breaker; and there was old Donna Vanna, the Wise Woman, who knew a lot more than she would tell; and then there was the little hunchback, and the unknown man who had shot at John Peter and was likely one of the Maffia, and probably a lot of others who belonged to Sicily's big secret society.

Thanks to Mark, we had the people in the plot pretty well picked out, but we couldn't get at why John Peter's father had been killed as a traitor fifteen years before, or why they were so dead set now on killing off John Peter, though it was easy to guess that Mr. Cenci wanted to get rid of him because John Peter was really the one to be the new Duke of Rendazza, and Mr. Cenci hankered to be it himself.

But what did a Lion's Claw have to do with all this? I knew Donna Vanna liked John Peter, but I couldn't see any sense in what she'd told him.

Chapter Sixteen

"PRESS the Lion's Claw," says I. "That's a fine message, isn't it? What's the idea of it, anyhow? And where's any lion's claw? Is a body to run around pressin' all the lion's claws he can find?"

"That," says Mark Tidd, "would be one w-w-way to do it. But a b-better way would be to f-figger out the right lion's claw and then give it a good push."

"All right," says I. "You do the figgerin' and I'll do the pressin'."

"How about tellin' Mr. Grecco?" says Plunk. "Maybe he's acquainted with lion's claws. You can't tell but that it'll give him an inklin' of something."

"We'll tell him as soon as he gits b-back," says Mark. Then he turned to John Peter and asks him if he'd ever heard tell of any lion, and John Peter says the only lions he was acquainted with was in the circus, which wasn't very helpful.

"Anyhow," says Mark, "it's d-dog-gone interestin'."

"Yes," says I, "but s'posin' John Peter gets to be the legal duke. How'll that help? These here Maffias 'll keep right on shootin' at him from behind trees and stabbin' him in the ribs and all. It doesn't look as if he was goin' to keep his health unless something 's done about it."

"What you say," says John Peter, "sounds pretty reasonable. I'd rather be just me and not have any holes in my hide than to be Duke of Rendazza and look like a pincushion."

"We got to f-fix it so's you won't," says Mark.

"How?" says I.

"By upsettin' the p-plot."

"What plot?"

"The only p-plot there is," says Mark, kind of impatient. "The one we been workin' on all the time. We got to p-prove somehow that John Peter's pa wa'nt never no t-t-traitor to the Maffia, and that this here Andrea Cenci and the Crooked One were t-traitors."

"We don't know they were," says I.

"It s-s-stands to reason," says he. "They g-got to be."

"All right," says I. "If they've got to be, we'll elect 'em. But," says I, "how kin we make 'em take office? Maybe they won't want the job."

"You b-bet they won't," says Mark.

I GOT to thinking. "Say, John Peter," says I, "when this thing gets all settled up, and you're the duke and all, what in tunket be you goin' to do all the time?"

"I think," says John Peter with a solemn face, "I'll keep a lemonade stand."

"Go on," says I. "What fur?"

"Cat's fur to make kittens'—" says Tallow, but that's as far as he got, for I stood up and heaved a book at him, and it caught him a clip in the stomach, and he doubled up like cramps had set in on him.

"Why," says John Peter, "I'll own a lot of lemon groves, won't I?"

"Sure."

"And I'll get my lemons for nothing."

"Sure."

"And sugar's cheap."

"Ye-ah."

"And I'll get the water for nothing."

"Yes," says I.

"Well," he says, "that'll make whatever I sell the lemonade for all profit. I don't see how you can beat it."

"But," I says, "it won't be dignified for a duke to stand up and holler, 'Lemo, lemo, five a glass,' like you'd have to."

"I'm not going to be a dignified duke," says he. "I'm going to be something new in dukes. I'll bet you," says he, "you won't be able to tell the difference between me now and when I get to be one."

Tallow was always looking on the dark side of things; so he says, "Most likely they'll have a revolution, anyhow, and cut off your head with all the rest of the aristocrats."

"If," says Mark to Tallow, "they was to c-c-cut off *your* head, it 'ud improve ye f-fifty per cent."

"He could spare the front of it, anyhow," says I. "The part that talks."

Well, just then there came a knock at the door and Andrea Zambo, the concierge, stood there with a note and he says it was for John Peter. The note was from an antique dealer down in the Corso and it said he had just got hold of a fine old sword that dated back to the Medici and all those folks. It seems like John Peter wanted a sword like that and he had been asking around for one. So now he says he guesses he'll run down and see if it is what he wants. So he got up, and Mark says he calculates he'd better take a bath just to show Saturday night doesn't mean anything to him. Plunk and Tallow let on they were for a cribbage game, and I had a book I wanted to read. So everybody was satisfied.

I read a couple of hours, and then Mark showed up and says he was asleep. We went and busted up the cribbage game, and then I says, "Where's John Peter?"

"Haven't seen him since he left," says Tallow.

"Maybe he's in his room," says Plunk.

So we went and pounded on his door, but he wasn't there.

"Takes a long time," says I, "to look at a toad stabber."

"It's t-t-two hours," says Mark, kind of slow. "Maybe he came back and went out in the g-gardens for tea."

"He'd have asked some of us along," says I.

WELL, at first we didn't think so much about it, or anyhow I didn't, but Mark looked sort of worried, and we went up to the door and asked Andrea if he'd seen John Peter. He said he hadn't set eyes on him since he went out. He was sure he hadn't come back.

"What shop was he g-g-goin' to?" says Mark.

Andrea didn't know. He said a boy brought the note, and he didn't know who the boy was.

Mark was looking pretty worried by now, and he says, "F-fellers, we got to *know*. We got to go to all the antique shops and find if he's been there. Each f-feller take a block of them—and h-hurry."

Well, it gave us kind of a funny feeling, but we started out as fast as we could, and it didn't take but twenty minutes for the four of us to visit every antique

shop in town. And we met down by the cathedral and Mark says, "Well?"

"Nary a sign of him," says Tallow.

"Nor me," says Plunk.

"Nobody I saw sent a note to him," says I.

"Then," says Mark, "it l-l-looks perty bad."

"Why?" says I.

"If," says Mark, "the n-note didn't come from any antique s-s-shop, where in tunket *did* it come from?"

"Ask me something easy," says Tallow.

"It come," says Mark, "from the enemy."

"Rats," says I, but I didn't feel that way at all. I was getting scairt.

"It was s-s-sent," says Mark, "to lure him away."

"And we let him go," says I. "Not a one of us had the sense to go with him."

"No," says Mark, "and I'm to blame."

"How be you?" says I.

"Because," says he, "I s-should 'a' known better. I shouldn't 'a' let him go out alone."

"If," says I, "you'd 'a' gone with him, why, maybe two of ye would 'a' been missin'."

"That," says Mark, "wouldn't 'a' been so bad. But they wouldn't of d-dared kidnap two of us."

"I bet they'd dast kidnap a dozen," says I. "And now what'll we do?"

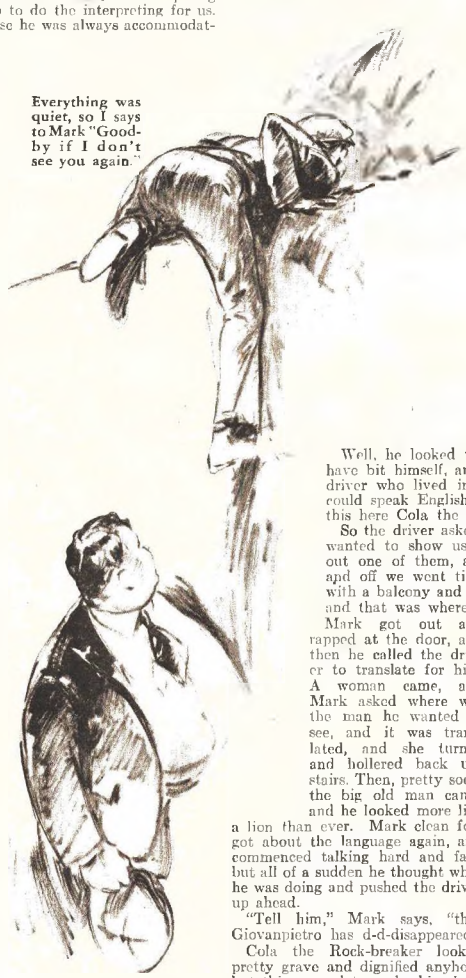
"We got," says Mark, "to act quick."

"Then let's," says I. "What first?"

"See Donna Vanna," says he.

So we set off helter skelter for the Wise Woman's house, forgetting that not a one of us could talk Sicilian, but Mark he thought of it and sent me scampering back after Andrea Zambo to do the interpreting for us. Zambo came along, because he was always accommodating, and we found Donna Vanna knitting a stocking in front of her door.

"Tell her," Mark says in a kind of strained voice, "that Giovanpietro is m-missin'."



Everything was quiet, so I says to Mark "Good-by if I don't see you again."

ANDREA put it into the lingo, and she looked up from one to the other of us, and says, "I have persuaded myself this would happen."

"Ask her what she advises," says Mark.

"He is in their hands, and may the Sacred Beheaded Dead guard and protect him," she says. "I will do what is possible with the aid of the Saints, and of my magic."

"Tell her we need more'n s-s-saints and magic jest now," says Mark.

"They have stolen him, but they have not killed him," she says. "I would know if he were dead. It would come to me on the air. No, he is a prisoner. But he is in great danger."

"We g-guessed that," says Mark. "But how'll we go about it to git him back? Shall we go to the p-police?"

"The police," she said, "would be powerless. All depends on one man."

"What m-man?" says Mark.

"The Capo-Maffia," she says.

"The boss of the Maffias?" he asked.

"That one and no other," she says.

"But who is he and where is he?" says Mark. "And how does it d-d-depend on him?"

"Having stolen the boy instead of killing him from ambush," she said, "they will hesitate. It may be the Capo-Maffia will intervene. He is a fair man and an honest man and a just man. I do not know."

"Where is he?" says Mark.

"We'll have a try at him," says I.

"Are you not afraid? He is a terrible man, also."

"We're afraid," says Mark, "but we can't help that. Where's this boss Maffia f-feller?"

"In Rendazza," says Donna Vanna.

"D'ye mean Cola the Rock-breaker?"

"That," she said, "is the man."

"I knew," says I, "he was something important."

"I'd t-t-trust him," says Mark. "He can be t-t-terrible if he wants to, but he's got a face that you kin trust. I bet folks obeys him quick."

"They do," says Donna Vanna, "or they cease to be alive as other people are."

"Andrea," says Mark, "how quick kin we g-git a car?"

"Fi' minute," says Andrea.

"With a fast d-driver," says Mark. "One you know and can d-d-depend on."

"I get you a married man," says Andrea, "that owns hees own car. He not bust you ona the corner."

"HOP to it," says Mark. And then he says to us, "Binney, you come with me. Tallow, and Plunk take turns staying in the hotel to t-t-tell the Donkey-lifter as s-s-soon as he gets back. The one not in the hotel s-s-stay on the street and keep your eyes open for the Crooked One or Andrea Cenci."

"O. K.," says Tallow.

"Tell the Donkey-lifter where we've gone, and why," says Mark. "Tell him I th-th-think John Peter is right in t-town."

"What makes you think so?"

"Because," says Mark, "they'd f-f-figger we'd think he was taken b-b-back into the mountains."

"Here comes the car," says I.

"P-pile in," says Mark, and then he poked the driver in the back. "D-d-drive like b-blazes," says he.

He drove like sixty to Rendazza, and you'd better believe anybody that got in the way wanted to look out for himself. I bet you we did more going on two wheels than we did on four, and if we scared one donkey out of his wits we scared fifty. But we got there, and drove right to the cathedral. When we came to a stop Mark hollered out that he wanted to know where Cola the Rock-breaker lived, but of course nobody paid any attention to him.

"Maybe," says I, "you're not speakin' the right language."

Well, he looked that ashamed he could have bit himself, and then he says to our driver who lived in New York once and could speak English fine. "Find out where this here Cola the Rock-breaker l-l-lives."

So the driver asked, and about fifty kids wanted to show us, and so Mark picked out one of them, and he got in the car, and off we went till we came to a house with a balcony and chickens roosting on it, and that was where Cola lived.

Mark got out and rapped at the door, and then he called the driver to translate for him. A woman came, and Mark asked where was the man he wanted to see, and it was translated, and she turned and hollered back upstairs. Then, pretty soon, the big old man came, and he looked more like a lion than ever. Mark clean forgot about the language again, and commenced talking hard and fast, but all of a sudden he thought what he was doing and pushed the driver up ahead.

"Tell him," Mark says, "that Giovanpietro has d-d-disappeared."

Cola the Rock-breaker looked pretty grave and dignified anyhow, but this seemed to make him look soberer.

"When?" says he.

"A couple of hours ago," says Mark.

"Why are you here?"

"Because," says Mark, "n-nobuddy kin h-help us but you."

"And can I help you?"

"You kin if you will," says Mark, and then he went on. "This here boy never done anythin' to you or anybuddy. M-mebby his pa did, but I doubt it. And it was all f-f-fifteen year ago. You hain't a-goin' to stand by and see h-harm done him, be ye?"

"I persuade myself," says Cola, "that it is too late."

"No," says Mark pretty emphatic. "Now you l-look here. You're boss of these here Maffias. And this here Andrea Cenci is p-pertendin' to do this on account of the Maffia. But he hain't and you know it. You know it's b-because he wants to git Giovanpietro out of the way and be d-duke himself."

"Can this be proved?" asked Cola.

"No more'n it kin be proved that John Peter's pa was a t-traitor. But you gimme t-time and I'll p-prove he never was."

"The best I can hope," says Cola, "is to arrive before harm comes to the boy. I may be able to command a delay. But sentence has been passed, and I cannot annul the sentence."

"You could," says Mark, "if you knew his p-pa was innocent."

"But he was proved guilty."

"By a l-lot of l-lies," says Mark. "I want you should g-git right in the car and come to Taormina. Then we'll f-find John Peter and you git things stopped. And you f-fix it so's there'll be a little time fer me to f-find the Lion's Claw."

"To find what?" says Cola.

"The Lion's Claw," says Mark. "It all h-hangs on that. If I kin f-f-find it, why you kin go ahead and have another t-trial if you want to."

"Perhaps," says Cola, "my power will extend so far."

"Then git in," says Mark.

"Do you know where to find him?"

"I bet you I d-do," says Mark.

"He was a handsome boy," says Cola kind of sadlike. "I would save him if I could."

"Then hurry," says Mark.

Chapter Seventeen

SO Cola put on his hat and got in, and off we started again, lickety-split. Nobody said much on the drive back, and couldn't have if they'd wanted to on account of the jolting and jarring and skidding and dodging. I never had such a ride in my born days, and I never want to have another. I hung onto the car so tight there are marks of my fingers in it now, and I pushed so hard with my feet that I loosened the floor. There are folks that like reckless driving, but I'm not one of them. I don't mind going kind of fast, but I don't like jumping over things and upsetting donkey carts and skidding right onto the edge of mountains. No, siree.

We came out at the sea and then climbed up to Taormina, and I got out, and I says, "Mark Tidd, there's a lot of things I'd do for you, but get into another car with a Sicilian driver isn't one of 'em."

"S-scare you?" says he.

"I'm so scairt," says I, "that I've shook the bow knot out of my necktie."

"Well," says he, "go and c-c-calm down. I got to do a lot of thinkin' now."

"You wouldn't do any," says I, "if you had my head, because my spine's shoved right up through my brains."

"It m-must 'a' been a good shot," says he, "to hit that s-s-small target. See if the Donkey-lifter is here."

I ran down to see, but he wasn't, and Cola and the driver and I went to our room to talk it over and see what was to be done, and wait for reports from Tallow and Plunk.

Mark started in to argue. "In the f-f-first place," says he, "John Peter's pa never was a t-traitor, and Donna Vanna knows it."

"What does she know?"

"More," says Mark, "than she'll t-t-tell."

"What has she told?"

"That John Peter is to find the Lion's Claw, and the idee is that everythin' 'll be all right if he does."

"I know of no Lion's Claw," says Cola.

"N-neither do I," says Mark, "but there is one. And when you know a thing is you kin allus f-f-find it if you look hard enough."

"Where," says Cola, "is the Donkey-lifter! Sentence also was passed against him."

"Seems to me," says I, "you did a lot of sentencin'. The number of sentences you turned out must 'a' amounted to a whole paragraph."

"Shut up, Binney," says Mark.

"I won't," says I. "When I think of a joke, which is seldom, I'm a-goin' to spring it, if I bust."

"Well," says he, "go and th-think up another.

Mr. Grecco reached for the wall and kind of wabbled, but he stood up straight again.

It'll take you till Christmas and we won't be d-disturbed."

Well, about then Plunk and Tallow came in, and they had been taking turns looking for Andrea Cenci or the Crooked One, while the other hung around the hotel. But Plunk saw us drive up and had run out to find Tallow. Neither of them had seen Signor Cenci, but both of them had seen the Crooked One, and he had been prowling around the streets not a half an hour before.

"So," says Mark, "you s-s-see Giovanpietro is close by. You can bet the Crooked One is near to where he is."

"It is probable," says Cola.

AND then there came a rap on the door and Mr. Grecco came in. When he saw Cola the Rock-breaker standing there he stood up pretty stiff and straight and frowning.

"Why," says Cola very lofty, "is the Donkey-lifter again in the land of his fathers?"

"To undo a great wrong," says Mr. Grecco.

"You brought the boy?"

"It was necessary."

"And your intentions?"

"To have the truth from Andrea Cenci and to place Giovanpietro in the seat of his fathers."

"If you dared so far—if you had courage to face a second trial before the Capo-Maffia, why did you not warn me of your coming so that I might be prepared?"

"Because it seemed necessary to come in secret."

"Yet your secret never was a secret."

"We were discovered."

"And the boy ran grave dangers."

"Yet," says Mr. Grecco, "I took every precaution."

"But," says Cola, "if a new trial were granted and sentence suspended, what new proof could you bring?"

"I did not appear at the old trial. I can swear."

"You," said Cola, "are a prejudiced witness."

"There is Donna Vanna."

"What can she tell?"

"Who knows?" says Mr. Grecco.

"It was not the action of a wise man."

"Yet I could not help myself. I promised his father. I gave my word on that dreadful night that when the old duke was near his end I would return with the boy and do what I could."

"A promise," says Cola, "is a promise. Do you know the boy has disappeared?"

Mr. Grecco reached for the wall and kind of wabbled, but he stood up straight again. "Is this your doings, Cola the Rock-breaker?"

"It is no doings of mine."

"Then why are you here?"

"Because this boy 'etched me," he says and pointed to Mark Tidd.

"Why did you go for this man?" says Mr. Grecco.

"Because," says Mark, "I t-t-trust him to give us a square deal. If he hain't an honest m-man, then I never see one."

Cola lifted his great brows and stared at Mark, and there came into his eyes a kind of a light and he nodded his head. "The fat boy," he says, "is wise. Cola the Rock-breaker grows old. He sees with the eyes of age, and perhaps of wisdom. The blood is no longer hot to rule the brain. And so, having seen the boy, and the vigor and the young life of him, I have come to do what I can. But first we must find him. And time presses."

"By this t-time," says Mark, "they'll know you are in town, and they won't dare do anything but lay low."

"We never left town by any road," says Tallow, "because Plunk and I inquired everywhere. Maybe they dragged him off down the cliffs, but if they didn't he's in Taormina somewhere."

"And I bet you," says Mark, "I know where."

"You think Andrea Cenci carried him to his own house."

"To Giovanpietro's own h-house," says Mark. "Because he's the rightful d-duke."

"Where," says Cola, "we cannot reach him. The house is strong. He will refuse us admission. And soon the boy will disappear never to be seen again. What, then, are we to do?"

"If we f-f-find him be you ready to do what you can?"

"I am ready to do what I can," says Cola.

"Then," says Mark, "you jest s-s-sit tight. I'll git you into that h-house so's we kin make a search if I never git another porterhouse steak as long as I l-live. We're wastin' time. You f-f-folks stay here, all but Binney. Binney, you come with me."

"Where to?" says I.

"To f-f-figger out a way of gittin' into that house."

"*Ex*-cuse *me*," says I. "I never left anything in that house."

"All right," says he, "if you're afraid I'll t-t-take one of the other f-fellers."

"I'm afraid," says I, "and you know it dog-gone well, and if you're not afraid, why, you haven't good sense. But if you're goin', I'm goin'; so get a move on you."

"The rest," says Mark, "w-wait here."

So we went out and down through the garden to the road where the back gate or door to the duke's garden was.

Chapter Eighteen

"WHAT makes you think," says I, "that John Peter's in this house? It doesn't seem like sense to kidnap a boy and take him right where folks would expect you to."

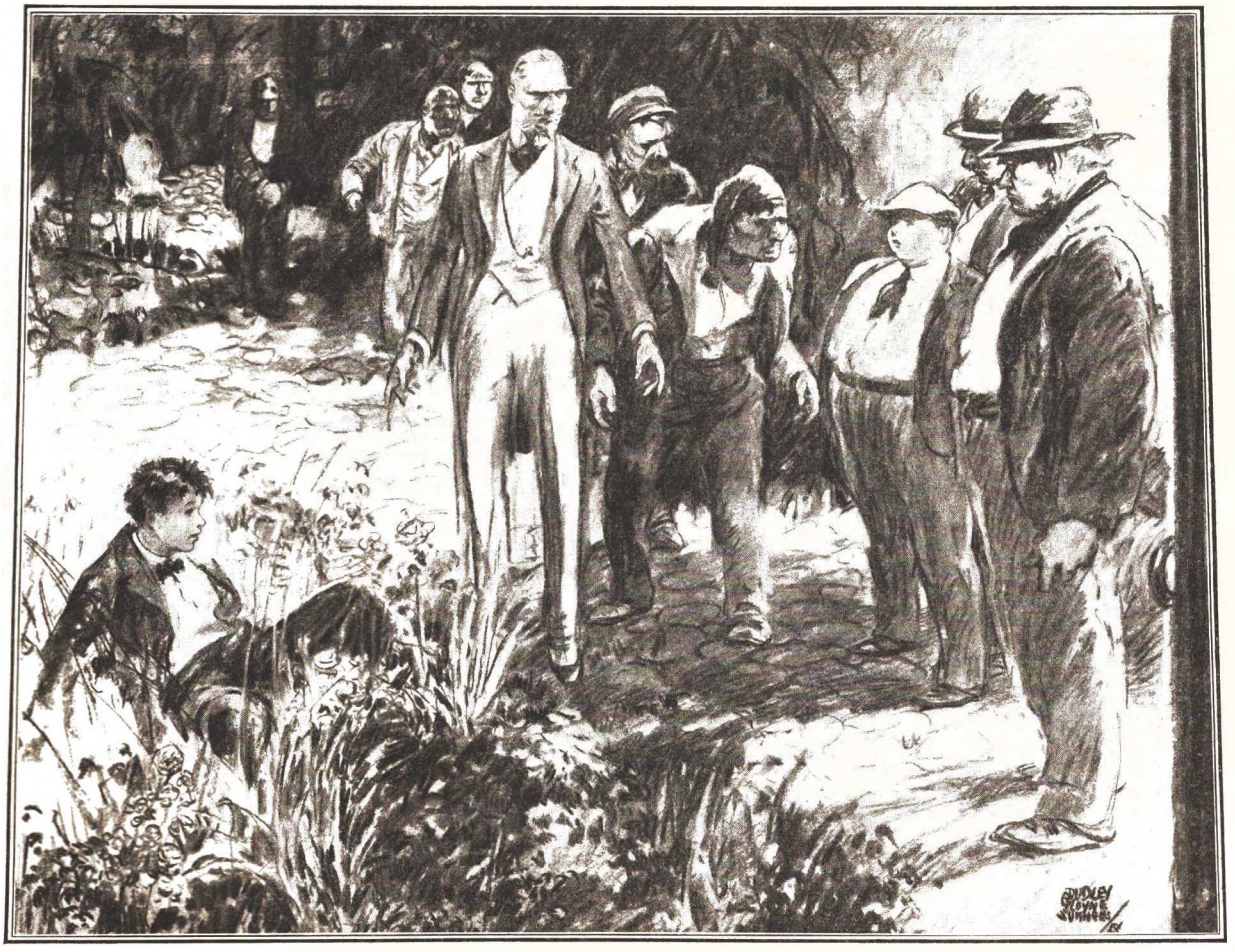
"It's a s-s-smart thing to do," says Mark. "Nobody'd expect you to kidnap anybody and keep him r-right under everybody's nose. No, sir. You'd expect him to be hid some place hard to f-find. So this Andrea Cenci says to h-himself that he'll put John Peter right here and l-leave us l-look in all the hard p-places where he hain't."

"Oh," says I. "Well, maybe Andrea's not so smart as you be. Maybe he didn't think of such a scheme at all."

"Besides," says Mark, "you can't c-c-cart a boy as big as John Peter out of t-town and along a lot of roads without him h-bein' seen."

"No," says I, "and you can't grab a boy on Main Street in a town full of folks, to say nothin' of tourists, without bein' seen. But they did it."

"They didn't grab him," (*Continued on page 47*)



And when I got the garden muck out of my eyes so I could see, there stood Mark Tidd and the Donkey-lifter.

Learn to See It All!

Let a Famous Big Ten Scout Tell You How to Watch a Football Game

An Interview, by George F. Pierrot,
With **Maurice A. Kent,** *Head Scout, Northwestern University*

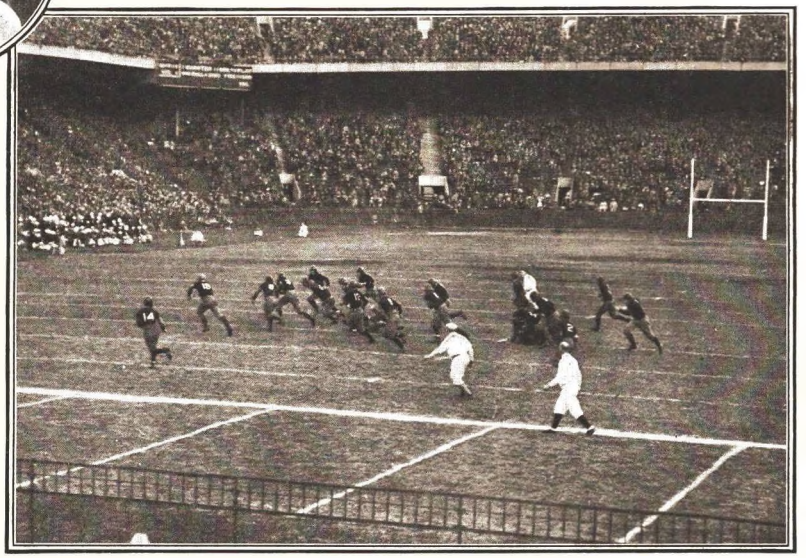
"Watch the line," says Kent.

He Played the Game Himself

Maurice A. Kent, head scout and assistant football coach at Northwestern University, has had lots of playing experience. He began his career as quarterback for Marshalltown High at Marshalltown, Iowa. Before he finished he had captained his team. He was a pitcher, too, and was elected baseball captain one year. And he was a high jumper.

Next he quarterbacked the University of Iowa varsity, and pitched for the baseball team. After graduating from Iowa in 1908, he played eight years of professional baseball, two of them with the Brooklyn National League Robins. At the same time he served as baseball coach for the Haskell Indians, Carleton College, and other schools.

Kent returned to Iowa as varsity coach in baseball and basketball and assistant coach in football. Later he coached at Wisconsin, then at Iowa State College. In 1922 he joined the staff of Northwestern University.



A wide end run—will he pass the line of scrimmage? Whether he does or doesn't, it's your job as scout to find out why.

ONE day, after I'd returned from scouting a Big Ten game, Glenn Thistlewaite, then head coach at Northwestern, cornered me. He asked me a technical question about one of the plays that had occurred in that game, a play that I had described at considerable length.

I scratched my head. Business of heavy thinking. But it didn't do any good.

"Glenn," I admitted, ruefully, "I'm ashamed of myself. I guess I was blind. I'm darned if I can answer you."

Thistlewaite just grinned.

"Maury," he said, "you're one scout who doesn't bluff. If you don't know, you say so."

I consider that the best compliment I have ever received. The idea that a good football scout sees everything is all wrong. He can't. Nobody can. Maybe he'll scout a team two times—three times—and still there are points about its play that aren't clear to him. Usually, of course, he can figure them out. His football knowledge helps him, and his football intuition.

There is no such thing as an infallible scout, though now and then you meet a chap who thinks he's one. I did, on my very first big game assignment. I was scouting for Howard Jones, who at that time was coaching Iowa. We were to meet Wisconsin later in the season; so Jones sent me to Madison to see the Cardinals play Notre Dame.

As I said, it was my first big assignment, and I was feeling sickish in the region of my stomach. In the hotel lobby I met another scout whom I knew slightly. He was a veteran, this chap. In the opinion of everybody, including himself, he was nothing less than the cat's pajamas. Of course I accepted him at his face value.

Keep the ball away from demons like Red Grange!

"I've got 'em *cold*," he assured me, loudly. "All I need is one or two plays — just one or two plays — and I'm fixed."

"Maybe I can sit with you and get a little help," I ventured, hesitatingly.

He frowned.

"I never talk when I scout a game," he boomed. "It's a habit of mine to concentrate on the playing." And his forbidding expression informed me, unmistakably, that I had a whale of a lot of nerve to bother him. I felt as small as a centipede's hind foot.

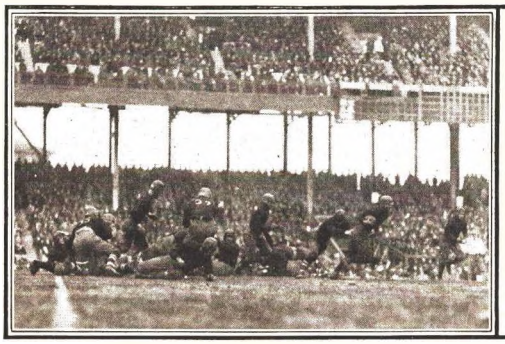
We met again in the press box — as it happened my seat was next to his. He nodded distantly, and I scarcely dared to acknowledge the salutation. Presently there came the kick-off, then the first play. It was an intricate shift, ending in a smash off tackle. My pencil worked busily. I had a fair idea of what had happened, and I wanted to get it right down on paper. But my all-seeing scout friend, strange to relate, hadn't been so fortunate.

"What was it?" he demanded, excitedly. "What happened? Who carried the ball?"

I told him, and throughout the game I answered just as many questions of his as he answered of mine.

This experience convinced me, and subsequent experiences have strengthened my conviction, that a scout is just an ordinary human being who manages to see a little more than other people because he knows just where to look. It has been my job to scout hundreds of teams, and usually I come home with a pretty fair idea of the other outfit's system of play. Still, I've never kidded myself into thinking that I have them cold. That's impossible. Don't expect it of yourself, if you should try your hand at scouting, or of anyone else.

Most people have the mistaken idea that a scout's main job is the detection of trick plays. On the contrary, by far the most important and interesting part of his work is the watching of smaller things, things that the inexperienced player or fan rarely sees. There is nothing mysterious about a scout's job. Nor is there anything underhanded in it. He attends a game, sits in a good seat like any other (*Continued on page 38*)



This Article Will Interest:

1. *Every boy,* because it's full of inside stuff that not one fan in twenty knows.
2. *Every player,* because it tells him how to size up his opponent and to beat him to the ball.
3. *Every coach,* because it explains in vivid detail how a famous Big Ten scout handles his job.

Left—Syracuse beats Columbia, 9--6. How did Koppisch get through?
Right—Koppisch again. Keep your scouting eyes peeled—maybe you can tell your coach how to stop him.

Build These All-wood Models

Start With the McLaughlin Glider and the Tichenor Midget— They're Easy to Make and to Fly

By Merrill Hamburg, *Secretary of the Airplane Model League of America*

Mr. Hamburg.

"DO they fly? Boy! They never fail!" That was what a young friend of mine, the first boy to see the model airplane plans given you this month and to work on the all-wood kit, told me two days after he had the instructions. He wasn't an expert builder, either—he was a new member of the A. M. L. A., and he wanted to know "the right models to begin on."

He bought the new all-wood kit, made the McLaughlin Glider and then the Tichenor Midget Pusher, and now he's itching to go ahead with endurance models. What's more, he has learned the fundamentals of the game—he's prepared for more advanced work. But he hasn't given up the wood models—not by a long shot.

"They're more fun than the organ-grinder's monkey," he told me enthusiastically. "The glider will do long straight glides, or zoom, or loop. With a rubber sling I can get 'way above a hundred feet out of it. And the pusher circles in my living room for half a minute or more. Say! I didn't know how easy model plane building was!"

That is the beauty of these two models. They're easy to build and fly—even though you've never worked with model planes before. And if you're an old hand, they give you a whale of a lot of fun.

They give you the right start, too, toward the national airplane model contests—toward the trips to Europe, the prizes and cups and medals and other trophies to be offered as awards next year as they were this. You'll read announcements of these in THE AMERICAN BOY from time to time, but start getting ready now.

Start giving yourself the basic knowledge, too, that every pilot or aeronautical engineer must have. "Building models is the best way to understand aviation and its principles," says William B. Stout, noted airplane designer and League president. Orville Wright, Clarence Chamberlin, Commander Byrd tell you the same thing. Here's the way to begin.

You can provide the materials for building the two all-wood models yourself, or you can buy the Two-in-One All-wood Kit from the Airplane Model League of America—described on Page 64 and have before you everything you need. Your tools will be a sharp knife and some pieces of sandpaper—probably number 00. A small pair of half-round pliers will come in handy for bending the propeller shaft.

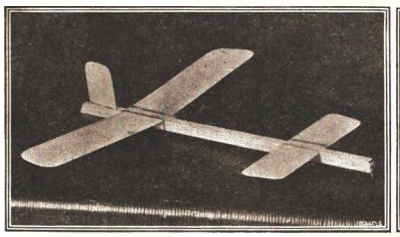
If you don't get the special kit, you'll need these materials:

2 flat balsa wings, 1-32 in. x 2 in. x 13 in.
2 flat balsa elevators, 1-32 in. x 1 1-2 in. x 6 in.
1 flat balsa piece for fins, 1-32 in. x 2 in. x 6 in.
1 balsa glider fuselage, 3-8 in. x 3-8 in. x 14 5-8 in.
1 balsa pusher fuselage, 1-8 in. x 3-16 in. x 10 in.
1 balsa propeller block, 3-8 in. x 5-8 in. x 5 in.
1 piano wire front hook.
1 thrust bearing.
1 piano wire propeller shaft.
1 glider hook.
2 bronze washers.
1 rubber motor, 1-8 in. x 22 in.
4 rubber bands.
1 small bottle ambroid cement.

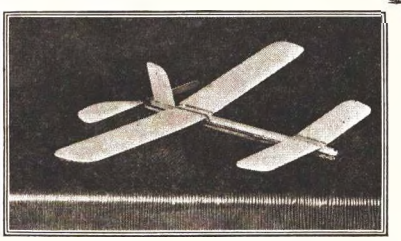
Remember, from the start, that the lighter you make your models, the better they will fly. That is why balsa, half the weight of cork, is the wood recommended. That is why ambroid cement, which will hold wood pieces, or wood and metal, together without supplementary fastening, is suggested. And that is why you must work every piece and part down to the finest dimensions consistent with strength.

The McLaughlin Glider—named, as a lot of A. M. L. A. members will know, for George McLaughlin, technical editor of the *Aero Digest* and the hard-working chief judge at the national scale model contests in Detroit last June—is the model you'll first build. Except for sanding and smoothing to size, the fuselage needs little work. Cut to the proper dimensions, it is practically ready to use.

Next cut the fin from the pieces of flat balsa—the dimensions are 1 3-16 in. x 1 5-8 in. Sand it smooth, then cement it at the rear end of the fuselage stick as shown in the drawing. (*Continued on page 64*)



A few minutes' work—then watch it glide!

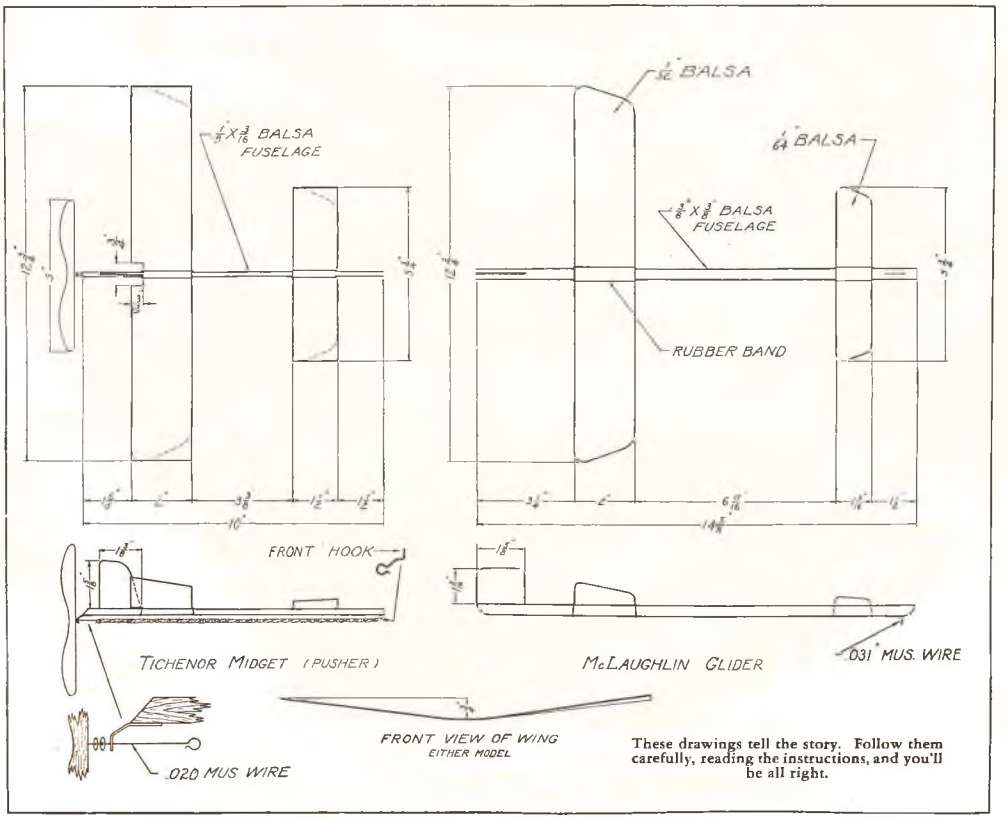


The pusher is simple, but it flies beautifully.

Next: The McCoy "Mystery Ship"

Every model builder in the nation, last June, was talking about Ernest McCoy's "mystery ship," the cambered wing model with which Aram Abgarian won the Stout Indoor Trophy, a world's championship and a trip to Europe. Abgarian had flown his ship 353.6 *seconds. Now the plans* FOR THAT VERY SHIP, *the best in the history of model aviation, and a special kit to build it, are going to be available to you. Mr. Hamburg talked with McCoy, the designer, and Abgarian, the builder, and obtained dimensions and drawings. Next month in* THE AMERICAN BOY *he will give you full details about this world's championship model—information you can get nowhere else.*

BUILD IT YOURSELF!



These drawings tell the story. Follow them carefully, reading the instructions, and you'll be all right.

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November, 1928 Vol. 30; No. 1

Friendly Talks With the Editor

Results

THE law says a fellow must foresee the results of his actions. That means that if he does something he must have brains enough to understand what will come next. For instance, if you eat a green apple you should be able to foretell that it will bring on a stomach ache. A lot of us get into trouble by not looking ahead. We do something thoughtlessly and then, the first we know, it has caused a lot of trouble. Before we do something we should figure a bit to see if it is going to do damage. You may do something which seems like a good joke when you are at it, as, for instance, blowing down a gas jet until all the lights go out in a house. But the result may be that somebody forgets to turn off a jet somewhere with the result that there is an explosion or someone is asphyxiated. The sensible fellow sees to it that the results are as harmless as the original act seems to be.

Thanksgiving

WE have got rather out of the habit of writing about Thanksgiving because it seemed to us about everything sensible had been said about it. The President issues his proclamation and tells all about it, and every governor issues *his* proclamation and tells all about it. Almost every magazine and newspaper in the country tells all about it in an editorial. So what is there left for us to say? Well, come to think of it, there is quite a good deal, and it can be said in very few words: The expressing of gratitude for favors received, with simplicity and sincerity, does a great deal more good to the fellow who expresses it than to the one who hears it. Gratitude is a fine emotion. It is good for us to feel it. So, this year again, let us feel a profound gratitude for the great benefits each day brings us.

What's the Idea?

WE know a fellow who gets up and goes to school with a hat that looks like something you find on a pole in a strawberry patch, and with a pair of pants that a tramp wouldn't wear, and half the time without a tie. He doesn't appear to care what he looks like. Then if he is going out in the evening he will fuss for an hour and appear with all the embellishments of a fashion plate, and bear's grease on his hair. He's so neat you feel as if you would slip if you stepped on him. We don't get the idea. He sees the same folks in school by daylight as he sees in the evening. Why does he look like the end of a hard winter by daylight and like Solomon in all his glory after dark? It's too deep for us.

Happiness

HAPPINESS is a queer animal. As far as we know, nobody has ever worked out a formula that will make it. You can't take a test tube, put in a little of this and some more of that, and produce it. It doesn't come that easy. But to kill it deader than a door nail—that's another thing again, and very simple. Just say an unkind word to a friend, a word that will bring pain to his face. Do that, and try to be happy. Or neglect some little job around home, knowing that because of your carelessness your father or your mother or your brother will have an extra task to do. Then try to be happy. Just try. We said we didn't know of any formula for producing happiness, and we meant it. But when you are friendly, and considerate, you are opening the door to happiness, and ten to one it'll walk right in and spend a pleasant afternoon with you.

Technicalities

MAYBE we are wrong, but we believe it is better not to be too technical when you are playing a game. We know rules are made to be obeyed, but we know also that few fellows break a rule deliberately, or to take advantage of an opponent. We were playing a game of golf in a foursome with a man who believes in sticking to the letter of the law. One of the men brushed away a worm cast a few inches away from his ball with his club, and our technical friend called a penalty on him. The act was done unconsciously and was of slight benefit, but it caused a bit of ill feeling. When we got back to the club house the rule was looked up and our technical friend was wrong. The player had a right to brush away the impediment. Personally we think it would have been better not to have noticed it in the beginning. Nobody would have had his temper upset, and the technical gentleman wouldn't have been made to look foolish in the end. We think good sportsmanship requires a little blindness at times.

Politics

WE hope all you fellows, East and West and North and South, are taking an interest in the campaign to elect a president of the United States. We hope you are interested in the issues between the two candidates and parties, and we hope you are interested in the personalities and abilities of the two gentlemen who are running for the highest office in our land. There has not been within a generation a campaign from which so much can be learned, and where so much clear thinking must be used by voters before deciding which way they shall vote. We hope your vision will not be obscured by false issues. We hope you will be able to determine which issues are merely political expedients to catch votes, and which are true issues and important to our country.

Wanting to Win

A FAMOUS midwest football coach once said: "I don't want good losers on my team." When you first read that statement, it sounds wrong. But the coach didn't mean exactly what he said. He'd admit, if you pinned him down, that if you've got to lose you should do it gracefully, giving the other team due credit for beating you. But there's such a thing as losing so gracefully that you get in the habit of losing. There's such a thing as actually enjoying being trodden upon. There's such a thing as taking defeat for granted and not giving your best. And then "good losing" becomes a fault instead of a virtue. The coach might have added: "Don't accept defeat willingly. If you're beaten once, find out *why*. Then correct your faults, improve your play, and go out there—the next time—determined to win!"

Early or Late

THERE are two kinds of folks in the world: Waiters and the Ones They Wait For. One sort of fellow is always a little ahead of time and the other is always a little behind time. No matter where you go you see people waiting for somebody and other people hurrying because they are late. We're keeping an open mind about it. Maybe the early birds are early because they haven't anything else to do, and the late ones are late because they are so very industrious. Maybe the early ones are early because they love promptitude and the late ones are late because they are careless. Maybe it's a virtue to be ahead of time and a vice to be late, and maybe vice versa. We've reached a point where we just can't tell about such things. Unless a fellow is exactly on time to the dot, neither early nor late, we don't know whether he's a criminal or a hero.

Annoyance

WE were in a motion picture theater the other night and just in front of us sat half a dozen fellows that we know very well. They were all a good lot of eggs and we like every one of them. But they made a dog-gone nuisance of themselves. All through the picture they talked and poked each other and bumbled around so that nobody within a hundred feet of them could keep his mind on the picture. They were having a good time and didn't realize how they annoyed people. Apparently they had no interest in the picture but only in rough-housing each other. We don't suppose it occurred to them that they could have rough-housed more comfortably—and saved fifty cents apiece—if they had stayed away from the theater altogether. And people who didn't know them thought they were a gang of young hoodlums. Which they were not at all.

Give a Dog a Bad Name

MOST dogs that have bad names have them because people do not know the truth about the dog—and the same goes for boys and for men. This was impressed on us the other day when we read a book by Mr. Lamb about Tamerlane the great Tartar conqueror. Most folks have a vague idea he was a ruthless savage who rampaged all over Asia at the head of a horde of savages, and that he was nothing more than a bloodthirsty monster. Well, we would like to have you read that book and discover that he was a great man, probably more cultured than the king of France of his day. Undoubtedly he was a great general, and his court and his empire were more enlightened, more appreciative of learning and arts and science than any contemporary kingdom of Europe. It's a fascinating and exciting book, and we're glad that Tamerlane will be a dog with not so bad a name after this—to us, anyhow.

Winged War

By Thomson Burtis

Illustrated by H. Weston Taylor

NO airman ever felt more bleakly bewildered than Lieutenant Farrell did after that odd happening down in the Mexican jungle.

Had Blackie Williams deliberately planned to get rid of him—had Blackie, the man he had thought a staunch friend, damaged that parachute so that he could send Russ down to his death? Russ couldn't believe it.

Yet there seemed nothing else to believe. The circumstances seemed all too plain.

Here was Russ himself, on an extended leave, joining Blackie Williams and dashing Duke Delroy in an attempt to stop mysterious air bandits from seizing big sums of money sent to cover the oil field pay rolls. A powerful outlaw chief known as the Hawk was said to be back of all the robberies, and the big oil companies; with the full consent of the government, had hired Blackie and the two younger flyers to catch the Hawk.

Now, on a trial flight, with Blackie and Russ in the same ship, there had been a baffling accident. Blackie's motor had gone dead, he had said; and he had forced Russ to jump in a parachute while he stayed with the plane. The parachute had been damaged, and Russ would have lost his life if Duke Delroy hadn't sacrificed his own ship and managed an astonishing rescue. And now—

Blackie was sailing serenely home to send a car down to the river for them. He had dropped a note down to tell them that. He himself was flying home. His motor was all right—not dead at all!

Had Blackie played a deep game? And why? Perhaps Blackie was an ally of the Hawk's. Perhaps he hadn't wanted the oil companies to employ Russ, and was trying to get rid of him.

The outlaw ship loomed before him and a hail of bullets poured into the radiator.

Chapter Four

WITH conjectures like these swarming in his dazed brain, Russ was far from ready for action. Silent and distraught, he again leaned against a palm tree, his head bent in thoughts that made his boyish face grim.

Delroy lounged easily on the ground, careless of the myriads of insects crawling about him. He was watching Russ unobtrusively, his gray eyes very bright, and he was humming to himself almost as though unconscious of what he was singing:

"Ah don' know but Ah been tol'
De streets o' Heaben ah paved with gol'
Pharaoh's army got drownded.
Oh, Mary, don' you weep—"

A loud rustle came from the thick undergrowth, some distance away, and Delroy's head turned toward it.

"Sounds like a wild hog," he said gayly. "We have the beast down in this country, and he's a mean hombre if he's cornered."

As though the casual words had snapped Russ out of his trance, the young flyer straightened himself.

"Let's take a look at my 'chute," he said abruptly.

"O. K.," Delroy returned. "What's on your mind?"

"Nothing," Russ said absently.

Delroy walked with him to the edge of the thick clearing, where Russ's chute had blown against some bushes. They spread it out on the ground and Russ examined the split closely. The two breaks at the center of the 'chute, which had started the long slashes and made the 'chute a death trap, were clean and sharp. There was nothing jagged about them and Russ was thinking aloud as he said:

"I suppose the shock of opening, if it was going to break the 'chute at all, would break it clean."

"The silk seems O. K.," Delroy said slowly, and as his eyes rested on Russ they were as bright as two searchlights. As Russ's eyes met Delroy's, it seemed to him that an electric spark of understanding had passed between them.

"Let's pack the 'chute and start for that trail, big boy," Delroy said cheerily. "It won't be long till the car from the field will come to pick us up."

They folded up the billowing masses of white silk, tied them with the shroud lines and started down a narrow cut that led toward the river. For a moment, they tramped along silently, except for Delroy's musical humming. Then that young gentleman said suddenly:

"Figure somebody tampered with your 'chute, eh?"

For a moment Russ hesitated, then:

"In a way," he admitted.

"What happened to your motor up there?" was Delroy's next question and, casually as it was thrown off, the inference in his words was unmistakable.

Again Russ hesitated. Finally he said with an effort: "It went absolutely dead."

"How come you jumped?"

"I didn't want to—I wanted to try to land the ship—but Blackie made me."

It was as though every word were wrenched from Russ.

"And then," Delroy went on remorselessly, "the motor becomes absolutely perfect again. Funny about these motors, eh?"

RUSS glanced at him and then shifted his gaze. He had an almost ungovernable impulse to confide in Delroy. It would not really be a confidence because it was obvious that Delroy's mind was working in the same channels as his own. Nevertheless, he could not somehow. As long as there was one jota of doubt in his own mind concerning Blackie, it seemed like black treachery even to whisper his suspicions.

For a moment, there was tense silence as the two flyers tramped doggedly down the cut through the jungle. Bright-plumaged birds of a dozen varieties darted from the underbrush as they passed and there were a thousand rustles and whispers from the depths of the monte. As though to relieve the tension, Delroy said lightly:

"If you gaze through yonder opening, you will see the well-known ebony tree, worth a lot of dinero. To our left is a cacao tree. Very easy to start a grove of those trees. If you cut off a limb, and stick it into the ground, it will grow. They make great fence posts."

Russ smiled mechanically. He wiped the perspiration from his forehead wearily. The steaming heat seemed to be sapping his vitality, and already his cover-alls were soaked with perspiration.

"Listen, Red," Delroy said suddenly. "I think I know what's on your mind. Don't get me wrong now. I'm just talking possibilities — understand? Suppose there should be—er—someone around the airdrome who was in with the Hawk, or maybe might be the Hawk himself, and he didn't want any of your game. I could figure nothing more beautiful than to cut off the gas, say, and force you to jump in a framed 'chute. That would be the simplicity of genius, as it were."

Russ nodded mutely.

"Furthermore," Delroy pursued blithely, as though discussing a subject of no moment whatever, "the only place that 'chute could be tampered with is right at the airdrome, and that narrows down the possible tamperers to a very few people. Going further in my masterly analysis and presuming for the sake of argument that monkey business is afoot, I'd say that arranging for a quick jump narrows the suspects, much as I hate to admit it, down to just one. In fact, nobody else could be concerned."

HE ceased speaking and Russ felt, rather than saw, those flashing gray eyes upon him. Again, it seemed impossible for him to speak. Finally, though, he forced himself to say:

"Of course, we may both be talking through our hats, motors do cut out and nothing is perfect. I just happened to get a 'chute that didn't quite come up to scratch and I did fall quite a way before I opened it—"

"Listen, Russ!" Delroy interrupted and stopped in his tracks. Russ stopped too and they were facing each other, their eyes very close together. "You and I might as well have an understanding," Delroy said steadily and his handsome face was serious for the moment. "There's no use of beating the devil around the stump. Blackie Williams is a great guy and I like him and I know you do. I haven't known him long but I've considered him a friend of mine—"

"You haven't been around here long then?" Russ put in.

Delroy shook his head.

"Got here about two weeks before this Hawk started raising Ned," he answered and a brief grin flashed over his face. "I'm thanking my stars that the guy is a lot bigger than I am or I might be under suspicion myself, being a flyer. I came down here with a little money to take a gamble in these fields where the wells, if and when they come in, flow enough oil to float the Navy. I met Blackie around at the hotel and through the fields and like him a whale of a lot but I know his past history—"

"So do I," Russ said mechanically, "but, dog-gone it, Duke, I just can't believe it."

"You mean you hate to believe it," Delroy corrected him levelly. "But let's look at things. You just ran into Blackie when he was helping this old nut smuggle immigrants into the United States by air, didn't you?"

"Sure, but, after all, that's illegal rather than a real crime—you know what I mean. There are lots of people in the states who didn't agree with the law at all and I could see how a guy could figure that giving some poor foreigners a chance at real opportunity in a country like the United States might really be doing a good turn, even if it was illegal. Not that I'm excusing it, but it doesn't necessarily make a man—a—"

"Murderer, my boy, murderer," Delroy finished for him. "Then Blackie comes down here and gets a pretty raw deal from the big companies. All in line of business, so they say, but he starts in to get the money back by the same methods that the Hawk is using—"

"But he gave it all back," Russ burst forth. "He was fighting against his own best judgment."

"Yes," Delroy agreed, "so I understand, but now a smart fellow like me,"—his grin changed his words from egotism to humorous self-mockery—"would figure that it would be much more desirable to be an ally of all the big companies on the surface and get my dope from them from the inside, as it were, than it would be to be a looming lone wolf working out in the open."

RUSS did not answer him. There seemed an incapable logic in Delroy's analysis that could not be answered. As though moved by a single impulse, the two flyers started tramping toward the river again. Russ felt that he had to have some physical outlet for the emotions that were seething within him.

"Now, listen, Russ," Delroy said finally, "get me straight. Understand that I'm not saying that Blackie Williams is the Hawk. He answers the physical description to a T, from black hair to his height and weight and general characteristics. His past record makes him the most logical person to suspect with one exception and that's Avery—and even Avery, as far as anybody knows, never flew in his life. They are trying to check up on that point now. If Avery ever did fly, it looks like a case of allies, but I'm not saying that Blackie is allied in any way with the Hawk necessarily. I sure would hate to think so, as much as you would. What I'm getting at is this: If there's one chance in a thousand that he is, it puts you and me in a very, very tough spot and we would be nothing but star-spangled idiots if we weren't looking out for our own necks where Blackie is concerned. In other words, we've got to act as though Blackie's a traitor to us and watch him accordingly. Isn't that common sense?"

Russ nodded. Then he exploded:

"Anybody above the grade of a half-wit would see everything you say, Duke, and I'll swear I just can't believe one thing, and that is that Blackie Williams would voluntarily set out to murder me."

Delroy shrugged his shoulders. "I can't believe it myself," he said. "Let's not breathe one whisper to a living soul about what we think may be true but just keep on the watch, eh? I'll swear that if it were any other man than Blackie Williams I'd be getting Ransome or White or Harris on the 'phone as soon as we got to the field; and I'd see to it that on some excuse or other, Blackie was put where he could do no harm."

Another silence fell and it seemed to be fraught with depressing mystery for both men. It is always tragic to catch a glimpse of something ugly and menacing in what has seemed a source of contentment and satisfaction. The red-headed young Army pilot seemed to lose much of his boyishness as he tramped doggedly through the monte.

"I'll tell you what we'll do," he said steadily. "We can't let Blackie know a thing. If we're wrong, and I know dog-gone well we are somehow, it would break his heart to find out we could suspect him. We'll just lie low and keep watch. One definite thing we can do, perhaps, is to find out just how easy it would have been for him to make these mysterious flying trips and still be an employee of the big companies—"

"Don't forget that he has at least two allies—we know that because sometimes three ships work together," Farrell reminded him. Suddenly he grinned: "Listen, Russ!" he said impulsively. "Don't think I'm trying to knock Blackie. I'm telling you I think as much of him as you do; but I think a lot of one Duke Delroy's personal neck and I've just got to say these things for the protection of us both. I'm glad I've got you along with me, too, big boy, and that goes as it lies."

Russ turned his head and, as their eyes met, he impulsively thrust out his hand. "That goes double," he said quietly. "I guess we'll get along."

THEN, because the whole subject was so unpleasant that they wanted to take their minds from it, they talked, during the next hour, mostly of themselves. Delroy, it proved, had enlisted in the French air service at the age of sixteen, pretending that he was nineteen, and had fought through the entire war, transferring from the French to the American service when the United States entered hostilities. After that, he had drifted to Persia, where he had worked in the oil fields, and then had come back to the Texas oil fields. There he had made a little money but not enough to satisfy him. He had come to Mexico a short time before to try to turn his little stake into a big one.

His recital was shot through with a hundred side anecdotes and comments that revealed him to Russ as the bare record of where he had been and what he had done could not have done. Russ came to see in the vital young pilot beside him a blithe adventurer, laughing at life, who might have been his own twin except for one characteristic. That one thing was engrained in Russ but seemed wholly lacking in Delroy; it was a certain steady sense of responsibility combined with a desire to contribute, in some way, to something worth while in living. To Delroy, apparently, life was a merry pilgrimage to be made as easily as possible, and he meant to find plenty of fun along the way.

"Ambition is the curse of most young men," he said airily, at one point in the conversation. "I like to have fun. I don't mean city fun—tea parties with girls and so on. My fun comes through beating the more remote parts of the world out of a living and getting as many kicks as possible out of doing it. You take this little junket we're on now for instance—a lot of fun, eh?"

"Sure," grinned Russ, "as a sort of vacation. No, it's more than that, of course, but I like to feel somehow that I'm getting somewhere—you know—doing something."

"From what I hear," Delroy told him carelessly, "you are getting somewhere all right. If you don't break your fool neck, you'll probably be Chief of Air Service some day at the rate you're going. Well, we're winning out upon the well-known river. Some time when we get some time off, we'll go tarpon fishing. There's a bridge just outside of Tampico, across the river, where you can get the best tarpon fishing in the world. Aha! Yonder chariot looks as though it might be ours."

It was. The car belonged to Paddock, chief pilot at the field, and was driven by a mechanic.

As soon as they were on their way back, Russ leaned forward and asked, "They didn't have a chance to look over the motor of my ship before you left, did they?"

"Just a little," the mechanic replied over his shoulder. "She was hitting perfectly. Something must have plugged up the jets and maybe Mr. Williams' dive cleaned them out again. Tough break, eh?"

"Sure was!" Russ grinned. He sank back in his seat. He wanted to believe that explanation but, as far as he could remember, Blackie had not dived the ship steeply at all. In fact, his glide had been very gradual. Sometimes jets did plug and a really terrific dive would create suction enough to remove the obstructions out of the needle-like holes that sprayed the gas into the carburetor. But in this case—

IT was an hour's trip over rugged roads to the field, and when they arrived, Russ's first question was for Williams.

"He went to town," the stocky chief pilot told him. "Said he'd be back. The third ship will be ready to test in an hour or so. Are you boys going to pull out for Rebrache this afternoon?"

"I don't know," Delroy told him. "By the way, Russ, we're going to be sort of up against it until we get another ship. I've just got to be at my well part of the time, and if I use one of the ships, that leaves only one for you and Blackie at Rebrache some of the time."

"We'll settle that later," Russ told him. "Maybe Blackie and I can hang around there—"

"One ship isn't so many against three," Delroy reminded him. "Well, let's get these flying clothes off and get into town. I could use a bath, if you will give me the use of your bathroom, and I suppose we had better report to Ransome."

"Didn't find out anything about the motor, did you, Paddock?" Russ asked.

The weather-beaten chief pilot shook his head.

"Nary a thing," he answered in his Mississippi drawl. "Must 'a' been plugged jets, I guess. Pretty lucky, savin' the ship."

"That's so," Russ assented absently. "I'll be hanged if I can understand about that 'chute though. As far as I know, it's the first time in history that an Irving has gone wrong—unless somebody made it wrong."

For a long five seconds, Paddock's eyes rested on Russ. The words had dropped from the young pilot's lips automatically and, a second later, he could have bitten off his tongue for having said them. Then he realized that the men at the field must be in their confidence if they were to work efficiently.

"Listen, Paddock!" he said. "Are you positive of every man you have here?"

"Absolutely, suh," Paddock said slowly. "Let's look at that 'chute."

"No need to," Delroy told him lightly. "We've both looked. The two cuts in the inside boundary of the 'chute—you know, in the opening of the pilot 'chute—are as clean as a whistle. They could have been made by a knife or just by the shock of opening."

Paddock's narrow, sun-crinkled eyes played over the two men briefly. His bulldog jaw was outthrust and his stubby pompadour seemed to bristle belligerently as he said with deliberation:

"We'll test that silk and if she's up to snuff, it was a knife."

"Well, if it was a knife," Russ told him, "it was used right on this field. Must have been, eh?"

Paddock's face was bleak and wintery as he nodded.

"I'd stake my soul on every one of my boys," he told them.

That there was a hidden meaning in his emphasis of the word "my" was as obvious as though he had gone on to explain himself.

"Sounds as though there was somebody around that perhaps—"

Russ didn't finish the sentence but he didn't need to finish it.

"I'm not sayin' anything," the veteran airman said doggedly, "because I don't know any more about anybody, or maybe as much, as you do."

"Don't hold out on us," Delroy told him. "We've got to work together on this thing. Just what have you got in mind?"

"Nothing important," Paddock told them. "But I'll promise you one thing. There won't be any more inside jobs around this field—even if one may have been pulled off in the past."

He walked with them toward the hangar and briefly outlined his plans. There would be two men on guard, night and day, no man to know when his tour of duty came until the last minute or with whom it was to be.

"One guard to watch the other, even if I do trust them all," he explained. "It's going to be bad enough to watch the sky without having to watch what you're riding in, besides."

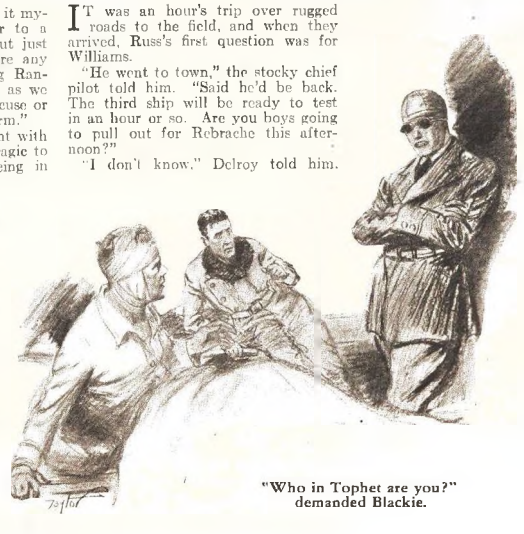
Russ knew as positively as though Paddock had openly spoken his thoughts what the square-faced pilot had implied a few minutes before. It was inescapable. Blackie's record along—

Russ opened the door of his locker to put away his cover-alls, helmet, and goggles. Thrust into the pocket of a coat he had left there when he had started to fly, was an envelope. His heart bounced and suddenly his eyes were ablaze. He opened it eagerly and there was a mixture of dread and anticipation within him as he unfolded the typewritten sheet within. His body seemed to freeze as he read:

Dear Lieutenant Farrell:

Are you convinced now that you had better stay on the ground while you are in Mexico?

The Hawk.



"Who in Tophet are you?" demanded Blackie.

Chapter Five

FOR a moment Russ stood there as though turned to stone. Delroy glanced at him and said quickly:

"What's the matter?"

Russ scarcely heard the question. His mind was racing ahead in a mad endeavor to find some logical way in which that note, signed with the familiar signature, could have been placed there by anyone other than Blackie Williams.

"Snap it up, you two!" he told them icily.

Whatever doubts he might have had before were dissipated, and as his last hope that Blackie might be innocent was wiped from his mind, it seemed as though the world had fallen in ruins at his feet. It was not alone that Blackie had disappointed him, but somehow it seemed to the eager young pilot as though he had learned a lesson that changed life from a bright and desirable thing into an ordeal in which no one could be trusted.

He was almost surprised when he found Duke Delroy alongside him. The blond flyer read the note quickly; the next second his eyes were flaming into Farrell's.

"I guess," he said, his voice vibrant, "that that settles the works."

Russ nodded mutely. The stocky chief pilot, who had been talking with one of the mechanics, came toward them.

"You might be interested in this, Paddock," Delroy said airily. "The Hawk flew into Russ's locker here and left a little *billet-doux*."

"Huh?" It was a short, savage bark. Paddock grabbed at the paper and as he read it his battered face was like a thundercloud. He crumpled the note in his hand as though it were the Hawk himself whom he was destroying.

Suddenly Russ found himself snapping out of the daze he had been in. It was as though he had hardened inside somehow, and he felt that he would never give nor ask for quarter from Blackie Williams or any other living soul.

"See here," he said. "That note wasn't here when we started on the flight, of course. Who could have planted it in my pocket since we've been gone?"

For a moment there was no answer as the veteran chief pilot appeared to be marshaling his forces. Then he said slowly, "I haven't been off the field, and I can't see how it could have been planted by anybody except one of our men or—"

He hesitated there—unwilling to go further.

"Blackie Williams," Delroy finished for him. "Is that what you intended to say?"

"Uh, huh. Was your locker locked?"

Russ shook his head. "Blackie came in to change his clothes when he got back, I presume?" he asked.

"Sure."

"There's no possibility of someone's sneaking in here from the outside without being seen, is there?" Delroy inquired.

"No. There hasn't been a moment when some one of our men hasn't been in here. I'll ask 'em now, just to make sure." He made off rapidly and stopped at the door to speak to a lanky mechanic.

Russ, his head bent in thought, was taking off his cover-alls mechanically. Delroy strolled toward his own locker and it seemed there was a new note in his voice as he sang to himself:

"When Gabe blows his trump, in de sweet bye an' bye,
Ah may not git into Heaben, but Ah'll surely try.
Pharaoh's army got drownded.
Oh, Mary, don' you weep—"

RUSS scarcely noticed a car drawing up before the door of the hangar. He was putting on his coat without realizing it. He was trying to decide what to do. If one of their trio of flyers had turned traitor, then the perilous task before the other two had become one of almost insuperable difficulty. There was no iron-clad proof that Blackie was an ally of the Hawk's or that he was the Hawk himself, and yet it would be suicidal to delay taking action. They must know positively where Blackie stood. If he had turned traitor—and there seemed no reasonable doubt of it—then at any second in a crisis he would turn against the men who were supposed to be his comrades and they would be helpless.

And even if that did not happen, he would keep the enemy informed of every move they intended to make and success would be impossible. The thing that must be done, and done immediately, was to eliminate Williams from the entire undertaking. Bleakly, Russ decided that he must lay the cards on the table in front of White and Ransome—

"Here's Blackie now!"

As Delroy said those words it seemed that there was a laugh in his voice. His slim body was electric with anticipation, and the light dancing in his gray eyes was the reflection of the young flyer's delight in any crisis.

Russ stiffened as though a shock had gone through him and he whirled toward the door as though ready to repulse a physical onslaught.

"Hi!" Blackie said casually to the two oil field company men. "Well, Russ, dog-gone you, if there's been any doubt about your bearing a charmed life, there isn't any left now. Duke, my respects."

The broad-shouldered Texan was strolling toward them across the hangar floor, his sombrero tilted casually and his dark face more quizzical than usual. Russ found himself unable to answer for a moment, but his eyes never left Blackie's face.

The two men at the door left the hangar hurriedly as though to collect all the information possible before Blackie left. Delroy's eyes were playing over Williams as though the nonchalant young oil man were looking at a new and remarkable specimen of humanity. There was a compound of admiration, surprise, and humorous mockery in his attitude as he absently hummed the chorus of his favorite song:

"Oh, Mary, don' you weep, don' you moan—
Oh, Mary, don' you weep, don' you moan—
Pharaoh's army got drownded.
Oh, Mary, don' you weep."

Blackie's narrow, sloping eyes seemed to become even narrower as no word came from his two allies. He glanced from one to the other with growing wonderment as he came close to them, and one side of his mouth drooped sardonically as he asked:

"What's the matter? Have I turned into a ghost or something? Or is there a spot on my nose?"

His eyes finally found Farrell's and lingered there. As he sensed the fact that Russ was holding himself in control with a desperate effort, the ex-outlaw's face seemed to harden slightly and there was no lightness in his voice as he sneered:

"What's up? Spill it!"

As Russ stooped to pick up the note that had been dropped on the floor, he didn't remove his gaze from Blackie.

"You might be interested in this," he said, and despised himself because his voice broke with the strain.

Williams took one look at the note.

"Oh, ho!" he said, half to himself. "What do you make of this, Watson?"

"I'd hate to tell you, Blackie," Duke Delroy said airily. "It certainly looks as if somebody knew what was going to happen, doesn't it?"

Williams' mouth seemed to become thinner and both corners were pulled down as he gazed intently at the crumpled sheet of paper. His black eyebrows were arched and a new light was in his eyes. He whistled softly to himself for a second and then said, "What about it? Who could have put it here?"

SUDDENLY it seemed that Russ could control himself no longer. It was as though an irresistible pressure within him literally forced him into speech.

"Blackie, what was the matter with your motor?" he snapped.

As Blackie caught the import in the younger man's words, his eyes seemed to become opaque. "Search me," he said, with outward lightness. "Just cut dead. You know as much about it as I do—"

"How did it come on again?" Russ exploded.

"That, my boy," Williams said carefully, "is somewhat of a mystery to me. Only one explanation I can think of. The jet must have been plugged and the plug blew out finally—"

"But you didn't do any steep diving that we noticed," Delroy told him.

Both Delroy and Russ were watching Williams closely, alert for the slightest sign of discomfiture. Blackie glanced from one to the other and new lines leaped into being around his nostrils and eyes.

"Just what are you two eggs getting at?" he drawled, so slowly that there was a perceptible pause between each word.

"Well, for one thing," (*Continued on page 55*)

Goodwin shook off the hand. "Who asked you to interfere? Get back there."

The Shouting Violet

By William Heyliger
Illustrated by W. W. Clarke

CAPTAIN GOODWIN, mind whirling chaotically, stared at the door through which Roberts had gone. It had happened! Coach Bancker had kicked Roberts—star fullback for Grandon—off the squad! Goodwin wasn't sorry—Roberts had earned his fate. The egotistic mutt! Openly selfish. Out for glory. A shouting violet, who knew more than the coach. Trim Roberts, egged on by Horsey Mott, sports editor of the Grandon *Times*, had been looking for trouble all season, and now he had got it.

Goodwin was almost relieved to know that the axe had fallen. But Roberts' last cynical remark before leaving the locker room—that remark about the nice morsel Horsey Mott would have to chew over—dismayed him. Mott was openly at war with Coach Bancker, and he could pound a bitter typewriter. He'd go after Bancker with both fists. It was raw—the game Trim Roberts and Mott were playing.

Part II

THE captain was suddenly conscious that another door had opened. Bancker, inscrutable and unruffled, came out of his cubbyhole of an office and sent a fleeting glance toward the fullback's empty locker.

"You knew it was coming," he said to the captain. Yes, Goodwin had known it. No Grandon man had ever been bigger than a Grandon team. "I thought it best not to have you in there when I cut him loose. No need for you to be mixed up in it."

It was like Bancker, Goodwin thought, to push somebody else out of the line of fire and take the entire responsibility himself.

The captain's heart suddenly warmed with a faint hope. Perhaps Horsey Mott would come to his senses—would realize that it didn't pay to buck 'Gene Bancker. What could he hope to gain by making capital of the fullback's exit?

But next day's *Times* was bitter and malicious.

ALL GRANDON IN UPROAR AS BLOND COMET IS FIRED FROM TEAM
BY CZAR BANCKER

'Gene Bancker, dictatorial Grand Poobah of Grandon football, has fired Trim Roberts, the sensational Blond Comet, from the team.

As a result, all Grandon is an uproar of resentment.

The Comet was beheaded ten minutes after his brilliant drop kick had won the Manhattan game. He has been the team's outstanding star. Without him Grandon would not have won a game this season.

The football squad is in a panic. The demoralized players do not know who will be the next to get the axe. Campus gossip says that the team's spirit has been shattered and—

Goodwin read no more. A cold fury shook his body.

"The lying rat!" he cried to Foxen. "He knows why Trim was canned. He knows the team's with Bancker. He knows there's no panic. I'm going to issue a statement and deny this." After supper he went to Bancker's room.

"To whom will you give this statement?" the coach asked quietly.

"Why—Horsey, of course. Who else is there to give it to?"

"Think he'll use it?" Bancker shook his head. "When there's only one newspaper in a town and that newspaper goes after you, you're out of luck. Fortunately, most papers are fair. We've had the misfortune to run foul of a Horsey Mott."

Goodwin bit his lip and stared at the floor. "This may go on all season."

"It may."

"What are we supposed to do—take it lying down?"

"No," said Bancker, *"we'll* take it standing up. I'm not so sure of the campus."

For once, Goodwin thought, Bancker was wrong. Campus and team—both were Grandon. The news that Roberts was out had caused excitement. But there had been no mutterings, no clamor. The campus, he was sure, would stand behind Bancker and the team. It was up to the team to keep its head and play the game.

The team carried on—on the surface at least—as though no disturbing event had happened. Rowe was moved in to Roberts' place and Condict, a scrub backfield man, came over to fill Rowe's shoes at left half. The work was spiced with noisy enthusiasm and deep determination—and yet the machine began to slip. Where the Comet's kicking had been strong and uncannily accurate, Rowe's was weak and erratic. The ends, who had been driven to burning speed to cover Roberts' long punts, lost their sparkle and their snap. The whole team, feeling that something was melting away, grew tense with anxiety. On Wednesday, the scrubs tore the varsity line to pieces. That day the locker room was a dreary place.

"Just at this minute," said Foxen, "I'd like to meet Horsey Mott."

GOODWIN sent a startled glance the length of the locker room. The players, sunk in their own dark thoughts, had not heard. At any rate, the captain thought, the worst was over. Horsey had said the utmost that could be said. From now on he would simply try to keep a fire going under the stew he had started.

But the captain underrated Horsey's ability to make trouble and to rasp at a sore spot. That night's *Times* deftly planted the idea that Roberts had been dropped because Bancker resented his mounting popularity.

"It is rumored," Horsey wrote, "that Goodwin and Bancker have quarreled bitterly." Goodwin, after reading it, sat for a long time with his head in his hands. The next day it was "ROWE FAILS AS BLOND COMET'S SUCCESSOR."

Rowe, white-faced and miserable, came to Goodwin and to Bancker. "Horsey's right," he said with a catch in his voice. "I'll never make a kicker."

"I'm betting that you will," Bancker said quietly.

"You are?" Rowe's head snapped up. That afternoon he got away two kicks that were five yards better than anything he had done before.

And that night, the *Times* carried this:

THE *TIMES* DEMANDS TO KNOW
WHY WAS THE BLOND COMET DROPPED?
CZAR BANCKER MUST ANSWER

The pulse in Bancker's neck throbbed. "Must is a strong word," was all he said.

Next day Grandon played Valley Tech, and never had a chance. One of Rowe's punts was blocked, and that mishap led to disaster. The final score was 20 to 0. The *Times* carried a screaming headline: "GRANDON, MINUS BLOND COMET, EASY FOR VALLEY TECH," and another demand:

THE *TIMES* DEMANDS TO KNOW—
WHY WAS THE BLOND COMET DROPPED?
AFTER TO-DAY'S GAME
CZAR BANCKER MUST ANSWER

There had been a strange quiet in the stands toward the end of the game. Goodwin, sweating and panting in an effort to stave off defeat, had not noticed it. The end of the struggle found him spiritless, the victim of a dreary reaction. To-night nothing seemed to matter. He bought a *Times,* scanned the headlines, passed the paper back to Foxen and led the way across the campus to the dining hall. Just as a waiter was bringing on food, Bloodgood said, "Here's Roberts." Goodwin went on eating. And then, suddenly, he was conscious that the dining hall had grown very quiet. He raised his eyes.

Roberts stood in the doorway, a nonchalant, careless figure. Leisurely, with a word here and a nod there, the fullback sauntered toward his place. Somebody started to applaud. Others took it up. In a moment the room was ringing with a tumultuous ovation.

Foxen's hand, under cover of the table, gripped Goodwin's knee. "Do you know what that means?"

The captain knew. His appetite was gone, but be-

cause he was sure that many eyes were watching him, he forced himself to eat. The campus—Grandon's campus—had gone over to Horsey Mott. The knowledge numbed him and turned him sick. It would go hard with Bancker now. Goodwin forced himself to stay at the table until he could join a group moving toward the doors. He melted into it, inconspicuous, unnoticed. Once outside he hurried to Bancker's lodgings.

"I expected it," Bancker said.

"From a Grandon campus?" Goodwin was aghast.

The coach nodded. "The students in general never see the problems and worries that lie behind the scenes. Horsey Mott has led them to believe that they have a legitimate kick."

"But he's doing it with lies," the captain cried hotly. "Why don't you tell the campus the real story why Trim was dropped?"

"It would be holding Trim up to scorn and humiliation," Bancker said. "Besides, I don't think the campus would understand." He spoke the last sentence wistfully.

THE squad became grim and hard-eyed. Rowe went around with his jaws clamped, and every afternoon Bancker gave him a long session of kicking. Grandon broke abruptly into two camps—the football squad on one side, fiercely loyal to the coach; the campus on the other, passionately convinced that Bancker, grown accustomed to being the big gun at Grandon, had wrecked the team rather than see Roberts in the spotlight. At any time during the day a cry of "Yea, Roberts!" was likely to announce the appearance of the Comet. And, hovering on the outskirts like some chuckling shadow, Horsey Mott continued his demand for an explanation and wrote of the cheers that followed Roberts.

It was a situation that could not go on. Goodwin, torn by anxiety over what might come next, could not drive from his mind the memory of Bancker's wistful voice. It was the first time he had ever seen the coach upset. If Grandon should lose again on Saturday—what?

Grandon lost to Harrison, 14 to 7. Again Rowe was the weak link. Twice, with no one near the receiver, he had chances to throw forward passes that would have broken up the game, and twice he heaved the ball weirdly and wildly. A voice from the stands bellowed: "We want Roberts."

Back in the locker room that cry rang in Goodwin's ears with an ominous echo. Sitting limply on a bench he made no move to get out of his sweaty, soggy uniform. Dressing meant that he would have to go out to the streets. Newsboys would be selling the football extra. He was—suddenly—afraid to read what the *Times* might say to-night.

Foxen nudged him. "Snap out of it, Good. You'll get a chill, sitting there in those damp togs."

The captain began to strip. The sting of the shower brought a measure of reality, an awakening sense of responsibility. Moping was a poor flag to wave in the face of the squad. He spoke to a player here, threw a word across to Condict, called to somebody at the far end of the room. Those who had hurried their dressing began to leave. The place thinned out. Presently Foxen and Condict went out together and left him alone. Slowly he sank back upon the bench and slumped again.

A sound at the door straightened his spine. It was Foxen, one hand behind his back. "Bancker gone?"

Goodwin nodded.

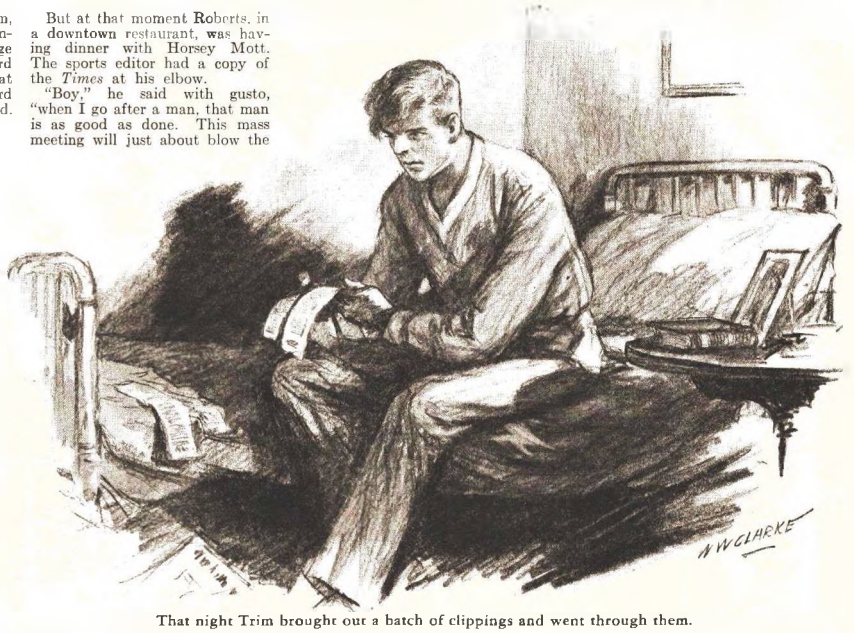
The hidden hand came into view. It held a newspaper. The captain leaped to his feet.

"The fools have called a mass meeting for next Wednesday night," Foxen said hoarsely. "Varsity Hall. They're going to demand Bancker's resignation. Do you get that? Those pinheads want to throw out the best coach—all I want is to meet Roberts to-night in the dining hall."

"He tried to make a bum out of you," said Horsey.

But at that moment Roberts, in a downtown restaurant, was having dinner with Horsey Mott. The sports editor had a copy of the *Times* at his elbow.

"Boy," he said with gusto, "when I go after a man, that man is as good as done. This mass meeting will just about blow the works. You'll be in next Saturday's game."



That night Trim brought out a batch of clippings and went through them.

Roberts' hands moved as though they itched to feel a football. "It hasn't been easy, this waiting," he complained.

"These things take time," Horsey said soothingly. "First, we had to cook Bancker's goose. Well—it's cooked."

Roberts' face fell into a darkened scowl.

"Next Wednesday," Horsey said largely, "Bancker will be eating out of your hand."

Roberts started to say something, thought better of it, and began to eat. Bancker was whipped—no question of that. And yet, at that moment, the Blond Comet could not visualize Bancker as eating out of any man's hand.

IN admitting to Horsey that waiting had not been easy, the Comet had uttered a bitter truth. He had thought that two or three days at most would be the limit of his exile. But the Valley Tech slaughter had been followed by the Harrison disaster, and Bancker so far had given no sign that he knew where he could put his hands on a player who could turn the tide. Yes, the coach was cooked. Wednesday night's meeting would attend to that. But in the Comet's heart was the galling conviction that, had Horsey not contrived to engineer the meeting of protest, he—Trim Roberts—would have been left to gather mildew.

Oh, but some day he'd make Bancker pay for this insulting neglect! To be ignored, to be flouted, to be treated like some raw substitute. . . . Even as his blood heated with resentment, something in him forced a reluctant admiration of the rugged, unbowed determination of the coach. Bancker had told him that he was out—and he had stayed out. He could not quite understand it. With the whole campus barking at his heels, the coach went his way in cool unconcern. Defeat left him unshaken.

"It's his big head that holds him up," Horsey said across the restaurant table. "He'd rather be a beaten Napoleon than a winner with somebody else getting the glad hand. He tried to make a bum out of you just for his own glory. Don't forget that."

"I won't," snapped Roberts. He hoped Bancker would come to the meeting. He wanted to see the man squirm. And then he wondered if Bancker could be made to squirm.

Over Sunday he was the campus lion. So many students came to his room that the gathering extended out into the hall. If this was what he got before Wednesday, what would it be after he went back to the squad? His dreams that night were pleasant.

In the morning his rosy plans were suddenly broken and scattered. By breakfast time, the whole campus knew that there would be no protest meeting at Varsity Hall on Wednesday night. Bancker had the hall for a football talk he was to give to high school players.

Roberts swallowed a cup of coffee and hurried from the dining hall. There was a public telephone station just off the edge of the campus, and his hand trembled and shook as he dropped a coin into the slot. Bancker was afraid of them—else why should he try to freeze them out? And if Bancker was afraid, that meant that he *could* be made to squirm. His rugged, unbowed determination had merely been a mask. Oh, when Horsey knew this—

The sports editor greeted his story with an oath. "Trying to muzzle us. There's your mealy-mouthed hypocrite. Always talking about the square deal, and playing the game, and sacrifices, and he sneaks in and robs us of our chance to talk."

"Can't we hold the meeting outdoors?" Roberts asked.

"An outdoor meeting wouldn't get over. You can't whoop things up. Too much noise with street cars and automobiles shooting around the edges of the campus."

"How about Thursday night?"

"There's nothing worse," Horsey growled, "than a meeting that has to be postponed. It loses half its punch. I don't know what's best to do. Give me a chance to think."

ROBERTS came out of the booth stewing with rage. The fraud! Strong man? Bah! A tyrant who fired a player because he had the power! A coward who was afraid to stand up and let Grandon hit back at him. A—

"Roberts!" said a voice in his ear.

The fullback spun around on his heel and, at sight of Bancker, his eyes blazed.

"You—" he began.

"I'll do the talking," Bancker said crisply. "Tell Horsey it's never wise to pick a date for a meeting without going through the formality of making sure he can have your hall. The football talk was arranged six weeks ago. However, if you and your friends think you have something to say, I have no desire to stop you from saying it. I'll move my crowd into one of the large classrooms. You can have Varsity Hall Wednesday night."

Roberts was dazed at the unexpected offer. "I—I don't understand—"

"I hoped you would," the coach said, and swept him with a level look and was gone. That look, clear and penetrating, left Roberts shaking. It was not what he had expected—not after the things the *Times* had printed during the past two weeks. Anger, rage, bitterness, he could have understood. But Bancker had swept him with eyes of pity. Bancker was sorry for him.

Why? Something deep within him, something that suddenly began to comprehend, tried to whisper a reason. He shook his head savagely as though to shut out the inner voice. He had a class at eight-thirty. There was just enough time, if he hurried, to make it. Abruptly he decided to cut the class. He went to the telephone and put in another call for Horsey Mott.

"I've just met Bancker," he reported. "He says we can have the hall Wednesday night. He'll take his meeting somewhere else."

It was plain that the news was not to Horsey's liking. "I wish you hadn't told me about it," he snapped. "I had a good story ready—something that would have given Bancker a bad time.

"Now, I've got to frame something else. If Bancker gives you any more news keep it to yourself unless it's something that hands him a black eye."

Roberts was bewildered. "But I thought you'd want to know—"

"Sometimes," said Horsey, "we are interested only in news that plays right into our hands. Anyway, I'll find a way to handle this so it will give Bancker a cramp."

Horsey's way was in the *Times* that afternoon:

PUBLIC OPINION FORCES CZAR BANCKER TO SURRENDER HALL

Roberts was shocked. Giving Bancker a cramp would have been to his liking. But deliberately twisting the truth—the inner voice that had tried to whisper to him that morning whispered a little louder now. Bancker had been white. It wasn't sporting to hold a white man up as something yellow. He went to a telephone and called Horsey again.

"Where did you get the idea that Bancker was forced into giving up the hall?" he asked.

Horsey chuckled. "That was a darned clever way to handle it, wasn't it?"

"It wasn't true."

The editor's voice changed. "Look here, Trim! Who's been trying to get you back on the squad?"

"You have."

"Then let me handle it my way." Horsey hung up the receiver.

THAT night Trim, with his door locked, brought out a batch of clippings from the *Times* and went through them. Within the day tremendous changes had taken place in the exiled fullback. Bancker had shocked him in one direction, and Horsey had shocked him in another—and out of this experience Bancker stood out the better man.

He read the clippings and, for the first time, saw things not as he wanted to see them but as they were. There was the story in which, announcing a star's suspension, Horsey had said that the campus was in an uproar of resentment. Roberts, looking back with clear eyes, knew that the story had been rot. The campus had shown no great amount of excitement until the team had lost. As for rebellion in the squad, and quarrels between Goodwin and Bancker—bunk. He folded the clippings slowly and put them away.

It was apparent to him now the tricks and traps that Horsey had employed to lead the campus to what was due to happen on Wednesday night. Jumping up, he began to pace the room. Horsey had called Bancker a faker, but would a faker, with his team losing game after game, stand his ground as the coach had? Horsey said that Bancker wanted the limelight. If the coach wanted applause would he deliberately see his team beaten? Would he step aside so that the students could meet and demand his resignation? Were these the acts of a man who wanted to be king and claim the headlines?

"I wonder," Roberts cried out of a tortured heart, "if Bancker's been shooting square and I—" He did not complete the thought. He was afraid. That night he watched the table where the football squad ate—and envied them.

The thoughts that had taken possession of his mind would not let him rest. His imagination painted pictures of Bancker, quiet and cool; of Horsey, shrewd, loud-mouthed, boastful; of that last scene in the little office off the locker room and the things he had said to the coach. His face flushed. And then there came always the memory of the things that Horsey had written, things that were not true.

Horsey had preached "The others must think of the team, but you are a superman and must think of yourself." And yet he was gone, and the team was still there. At that moment he felt alone and weak, and the team loomed as something strong and impregnable. Dimly he began to see the things that held it together—loyalty, sacrifice, idealism. And dimly, too, he began to see that there was something bigger than himself.

Tuesday afternoon he found a note from Horsey in his room:

> Get in touch with me. We've got to frame up what you ought to say Wednesday night.

What he ought to say! Roberts stared across the room. He did not telephone to the *Times*.

Wednesday afternoon he disappeared. Two frantic messages from Horsey failed to find him at his room. That evening he suddenly appeared upon the campus, tired and worn. The two messages from Horsey were on his table—he tore them up. And then he waited.

At eight o'clock he went to Varsity Hall. At sight of the crowd he caught his breath. With a touch of his old swagger he strode, amid thunderous applause, down the aisle to the platform. Horsey, sitting there, sprang up.

"Where have you been?" the editor demanded. "Didn't you get my messages? What's the matter with you—you're white. Here, grab this speech and read it over. It's hot stuff. It'll knock this crowd wild."

Roberts pushed the manuscript aside. "I don't need that." He walked down to the edge of the platform and raised a hand for silence. "Fellows!"

Abruptly the hall grew silent. Horsey, with a startled exclamation, tugged at his coat.

"Sit down, you fool! What are you trying to do, ruin everything?"

ROBERTS wrenched his coat free. The color came back into his cheeks. His sense of elation rose at the sight of the crowd before him. From the body of the hall came a startled murmur. Again he held up his hand. With his confidence fully restored, he began:

"Fellows, this meeting is a mistake. It should never have been called. Bancker isn't what he's been painted, and you ought to know it. Bancker's the biggest man at Grandon, and I'm ashamed of the part I've had in this whole business. If this meeting is going to denounce anybody to-night, let it denounce me. I deserve it.

"Bancker's been panned for dropping me and for losing games. Maybe we'd have lost anyway. Bancker dropped me because I had it coming to me. I didn't obey his orders. I thought I could do as I pleased. Well, Bancker refused to let me get away with it.

"This meeting can do as it pleases about Bancker, but count me out. I threw him down when I was with the squad, but I won't knife him in the back now that I'm off."

As abruptly as he had begun, he ended and turned away from the staring sea of faces. Horsey sat in stupid, blinking bewilderment. The blond fullback passed the editor, stepped half-smiling down the platform steps and along the aisle. Somebody yelled, "You're all right, Trim," and somebody hissed. Then he was outdoors.

Swiftly he crossed to a building that showed lighted windows on the second floor. Bancker's meeting had not yet started. The coach, seeing Trim in the doorway and reading a message in his face, came out into the hall.

"Coach," Roberts burst out, "I've been a mutt. I just told that meeting at Varsity Hall the truth and walked out. I won't blame you a bit if you don't want me, but if you can use me I'm ready to come back, and obey orders, and play football."

Bancker asked no questions. He tried instead to read Roberts' face. It had a touch of the old arrogance—an appearance of satisfaction at playing a heroic part, at starring in a self-sacrificing role. Roberts had made amends, the coach gathered, but it seemed that the player took too much satisfaction in it. He was still—Trim Roberts.

"The question is," Bancker asked quietly, his heart heavy, "do I want you?"

Roberts looked up, covering his surprise. "I—I didn't think—of that."

"Suppose I tell you that you can come back but that I may not use you again this season?"

Roberts wasn't prepared for this. He was a star—he could help win games—he had counted on getting back at the game—at shining once more before the yelling fans—at making amends with touchdowns. He struggled inwardly. His head dropped. "I—" he muttered. "You—you're the boss."

Bancker looked at him searchingly. "Report to-morrow, Trim."

ROBERTS went to the scrubs, and the resentful squad let him have it. But he had steeled himself for that, and stood the mauling. Every time he carried the ball, somebody dropped him hard. The mental turmoil through which he had passed, the ordeal of walking into the locker room and facing the team he had tried to disrupt, took away his edge and left him with nothing but the will to try. Once he tried a shot for the goal posts from the twenty-yard line and missed by yards. Foxen laughed.

"Stop that," Goodwin barked sharply.

At the end of the afternoon the fullback was stiff and sore. He struggled against a rising tide of resentment—tried to tell himself that he had it coming. But blame it all, he was a star! He didn't need this stuff! He walked from the locker room alone, and Rowe stared after him.

"He's mad," Rowe said thoughtfully. "And still cocky."

"I guess we took it out of him to-day," Foxen said with satisfaction. Rowe shook his head. "I wish I could believe it."

A sort of stony silence greeted Roberts in the dining hall that night. He ate in silence and, after supper, went up to his room. He hadn't bothered to buy a *Times*, but voices, passing his door, told him that Horsey had flayed him for deserting his backers. No friends on the campus and no friends in the squad! He turned out his light, felt gingerly of his bruises, and went to bed to battle a bitter, lonely fight against his own temperament.

Next day Bancker used him to run back punts, and again the squad handled him savagely. Drive at him as they would, they could not slow him up or make him cringe at the moment of impact. Foxen, dropping him on the last punt, sprang to his feet, hesitated, and ended by holding out a helping hand. Roberts caught it and scrambled up.

"Thanks," he said briefly.

"By gosh," Foxen said in the gym, "I take off my hat to him. He's game."

Roberts, under the shower, showed the marks of the slaughter.

"Better let one of the rubbers go over you," Goodwin called across the room.

"Mere scratches," Roberts grinned airily. Rowe came over and sat beside him while he was on the rubbing table.

"Trim, I wish you'd look over my kicking and tell what I'm doing that's wrong."

"Sure—to-morrow," agreed Roberts, and then added with a touch of his old air of superiority, "but kicking's more natural ability than anything else."

Goodwin stared at the fullback disappointedly as the Comet went out the door. "Same old Trim," he sighed.

"I'm not sure," differed Rowe, "that he wasn't just camouflaging. He—feels pretty tough."

SATURDAY Trim sat with the substitutes and saw Grandon play Harwood to a scoreless tie. Monday he was back on the field. Twice that day he got away for long runs. The varsity, that had cut him down at will at the start, found it a harder job to handle him. Some of the old strut, the old swagger, came back to his stride. But in his face there was a wistful, hungry longing.

Bancker read it. "He'll be asking me to play him," the coach thought.

But the back asked for nothing. Bancker, at the end of one practice period, touched him on the arm.

"I'm taking some of the fellows to a picture show to-night," he said. "Care to come along?"

Care? Roberts turned his head away so that Bancker could not see the flush in his face. His eyes blinked.

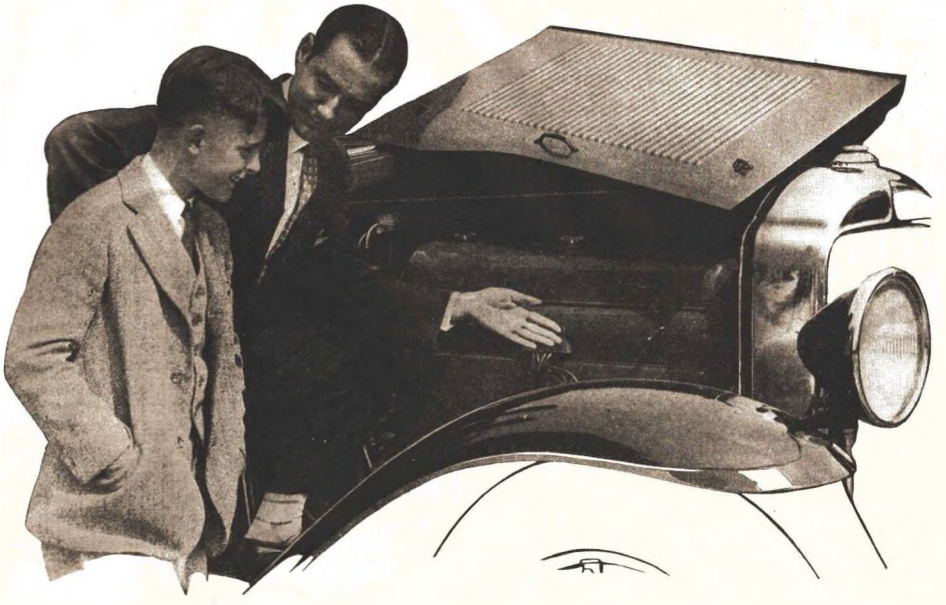
Blanket-wrapped, heart-hungry he watched Grandon beat Allingham 7 to 0 and counted the spots where he could have run wild. And then they were headed for the big game with Stamford.

Twice that week Bancker gave him a short workout with the varsity. In his eagerness he fumbled, and broke out in a sweat of fear. Goodwin tried to steady him, patted his shoulder before the signal was called, crooning low-voiced encouragement. Yet he fumbled again, and a scrub recovered the ball.

He felt that his last chance to get into the Stamford games was gone. At best it had not been much of a chance—he realized that. Bancker, fearing to use him further that day lest additional blunders might wreck his growing confidence in himself, sent him to the showers. He took it as a punishment, and went slowly to the locker room, sunk in dejection.

From a gym window he (*Continued on page 44*)

WHEN BETTER AUTOMOBILES ARE BUILT . . . BUICK WILL BUILD THEM



*Billy Jones learns why Buick's famous Valve-in-Head Engine is the most powerful of its size in the World

Buick Dealer (as Billy enters sales room): Well, Billy, I imagine you've come to see the famous six-cylinder valve-in-head Buick engine.

Billy: Yes, I have. Johnny Green and I had an argument. He says it's powerful just because it's big. That's not so, is it?

Buick Dealer: No, that's not the reason. Come on over to the cutaway chassis, and I'll show you. You know, of course, that there are several types of engine, differing from each other mainly in the location of their valves. They're all alike in one respect: it's always the explosion in the combustion chamber that drives the piston downward and turns the crankshaft—in other words, that makes them go.

Billy: Yes, I know that. But how is Buick different from the rest? What does "valve-in-head" mean?

Buick Dealer: You can see right here what it means. First of all, this casting on top of the engine is called the "cylinder head," and the larger casting it rests on is the "cylinder block." And here, right in the very top of the head, are the valves—an intake valve and an exhaust valve in each cylinder. Notice that they're in the head itself, right above the top of the piston—not on the side and in the block as in most cars.

Billy: Sure, I see! Why, each cylinder is like a big gun, sort of, isn't it? The "barrel" is the hole where the piston is.

Buick Dealer: That hole's called the "bore."

Billy: Well, the "barrel" is the bore, and the bullet is the piston. And the "powder" is the fuel mixture.

Buick Dealer: A splendid comparison, Billy! And you'll notice, too, that the cylinder head in this engine is circular; it fits over the bore exactly, just as the breech of a gun caps the rear end of the barrel. There's the answer you're after!

Billy: But don't the heads of all engines fit like that?

Buick Dealer: The cylinder head always fits over the block. But Buick's is the only engine in which the combustion chamber is of exactly the same size and shape as the bore—the only engine in which the full force of the explosion is concentrated directly on the piston, where it's needed.

Billy: How is it in other engines?

Buick Dealer: In most other engines, the valves are placed very differently. Generally they are in the block, beside the piston. This necessitates a combustion chamber of irregular shape over each piston—making a sort of pocket or alcove above the valves—and naturally, only a part of the energy derived from the explosion is concentrated directly on the piston.

Billy: Gee, whiz! That's as plain now as A-B-C! No wonder the Buick has power to burn! What I don't see is why other cars don't adopt valve-in-head engines.

Buick Dealer: Valve-in-head engines cost more to build. Manufacturers lacking Buick's tremendous volume can't afford to provide valve-in-head engines and still sell their cars at anything like Buick's price. As a result, you find plenty of cars around Buick's price, but none with such wonderful valve features as Buick offers. It's Buick's volume leadership that pays for such superiorities as the valve-in-head engine, sealed chassis, torque tube drive, cantilever springs.

Billy: Gee! Do all those things really mean something important?

Buick Dealer: Every one of them is a vital factor in Buick's superiority. You haven't even heard the whole engine story yet. You were feeling for the starter, when you drove my car the other day, and the engine was running all the time. There's a story in that—the story of why the famous Buick valve-in-head is vibrationless beyond belief.

Billy: I'll be back again, if you'll tell me about that. And meanwhile I guess I've got enough dope to tell Johnny Green what "valve-in-head" means!

BUICK MOTOR COMPANY, FLINT, MICHIGAN
Division of General Motors Corporation
Canadian Factories: McLAUGHLIN-BUICK, *Oshawa, Ontario*

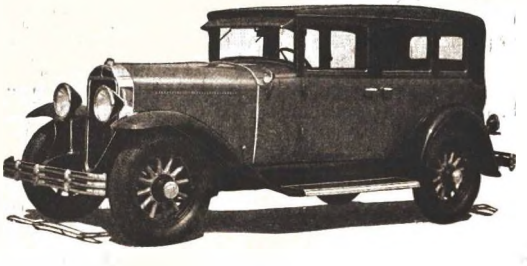
* * *

**This is the third of a series of stories describing Billy's experience with the new Silver Anniversary Buick. Next month Billy Jones learns about the Buick Engine being vibrationless beyond belief.*

THE SILVER ANNIVERSARY

BUICK

WITH MASTERPIECE BODIES BY FISHER



Mac's Way of Honor

(*Continued from page 12*)

and in a cleft stick beside it a piece of paper shone wanly. He held it to the blaze and read:

So long, Easy Mark. You and your cheap skate friends are out of luck —the best ground on Wolverine will be staked in my name. Don't trail me or you'll get plugged, you and the dog too.

"You had his number, Mac! Of all the double-crossing—"

THERE Ed stopped, fascinated by his dog's actions. Like some glutton at a feast Mac moved about pack and snowshoes drinking deep of the scent that clung to them, sniffing audibly as if he feared he might mistake the identity of the desecrater when the chance for retaliation came. His hackles fell and rose as waves of lustful anger swept him, and in his wide-set eyes the red fires of revenge burned.

Ed found his own honest anger fading before this dire display of primitive hate. "Berkett's outa luck if Mac gets the drop on him," Ed thought. "Mac'll jump him sure.

"It ain't so bad as it looks," he said aloud. "I've got spare rawhide tucked inside the pack board and I can splice what he cut. He just dumped the pack —it was the map he wanted. He figgers on striking cross country to the recorder's office at Division. We'll fool him, Mac. We'll be dangling on his heels by the time he strikes the river."

The control of Ed's voice seemed to steady the dog, and after he had put the rawhide to soak in the tin pail, Ed read the note again. "Plug us, will he? Not him," Ed mused contemptuously. Like all men of action he disliked the cheaply dramatic, and the wording of the note showed Berkett to be that sort.

Before the fumbling fingers of the dawn felt their way through the eastward barrier of peaks Ed was ready to travel, and when Ed began to pack Mac sprang briskly up.

"Keep your hair on," Ed jested. "He's breaking trail for us; we can't lose out now."

Mac's bushy tail waved slightly. Hours ago he had ceased to growl when the hated scent came to his nostrils. A mood cold as the night itself had settled on him. Then he had drowsed, and now as he lay down again Ed thought it likely he had forgotten most of his resentment. "Guess Mac's the kind that doesn't hold his mad for long," he mused.

When at last day began to break Ed shouldered his pack and started. But before he left the camping place he slipped a thong through Mac's collar and made the other end fast to his own waist. "Might come on Berkett sudden," he explained at Mac's whining protest. "An' we don't want to have him add dog shooting to his other petty crimes."

After a few ineffectual tugs Mac settled down, strained steadily on the thong, almost pulling Ed as his claws and broad pads dug into the trail Berkett had broken during his flight of the previous night.

Soon after nine o'clock the sun rose redly and all morning as they swung down the slopes toward the river, the storm haze thickened. Through it the sun became a clot of yellow light—a wan ruler outshone by his attendant sun dogs on the rim of the storm ring. Its light still cast blurring shadows, beaten things which kept the shelter of the trees, and behind the toiling man and dog the cowering shadows shortened, seeming to follow reluctantly as if they too would flee to the shelter of the evergreens where they could crouch and hide their formless faces from the approaching assault of snow and cutting wind.

Then, after the shadows began to sidle eastward, Ed and Mac saw the abscending Berkett trudging across a brule to the raw banks of the river. Contemptuous of stealth, Ed paused on the sky line and looked down. A moment later when the black dot below halted, then turned straight for the river, Ed knew they had been sighted.

"He's got the wind up already," Ed told the dog, but Mac, though his eyes followed the distant figure, gave no sign or exultant sound. "You got a short memory, mister," Ed told him. "Last night you were ready to chaw him up—now you act as if you didn't give a hoot." And while Mac still looked across the flat, Ed cast off the leash he thought was no longer needed.

During the moment they paused there, Ed was able to read Berkett's rash plan. A mile upstream, through the sickly light of the baffled sun, Ed could see a safe crossing; but from there right to the entrance of the canyon close below them, an open lead of black water showed between the broken edges of shore ice. In this lead, flotillas of pan

ice drifted, lodged, and quickened as the canyon's fierce currents drew them to destruction. Already Berkett, scorning the safe detour above, was almost to the river, only a quarter of a mile above where the towering rock walls of the canyon crunched and ground the floating ice.

"Crazy fool!" Ed yelled. "He's heading into trouble. Come on, Mac!" With the snow flying about his knees and Mac plunging in his wake, Ed angled down the last slope to get between the canyon and the place where the fugitive was starting to cross.

AMONG the down timber of the brule the river was hidden from him but when he reached the bank, after a struggle through windfalls, he was aghast at what he saw. With open water all around him Berkett was trapped on an isolated cake. It was still fifty yards upstream from where Ed and Mac stood on the fringe of shore ice, but already the quickening current was hurrying it toward the canyon.

"Wait!" Ed roared when he saw the frantic captive make as if to jump. He knew that in such fast water the numbing cold would defeat any human swimmer, and even as he shouted he was tearing the long lashing from his pack board, shaking out the hitches, and fastening one end of it to Mac's collar in a slipknot.

"You're the only one kin save him," he panted hoarsely as he waved his arm for Mac to swim out and intercept the ice cake bearing down toward where they stood.

On the brink Mac hung back; then in response to Ed's commanding shout and Berkett's pleading call of "Good old Mac!" he crouched, whined protestingly once, then took the water in a surging plunge and angled out to meet the careening raft of ice.

As Ed watched the dog come alongside and scramble up with straightened forelegs and hind paws that clawed the ice for a precarious hold, a sudden fear gripped him. What if Mac, remembering the feud, should refuse to let Berkett take the line from his collar? "Easy now, old boy," he called and as Berkett freed the rope and fastened it about his own waist, Ed felt a surge of relief to see that, after all, Mac was the kind of dog that easily forgot a wrong.

FOR Mac, ignoring Berkett, looked steadily at his master. Only fifty feet of black water separated them but Ed, bracing his feet against a hummock, had no chance to read the dumb accusation in the fine eyes of his dog. He could not know that he had asked too great a price of this gigantic creature of the wilderness. For in all his savage life Mac had never compromised and he scorned to do so now.

"Grab the dog and jump—now!" Ed yelled as the cake swept abreast of him.

He saw Berkett try to seize Mac's collar—and then in one terrific flash the revelation came. The dog that he thought had forgotten sprang to the far edge of the ice cake in defiant fury against the helping hand of the man he hated.

"Mac remembers," Ed groaned.

Because Mac remembered, he had been true to a trust. Because he remembered, he would not now tolerate the touch of a traitor. To serve a friend and fight an enemy, this was Mac's primitive creed and in the very face of death he would preserve that creed inviolate. When he had brought the rope he had understood he must suffer that hand to touch him—but he was his own master now.

"Mac! Steady!"

But Ed's tormented shout was ignored, for Mac, discipline forgotten, was watching his chance to strike.

Then as the dog defied him, Berkett showed that under all his cheap bravado the flame of courage still burned. He floundered up the tilting cake and tried to clutch the dog. But fangs slashed him as Mac shook himself free, and then as the cake swept onward the line came taut and Berkett was pulled backwards into the fast water.

While he heaved Berkett to safety, Ed's eyes were on his dog alone. Over and over, one thought kept drumming in his anguished mind: "He hated Berkett but he went because I told him to."

Watching, Ed saw Mac leap and try to make the shore. Too late! Ed saw the black underside of the ice cake come yawning up as it took the plunge into the canyon. A striving white head showed itself beside it and then, just before it was carried over, Ed heard Mac bark. That bark was no yelp of terror, but the clarion call of the untamed. Then the white spot disappeared.

A moment later Berkett stood beside Ed Sibley on the shore ice. He was all but sobbing now, his swagger lost in the sincerity of his feelings. "That Mac dog —he was made of better stuff than me," he choked out.

"Yes," Ed agreed, his eyes still on the black gateway of the canyon. "Yes, he was made of better stuff than you—or me." He did not speak accusingly but as one who repeats some high truth.

Back in the green timber across the river a low moan came from the slowly swaying boughs. It was the forerunner of the swooping blizzard, the storm on which, so the Norse saga says, Viking heroes ride gloriously to their Valhalla. And unless some miracle had happened the dog would be with them—tonight Mac would course far trails in the immortal company of his peers.

Next month, another dog story by Hubert Evans—"Trails That Met."

Sculptured by Bitter, 1895, for Pennsylvania Railroad's Broad Street Station, Philadelphia

A BUSINESS THAT LOOKED UP!

Thirty-five years ago a Pennsylvania Railroad executive saw a vision of passenger cars being transported through the air!

Was he laughed at?... You who some time may have faced a hostile board of directors with an untried plan can well imagine it! For it is one thing for a business man to have vision; but it is quite another thing to believe in it so firmly as to have it carved in stone and placed high in the concourse of a great station where millions may see it, to scoff at it . . . or to be inspired by it. Above all, it is a most wonderful thing to witness the sweep of progress finally overtake the vision and transcend it!

The Pennsylvania Railroad is now actively preparing to transport passengers on wings thousands of feet above the earth!

A passenger for Los Angeles will leave New York from the Pennsylvania Railroad Station at night in a Pullman, and sleep soundly until daylight finds him beyond the Alleghanies. . . . At Columbus, Ohio, he will transfer to a giant tri-motored plane, capable of carrying fourteen passengers, with all the comforts and conveniences of a yacht, and the service of a steward. Flying at a hundred miles an hour, he will pass St. Louis and Kansas City, and alight at Wichita, where a commodious Pullman train waits for the night run. . . . Daylight will find him in New Mexico, where another plane is waiting. Before nightfall he is in Los Angeles!

A wonderful achievement? Certainly! Yet the transcontinental Air Mail has been in successful operation since 1920!

Railroads through the Northwest have already in operation passenger planes between Chicago and Minneapolis and St. Paul. . . . The Santa Fe is co-operating with the Pennsylvania. . . . The New York Central is closely surveying air travel in Europe. . . . The Hudson River Day Line is considering the extension of its boat service, via air, from Albany to Montreal. . . . Many Atlantic liners now provide plane service to carry passengers quickly to their land destinations. . . . Commercial air routes are projected to Bermuda, Canada, and across the Gulf of Mexico. . . . And Air Tours and independent passenger Air Lines are starting up almost spontaneously everywhere. . . .

During the past three years 6,600,000 pounds of freight and express and 4,900,000 pounds of mail have been cleared from the Cleveland Municipal Airport, exceeding both Tempelhofer Field, Berlin, and Croydon, England. During the month of June, 1480 planes were cleared. Nine private companies are located on this field, *and six mail lines cross it, with three more in prospect!*

Aviation in America has already reached the proportions of a $100,000,000 industry; and airplane transportation has within two years become a positive factor of industry and commerce. The wonderful record of Ford tri-motored, all-metal planes, designed to carry fourteen passengers, is the best evidence of this fact.

Traveling on regular flights, these planes have transported over six million pounds of freight and mail. The number of passengers carried cannot be accurately stated, for Ford planes have flown in service on this continent under all conditions from Labrador to the high plateaus of Mexico.

They have totaled a million miles of successful commercial flight.

FORD MOTOR COMPANY

Dodo Birds

(*Continued from page 5*)

"This is the doctor," he said. "Tell these boys, Doc, about the pilot." Then, to Atlee, who hesitated, one foot on the running board, he added, "Hop up, boy, this here's private talk."

The man beside Jimmie stirred and spoke, silkily, as Atlee climbed in:

"It is most certainly as he has said. The flyer asked that you—"

Jimmie, suddenly convinced that the men were lying, turned to Atlee:

"This is not the doctor who was at the wreck," he said coldly. "Atlee, there's—" He choked as a hard hand throttled him. Atlee's body, propelled by a thrust from the driver, lunged across his. The car, jerking into forward speed, threw Jimmie back against the cushions. He felt the touch of cold steel press just below his ear as the throttling hand came free.

"Prudence, *mi amigos*," said the silky voice, "or I shall treat the brains with lead."

The car rolled on for miles. At last it stopped and the driver jumped to the ground. They were on a deserted road, beside a clearing in the mesquite. In the center of the clearing was a ship—a cabin plane. The prop was turning idly with a loose rattling creak.

"Line up," commanded the black-Stetsoned driver.

The two cadets scrambled down. Jimmie cast a furious rearward glance at the silk-voiced "doctor." He saw now that the man's face was masked by a handkerchief tied below his eyes.

Atlee moved close and pressed something cold on Jimmie's wrist. The dagger—Atlee had brought it with him. It flashed across Jimmie—that hollow handle and its contents!

The driver's voice again.

"Now then, we'll talk sense. And fast. You, Rhodes, slip me my friend's papers and it's all over, pleasant."

Jimmie stiffened.

"All right then, we'll search. Stick 'em high!"

Hands roughly searched his pockets, tore at his shirt. He heard the man laugh harshly.

"Baldy, here's a bad hombre—got a bowie knife."

The driver spoke again, his voice filled with savage threat:

"You tin soldiers didn't bring it, hey? Well—"

His arm whipped back, and before Jimmie could divine his purpose, it swung forward. A flint-like fist sledged against his chin, and he tumbled to the ground. But even while his senses fled, he heard, miles away, the dagger tinkle from the man's fingers to the ground, saw Atlee stoop, snatch it up and dart away. . . . A pistol shot—the dark engulfed him.

THE first thing Jimmie sensed was a measured throbbing click, a pungent oily smell. He turned his head and his eyes gradually made out a steel rod like the shift-lever of a car. Beyond it was a man's foot resting in stirrups on a bar. He was in the cockpit cabin of that plane. The hard familiar voice brought him to full consciousness.

"Turn Baldy loose, Soper—we've put the fear o' God into *him*. Look at his face, white as milk. You understand, Baldy, *get them papers* and leave 'em underneath the stones by the post on the right of the entrance to Brooks Field—to-morrow before dark—and Rhodes'll be brought back safe. If you don't—we get him first and then *it's your turn*."

A murmur—that was Atlee's voice. The fear in it seemed all too real. Jimmie closed his teeth hard as anger cleared his head.

"Take the bus back to San Antone, Soper. You know what to do with her. Beat it now, Baldy, button your lip and —*get them papers*. Here, you can have your knife—" a contemptuous laugh—"don't cut yourself with it, Baldy."

Jimmie's muscles corded at the words. The knife! The man had given it back to Atlee. The voice concluded harshly:

"Hold a wing, Soper—and you, Baldy. The sun's gone. I got to cross the Rio Grande with this soldier before dark."

The motor roared, shaking the cabin floor. Jimmie sat up and a rope sawed his wrists. Then a sudden forward motion threw him flat and a deafening batter of exhaust told him the ship was on her way.

He bounced against the floor boards. The plane was taxiing. Then suddenly the movement smoothed and he knew they were off the ground. Again he tried to rise. The floor was slanting at a crazy angle. Hampered by his bound wrists, he staggered dizzily against the side partition of the fuselage, snatched at a tie rod, and missed. The rough corner of a turnbuckle slashed his hand. At the pain he almost shouted out in savage joy. For here *was* a fighting chance! And he would take it.

On his knees, now, he sawed his arms across the ragged metal edge. The corner of the turnbuckle was sharp, and soon he felt the rope slacken as one by one the strands slowly parted. Suddenly his bleeding wrists were free.

But now the motor noise had changed. He looked at the pilot's silhouette, saw him start in surprise. He watched tensely while the pilot swung open the porthole and pointed a heavy Colt out into the sky. What could that mean? Then, chilled by premonition of some dreadful crisis, Jimmie crawled close up behind the basket chair in which the pilot sat and looked out through the cabin porthole. His heart stopped as though an iron hand had crushed it.

OUTLINED upon the fabric of the lower wing, his legs twisted round the forward strut, clung Atlee. As Jimmie looked, he felt the ship leap suddenly toward earth in a roaring, vicious, power-on dive. The wind screamed madly in the rigging. But Atlee held to the strut.

The plane zoomed upward. Atlee held on. Then Jimmie saw a gleaming thing in Atlee's one free hand—the dagger blade pressing against the aileron control wire.

The ship slowed almost to stalling speed. The motor suddenly cut, and there was only the wind's whine in the rigging. The pilot leaned from the cabin porthole and yelled harshly:

"I'm goin' to shoot you off that wing, you crazy fool," but Jimmie caught an awe in the hard voice that made the words go wavering up and down the scale.

Atlee's blade moved slightly on the aileron wire. He nodded.

"Won't fly, will it, with this cut? And my knife'll cut it when you pull that trigger, sure."

The slow drawl was cooler than the twilight wind. Jimmie tingled with a flood of quick emotion, pride for his buddy who was riding out there with Death perched beside him on the wing. Then, in Jimmie, rose a sudden heedless, berserk fury. He swung his arm back in an upward flashing arc, and brought his fist hammer-like against the pilot's temple.

With a groan the man collapsed against the stick, sending the plane into another dive. His limp arm brushed the throttle forward to "full on."

A thousand thoughts went flickering through Jimmie's brain in the first second of that sickening plunge. As in a dream he saw the white road, a snake that stretched to the horizon, grow larger—*larger—larger!* A car crawled along it and threw a flattened cone of light before.

Jimmie's head whirled like a spinning top and the wash of the propeller, tearing through the porthole, closed his nostrils. Fool—fool—he'd lost the game—and Atlee would help pay with his life.

Then, like the insistent tapping of a sending key, a train of words began to track their way across his brain. Words that meant—what did they mean?

"Rudder straight—stick centered between knees. Rudder straight—stick centered between—"

With a wild cry he swung the pilot's inert body from the basket seat, threw

himself into place, grasped the stick and slipped his feet into the rudder stirrups. He pulled the stick back just in time to avert a crash. The wheels brushed a tree as the ship leveled off.

Shrieking at the sudden checking of the ship's downward flight, its wires hummed with tension. Wing and fuselage groaned under the terrific stress. Out on the wing that figure still was clinging. As the terrific momentum of the dive slackened, the wing began to droop with Atlee's weight.

Sweat rained into Jimmie's eyes. He ducked beneath the cowling. The inert body on the floor beside him stirred and Jimmie saw beside the limp arm the long Colt. With a gasp, the cadet grabbed it.

The man sat up, blinked, and as the ship rocked suddenly, he glared at Jimmie.

"Take the controls and land her."

Jimmie knew his voice was lost in the roar and whine of the ship's prop and motor, but the pilot understood the meaning of that ominous, unwavering pistol barrel. As Jimmie rose, the pilot slipped into the basket seat, pulled the throttle back, leveled off and glanced down over the side.

The light was fading fast. They circled above the road in lazy spirals. A car stood by a blue-black sea of mesquite thicket. The pilot cut his gun, and at once the car's lights blinked out.

Jimmie stared down through the porthole. The terrain below was rushing up to meet him. Trees and plowed fields outlined themselves. Suddenly they were bumping gently on the earth again.

AS the plane taxied to a stop, a shadowy group of men ran up and a voice called roughly:

"Step out easy, Thompson—six Springfields waiting to speak to you."

With an oath the pilot unlatched the cabin door, lurched down. Jimmie, following, pushed past a squad of soldiers, and ran to the wing.

"Atlee!" he cried, emotion choking him. "Boy—I'm—" Words failed. After a moment he began huskily, "You—all right?"

Atlee rubbed his scantly covered poll. "My head—got cold," he drawled. Then, frowning, he went on: "I don't know why I climbed that wing. An awful chance—it sure worries me."

A hand touched Jimmie's shoulder and a stern voice said:

"Rhodes, I'd like my leather case—also to know why a cadet from Brooks is riding a commercial plane in company with a cattle thief who's been the scandal of the Border Patrol for two years back. . . . Looks like you're washed out."

Jimmie recognized the injured pilot who had entrusted him with the wallet. He motioned to Atlee.

"Unscrew the dagger," he said weakly. Then, stumbling incoherently, he told his story. When it was done, the man before him shook his bandaged head.

"If this is true—" at the look in Jimmie's face, he hastily amended—"I mean—well, it's hard to believe. But—you fellows have come through. You say you never flew a ship?"

"No, sir," said Jimmie.

The man's gaze in the gathering darkness held amazement. He swung round, motioned them away from the knot of curious soldiers.

"And you two—well, it's—it's—" he stopped, then began again: "We can't let this get out—that Thompson's caught, I mean. His partner, Soper, is still at large, and he's the brains of a big rustler gang. These papers are invaluable. A list of 'underground' cattle running stations along the river, and who's in charge. I blundered on to them by chance in Mexican Laredo from one of Thompson's pals who had a grievance. I can't let that be known—"

He halted, grinned quizzically at the two. "It goes hard with new cadets who miss 'Call to Quarters.' But if it goes too hard with you I'll try to ease things. I wasn't always just a fellow with a number for a name."

Then, stepping closer: "You see I went through Brooks and Kelly once myself, but, John Government said I'd have to do my flying with the Secret Service. If

(Continued from page 31)

you need me, ask at the Federal Building for—" he whispered—"Allen McHarg."

Jimmie stared with widening eyes. McHarg! The fellow who'd been—! He gulped. "You—" he whispered—"from V. M. I. That—that's my school too!"

"Forget that name when you write home, Cadet." After a pause, McHarg continued, "You two came through."

There was something in the simple words that thrilled them—even his peremptory, "And now, Dodos, beat it back to quarters."

SLOAN, Cadet Officer of the Day, was pecking out his report. The book, "Flying Cadet Orders," was propped up before him and he had nearly reached Paragraph 10, in which all absentees from "Call to Quarters" are set down with their demerits. He had a memo placed beside his machine and on it among others were the names of Rhodes and Atlee.

The Brooks Field mosquitoes, a sticking ribbon, and his inherent lack of typewriting ability had combined to make Cadet Sloan as pleasant as an angry hornet. So when the door behind him slammed, he sprang up suddenly to confront two much disheveled Dodos.

"Aha," he spat, smiling ogreishly, "missed call to quarters."

"Yes, sir," replied Jimmie and saluted.

"Been fighting, too. What about you, Cadet? Did you fight?"

"No, sir." Atlee's answer implied that at least he was above this vulgar thing—fighting.

Sloan considered him, gloating the while. "No—you don't look like a fighter. You held his coat, maybe? Oh, where are your caps?"

"Lost, sir," said Jimmie.

"Lost!" repeated Sloan. Then his manner changed like waves lashed into fury by a sudden squall.

"You two miserable ground flyers—you bad boys of Painted Post—what do you mean by coming here to Brooks? You thought the Flyin' Orders wasn't meant for you! You're Mama's plushy pups at home, ain't you? Well, *here*, you're Dodos *while you last*, and I'll give you two demerits each for missing call to quarters, three for losing articles of clothing, two more for failure to wear insignia—neither one of you has on your name tag—two for soiled clothing! And after I get this danged report done, I'll look over Section 2 on Discipline and see if I can't find some more to lay on. You better get your tickets home, 'cause what I'm going to do to you is *just too bad*. You'll never see the terrain around Brooks Field from any altitude above your nose—" he thrust his chin out in a final burst—"Understand? I mean you'll never have a chance to tell the old folks at Painted Post how *you* went up in a ship. Good night."

He swung round and struck the space bar violently.

Jimmie answered: "Yes, sir, O. D. We understand, sir." But as he turned back to the door, in his eyes there glowed a sudden spark, and when they gained the alley back of barracks, he looked up at the starlit sky and muttered softly:

"If we could tell *you*, O. D., how we *came down* in a ship, you'd be surprised!"

This is the first of a series of stories that will take you through the tense, joyous thrills of the Army Flying School at Brooks and Kelly Fields, in Texas. The next story, by F. N. Litten, comes next month.

They Gave the World Wings

(Continued from page 14)

of their laboratory to the plaudits of the crowd were greeted with such a panic of noise as New York had rarely known.

Honors fell in clouds on their shoulders. They received honorary college degrees; they were dined and officially received and welcomed and feted. On June 10, 1909, President Taft presented to them medals from the Aero Club of America, saying, "Many great discoveries have been accidents. But you Wrights have had no accidental discoveries—you have merely done what you set out to do."

There were still tasks to do. That government test, for instance. Under modified government requirements, they had to make a plane carry two men ten miles in fifteen minutes; for one that would do this, they were to receive $25,000. Orville, determined to prove that aviation was not unsafe merely because of the accident he had suffered the year before, insisted that the course be the same he had tried previously—a hilly, rough, wooded stretch of five miles that made flying doubly treacherous with its capricious air currents. On trial flights he made excellent records—once he smashed Wilbur's record for a ship carrying pilot and passenger by eight minutes. On the day of the big event a tremendous crowd was present; the President, other dignitaries, an astounding array of as many as five hundred automobiles!

And Orville, with Lieut. Benjamin D. Foulois as passenger, calmly cleaned his goggles, saw to it that the controls and other parts were in good working order, and sailed away for a ten-mile flight that won him the government contract and an extra bonus of $5,000 because his speed was two miles an hour above the forty demanded by government specifications.

XXII—More Flights, More Business

THROUGHOUT the summer and fall of 1909 Will and Orv continued their successful flights. But, true to character, they continued their cautious habits, also. One day Congress came in a body to see a flight at Fort Myer—a windy, raw day. The war department, eager to convince Congress that the airplane was a reality, had arranged the occasion; a good flight, they hoped, might mean a million-dollar appropriation. But they were flabbergasted when the Wrights declared that the day was too windy—they would not go up.

As one of the officials ruefully declared, "It takes more nerve to stay on the ground in front of this Congressional crowd, all set to see a flight, than it would to fly in a gale!"

On September 29, Wilbur "startled the nation" by flying around the Statue of Liberty in New York Harbor. Six days later he flew from Governor's Island up the Hudson to the farther end of Manhattan Island, high above the decks of the Atlantic fleet—he had converted his airplane into a seaplane by the simple expedient of lashing a canoe to the landing skids!

But the brothers had other things to do—they could not fly all the time. It was in 1909 that the Wright Company, a manufacturing firm to produce airplanes, was formed, with Wilbur as president, Orville vice-president. It was about this time, too, that they began to train other young men to fly for them. Ralph Johnstone, Walter Brookins, Arch Hoxsey, many others of national fame in the years that followed, were Wright pupils. The brothers, with the time gained by allowing others to make exhibitions for them, developed their business and looked forward to the time when they might have spare hours for further research.

Simplicity was still the keynote of the Wright system. In 1910 people wondered at a strip of cloth hanging from the front rudder of their plane. They explained that it was simply an indication of the air-direction—up, down, right, left—of the machine. To judge the height of a plane in the air they devised a yardstick with a sliding ring and a pair of pointers; they focused the pointers on a plane so that the wings just filled the space between them, looked at the scale—and knew the machine's height!

Business grew. There were more trips to Europe—Wilbur went in 1911 to consult with the German government about the construction of military planes. There

were details of production, legal tussels over patent rights, flying classes, sales problems, research. Then came tragedy.

About May 1, 1912, Wilbur made a business trip to New York. When he returned he complained of feeling bad. Before long he went to bed, ill.

At first it seemed to be just a slight indisposition—headache, slight fever and so on. But his condition did not improve. In a day or so the consulting doctors looked at each other gravely.

"Typhoid fever," they said.

It did not seem a bad case—not for ten days. Will was well cared for, with Orville, his sister Katharine, and his eighty-four-year-old father at hand. But about the middle of May the situation became serious. Doctors spent longer and longer hours in the little frame house. Newspaper men received discouraging reports. Reuchlin Wright, the oldest brother, was called from his home in Tongeanoxie, Kansas.

And, day by day, Wilbur grew weaker. At times his iron courage made him seem to rally. There were flashes of hope. But the flashes expired. On May 26, the doctors knew that the force of the disease was too great for the resistance of the fighting constitution. For four days, unconscious most of the time, this great scientist lay with his life-stream ebbing. Finally, early on the morning of May 30, he died. . . .

Telegrams and messages of condolence came from the entire world to the little Dayton home. The entire world mourned. Newspapers published many pages of articles about the Dayton bicycle maker who, with his brother, had given the world wings. In a dozen places came to life the suggestion that monuments to the Wrights be raised. In England, Claude Grahame-White, a famous British aviator, set about organizing a flying meet with a hundred flyers participating to raise funds for such a memorial.

And in all of the expressions of regret at Wilbur's premature death—he was only forty-five—was recognition that it was a partnership that was broken. Orville's share in Wilbur's work was not forgotten. "Wilbur Wright, who with his brother Orville invented the flying machine"—thus the newspapers put it.

XXIII—Orville Wright, Scientist

NEITHER Orville Wright nor his brother had ever, except through necessity, sought public notice; rather they had sedulously avoided it. Only when they felt it to be important to the success of their work had they consented to public exhibition and adulation.

Now, with the Wright Company a going concern, its Dayton factory jammed with great white wings, propellers, motors and accessories, there was little need for Orville to remain a public figure. Aviation was accepted by 1912. The world believed in it; and there were far more colorful flyers—Lincoln Beachey, Harry N. Atwood (who had proposed a trans-Atlantic flight as early as 1911, and in that year flew from Chicago to New York), Glenn Curtiss, Johnstone, Grahame-White, Hoxsey, scores of others—than the Wrights had ever dreamed of being.

Orville had another important reason for going into comparative seclusion. He had work to do. For Wilbur and he had outlined mentally a comprehensive research program. Orville's interest was in this program even more than in the manufacture of planes. He had succeeded to the presidency of the Wright Company; this position he found compatible with a certain amount of laboratory work.

So, although he had become a man not only of world prominence, but also of historical importance—a man whose name, with Wilbur's, was certain to be on the lips of children through later centuries as were those of Galileo, Benjamin Franklin, Gutenberg, Edison, Prince Henry the Navigator, Morse—he now devoted more and more of his time to experiments in his laboratory. He wanted, first of all, to take the next step in securing complete balance to an airplane in flight—the development of an automatic stabilizer.

"We always figured that a way could be found to make an airplane virtually control itself," he explained. "That is,

(*Continued from page 33*)

to the extent of almost entirely maintaining its own balance. That is what I'm after."

There were business cares, of course. The British Wright Company was organized in 1913, with Orville as chairman of the board of directors; in this year, too, Wright patent claims, over which there had been more than one squabble, were protected by court action in several nations where disputes had arisen. The business of the Dayton factory grew.

Then, in 1914, Orville announced completion of the "automatic stabilizer" on which he had been working. It was a device by which compressed air pressure controlled by a wind vane operated the plane's elevators. If the plane should tilt downward, the air pressed against the vane; it, in turn, released air pressure which worked on the plane's elevator and changed its angle so as to right the machine. For his further contribution to aerial knowledge he was awarded the prized Collier Trophy. But the stabilizer never came into general use: air authorities pointed out that, by this time, the airplane built on the Wright principle of inertness was extremely stable anyway. The truth of this was shown in later years when machines flew for periods of more than half an hour without the necessity for their operators to touch the controls.

IN 1915, Orville came even closer to retirement. He gave up his connection with the Wright Company, and sold its patents. The new company was called the Dayton Wright Company; Orville became a consulting engineer—albeit one whose main interest was of course in aerial engineering. He became, for a time, identified with a new airplane industry—the Wright Martin Company. But this did not last. Orville preferred to be completely his own master.

He was still receiving dozens of honors, invitations to dinners and conferences and conventions, a nation's homage. Whenever a new flying record was made—and they were weekly occurrences—his opinion was asked. When a different type of airplane was developed, he was called on to say whether it would fly. Could a man ever pilot a machine across the ocean? he was asked. How fast could a plane travel? Had he foreseen the use of planes in aerial combat? How many pounds of bombs could a big machine transport?

The trend of the questions became suddenly military: for the world was aflame in Europe, and in 1917 the conflagration reached America. In April the United States declared war; Orville was made a major in the aviation service of the army. And at precisely the time that Congress was deciding on war, Bishop Wright died —April 4, 1917.

That reduced the Wright household to two, Orville and Katharine. If their father's death had come at a time when there had been less excitement in the air, less work to do, it would have been even harder to bear. As it was, Orville plunged into war work—aero-science with special emphasis on death-dealing planes—with characteristic energy. Many of the developments in aviation that came from those hectic war years were traceable to the laboratories at McCook Field, the great army post that grew up at Dayton, with Major Wright as one of its leaders. Some day, perhaps, the full tale of the engines of destruction planned and perfected there will be told. But during the war and for years afterward they remained carefully guarded military secrets.

The war ended. Again Orville became a private citizen; and again he gave himself over to aeronautic investigation, to development of aerial instruments, to experiments. He was, for a term, president of the famous Engineers' Club of Dayton —a president who, in his meticulous attention to detail, often made meetings last twice as long as did other less precise officers! He built for himself a special laboratory—still on Dayton's West Side, at 15 North Broadway.

His office and his workshop in the low red brick building on North Broadway became the center of Orville's life. Demands on him never ceased; but he learned to weed out those that seemed unimportant or lacking in interest. In the workshop he carried out his experiments. There, too, he reassembled the first power plane he and Wilbur had built—the one that had flown and been wrecked by the wind on December 17, 1903. The Smithsonian Institute wanted that machine, to add to its collection of famous airplanes. But Orville, because, in 1914, officials in the Institution had permitted Glenn Curtiss to take the Langley "aerodrome," fit it with a new motor and fly it—its maiden flight—and because the machine was labeled "First to Fly"—refused to commit his machine to their keeping. In 1928 he sent it to an English museum, in the face of violent American protest.

AT his shop Orville received his friends, often. One whom he saw there was Edward H. Sines—the same "Jammees" who had been playmate and partner forty years before.

Orville's skill in mechanics, and his complete absorption in aeronautics, was again exhibited to Sines in two of those visits, a week apart. On the first of these, Sines told his old friend of a new adding machine he had just seen—a mechanical marvel, Sines said.

"How many keys has it?" demanded Orville quickly.

"Well, a lot—nine ones, nine twos and so on—"

"Too many," Orville mused. "I could make one—well, you wait and see."

Sines was in the shop a week later. "Remember what I was saying about an adding machine?" Orville asked. "Take a look at this—it shows what I meant."

And he displayed a rough working model of an adding machine that did all the work of the many-keyed machine—with only nine keys! Another example, that, of Wright simplification.

But Orville did not want to bother to develop his machine. Adding machines were not in his line; he was too much occupied with aeronautics.

At LeMans, in France, they had raised a monument to Wilbur's memory—a white marble shaft, the figure of a boy reaching toward the skies at its peak, and reliefs of Wilbur and Orville, together with the Frenchman who had been instrumental in bringing Wright planes to France, Leon Bollee, on the face of the column. It had been dedicated on July 17, 1920, with Premier Millerand the principal speaker.

And so, while Lindberghs crossed oceans and airplanes performed ever new and astounding feats; while mail and passenger routes became safe, regular and commonplace throughout the world; while flivver planes and giant triplanes, armored planes and pleasure planes, sea planes and planes of lightning speed made known strange peoples and visited perilous places; while business came to rely on aviation as an everyday necessity and the advance of the flying machine became an everyday phenomenon—

There worked in that Dayton laboratory, or in the secluded, off-the-trail camp in Canada he had acquired, a mild-mannered, blue-eyed man, a man who sought still greater advance in the science of flying; a man to whom monuments, after all, meant little, accomplishment much; a man who probably knew more about the laws of flight than any other who ever lived; the man who first made a crazy-looking mass of muslin, wire, sticks and machinery leap into the air and fly:

Orville Wright.

His name and that of his brother Wilbur are among the great. As nobody knew better than the Wrights, the possibilities of the airplane are veiled behind a screen that hides development beyond imagination. But when the screen is moved aside, when the last account of the development of mechanical flight by man is written, two names will head the list:

Wilbur and Orville Wright.

THE END.

Postponed, but coming in an early issue—"Olhiyu Remembers," by Kenneth Gilbert

$1000 in cash prizes for Boys

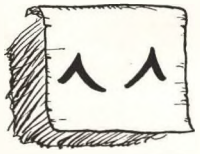
THE STORY OF FIGURES

Ahmes Writes a Handbook on Arithmetic

IT IS nearly 4000 years since Ahmes, the Egyptian scribe or writer, wrote the first known treatise on arithmetic. He called it "Directions for Obtaining Knowledge of All Dark Things." He called figures "dark things" because numbers were supposed to have magic in them.

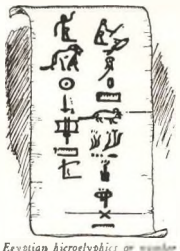
Only the priests were allowed to learn arithmetic and the book Ahmes wrote was considered sacred. For 2000 years afterwards nobody was allowed to contradict or add to it, so there wasn't much progress in arithmetic during all that time.

Of course Ahmes didn't write the rules of arithmetic straight out of his own head. He had old writings on the subject to refer to, some of which were written by the people of Babylon on bricks and some by fellow Egyptians on paper made from reeds, called papyrus.



These signs are supposed to represent pairs of legs walking. The Egyptians used them for the plus and minus sign.

But Ahmes knew a good deal. He had learnt a little about algebra and he was able to do sums in square root and fractions. It must have taken Ahmes a long time to work out problems because he used to draw a pair of legs walking forwards for the plus sign and a pair of legs walking backwards, or a flight of arrows, as the minus sign.



Egyptian hieroglyphics or number symbols from the Ahmes papyrus, representing a problem dealing with grains of corn, sheaf, mouse, cat, old woman. These words, cat, mouse, sheaf, grain, represent also the second, third, fourth and fifth powers of a quantity.

Speed in figuring was impossible in those days. In fact, it was not until recent times, only forty odd years ago, that real speed was possible. Then William Seward Burroughs invented the first practical adding machine which was ever so much faster and much more accurate than even figuring with a pen or pencil.

Watch a modern bookkeeper using a Burroughs Adding Machine or a Burroughs Bookkeeping Machine. The automatic features of the machines and the SPEED with which these machines can be operated will seem almost as magical to you as a simple problem did to the ordinary people in the time of Ahmes.

A Burroughs Adding Machine

One of the many kinds of adding, bookkeeping, calculating and billing machines built by the Burroughs Adding Machine Company.

Nowadays these machines and many other Burroughs machines are considered practical necessities by progressive business men. Ninety-eight per cent of the banks and hundreds of thousands of people in all sorts and sizes of businesses use them. One reason is—speed.

BURROUGHS ADDING MACHINE COMPANY
BURROUGHS AVE., AND SECOND BLVD., DETROIT, MICH.

Burroughs

Send for this Free Book: A beautifully illustrated book called "The Story of Figures" and giving the history of figuring from the earliest times will be sent *absolutely free* to any boy sending in this coupon. Print your name and address clearly on the margin of this coupon and mail it to the Contest Judges, Burroughs Adding Machine Company, Burroughs Ave. and Second Blvd., Detroit, Michigan. You will find facts in this book which may help you win one of these cash prizes.

NAME ADDRESS CITY STATE

THE CONTEST RULES

1—The contest is divided into two groups with an equal share of prizes awarded to the winning entries in each group. Boys who are 15 and not more than 18 on March 31, 1929 are eligible to compete in Group No. 1, while boys under the age of 15 on March 31, 1929 are eligible to compete in Group No. 2. Those whose immediate families are in any way connected with the Burroughs Adding Machine Company are ineligible.

2—There are just two things to do:

First, find in each Burroughs advertisement appearing in this magazine in the November, December, January, February and March issues the five key words which reveal the reasons for the dominant success of Burroughs machines. For example, by carefully reading this advertisement you will notice that *speed* is the key word. The remaining four will appear in succeeding advertisements and will be just as easy for you to find. List these five key words.

Second, in not more than 250 words write an essay on the following subject: "*Why I should expect to find Burroughs equipment in any business I may enter.*"

3—For the correct list of key words together with the best essays received from each of the two competing groups the following prizes in cash will be awarded:

1st prize	$100
2nd "	50
3rd "	30
4th "	20
5th "	15
6th "	10
55 seventh prizes of $5.00 each	275
Cash Prizes for Each Group	$500

TOTAL PRIZES $1,000

Additional Awards of Honor:

The winner of the first prize in each group will be further honored by having his name inscribed on a Burroughs Portable Adding Machine which will be awarded to the school he attends. In the event that he has left school it will be awarded to the school he last attended. These machines will be presented to the School at a public meeting by the local Branch Manager of the Burroughs Adding Machine Company.

Note: Write at once to the Contest Judges, Burroughs Adding Machine Company, Burroughs Ave. and Second Blvd., Detroit, Michigan, and ask for a copy of the free book "The Story of Figures." Read this fascinating book carefully from cover to cover. It will give you all the facts necessary to the writing of a good essay and winning one of these substantial prizes.

Conditions: The five key words and essay must not be mailed before March 1st, 1929. All five key words must be seen before you can list them correctly. The advertisement containing the final key word will not appear in this magazine until the March, 1929 issue. Contest closes midnight March 31st and no entries will be accepted postmarked after that time. Address all entries to Contest Judges, Burroughs Adding Machine Co., Burroughs Ave. and Second Blvd., Detroit, Michigan.

Write plainly on one side of the paper, using either typewriter or pen and ink. At the top of the first sheet of your essay write your name and address, and give the age you will be on March 31st, 1929 and give the name and address of the school you attend or the one you last attended.

You may obtain information that will help you from your parents, from your school-teacher or any source you wish. But the essay itself must be your own original work. Prizes will be awarded strictly on merit, including correctness, neatness, and clearness.

All essays become the property of the Burroughs Adding Machine Company and may be used in advertising or otherwise. None will be returned. Each boy will be limited to one entry only.

Prizes will be awarded June 1, 1929. Announcement of winners will be published in the American Boy Magazine in the October, 1929 issue.

The judges will be JOSEPH BOYER, *Chairman of the Board, Burroughs Adding Machine Co.*, G. OGDEN ELLIS, *Editor, American Boy Magazine*, LOUIS C. KARPINSKI, *Professor of Mathematics, University of Michigan*. Their awards will be final.

Away She Goes!—

At Lightning Speed

Lights a'flashing!—motor humming!—over bridges, through tunnels—stopping, starting, reversing—because of Lionel's 100% "Distant-Control"—that *powerful, masterful, beautiful* LIONEL!

SHE'S a giant of power!—unbeatable for speed and strength!—her magnificent locomotive overflowing with electric energy such as no other model electric train in the world possesses!

How true to life these trains are! How colorful!—so real in appearance that model railroading has all the excitement of real railroad engineering.

The big, massive LIONEL locomotives—they're actual copies of famous trans-continental flyers—perfect in detail from the pantographs to the journal boxes.

That's the kind of realism you want in your train—and only LIONEL can make trains like this.

Turn a LIONEL locomotive upside down and look at the motor! Compare this powerful, mechanical and electrical masterpiece with others. You will see instantly the infinite perfection that LIONEL has achieved in motor construction.

And what beautiful cars—they are finished in brilliant enamel colors that never wear off or grow dull—trimmed with brass and finished to look like real trains.

And say!—Lionel's 100% "Distant-Control" is sweeping the country. No live boy wants to be without it! Everything's done electrically—controlled by you from the switch tower through a series of levers.

You can start, stop, switch and reverse your train at any speed, at any distance from the track. It's the most marvelous fun in the world!

Get the catalog, boys!—see the new "Bild-a-Loco" that you can take apart, the "Hell Gate" Bridge, and the new Power Station. It's full of surprises! Write for this wonderful 46-page railroad planning book today! It's free! Send us Dad's name and we will write him a personal letter telling him why he should get a LIONEL Electric Railroad for you and how little it costs.

THE LIONEL CORPORATION, Dept. 3 15-17-19 East 26th Street, New York City

No. 381E. One of the three new Lionel "Bild-A-Loco" engines available for "Lionel Standard" and "O" gauge railroads. Their powerful reversible motors can be removed—taken apart—or used as a stationary 3-speed power motor. There are no wires in the motors, all electrical connections being strong spring contacts.

No. 79 Lionel Flashing Signal is copied from the newest electric railroad designs—with alternate flashing lamps on cross-arm and light showing through holes in base.

Another realistic touch for your Lionel Railroad is this handsome illuminated station No. 128 mounted on landscaped terrace which measures 31⅛" x 18". Note the handsome light fixtures, and masonry detail. Platform without station can be purchased separately.

FREE

Every boy will want a copy of this marvelous new 46-page Lionel Railroad Planning book and catalog printed in full color so that all trains and accessories may be seen in actual color. It is free—write today.

LIONEL

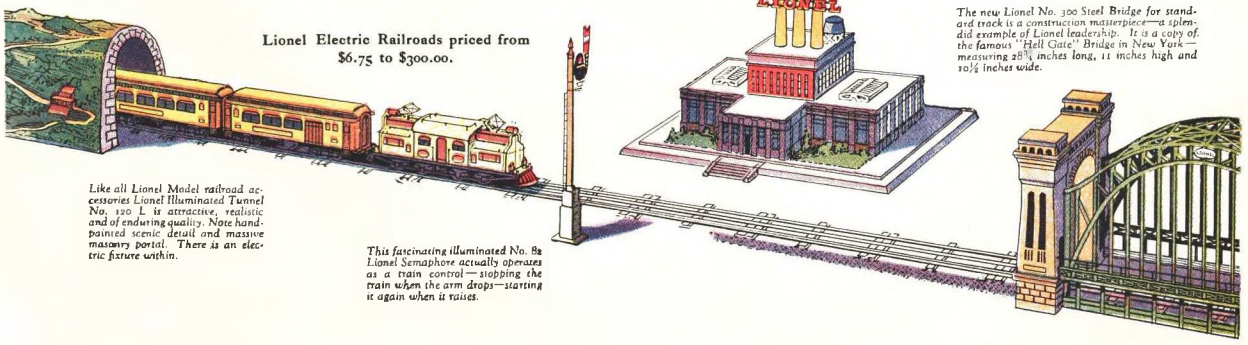
ELECTRIC TRAINS

MODEL RAILROAD ACCESSORIES

"MULTIVOLT" TRANSFORMERS

In this massive new Lionel Power Station No. 840 provision is made for accommodating one or two Lionel Transformers, from which 100% "Distant-Control" Railroads may be operated. A Panel Board on one side of the Power House contains six knife switches for illuminating and operating electrical accessories. Steel construction throughout. Enamel finish. Length 26 inches, width 21½ inches, height to top of smoke-stack 18 inches.

Lionel Electric Railroads priced from $6.75 to $300.00.



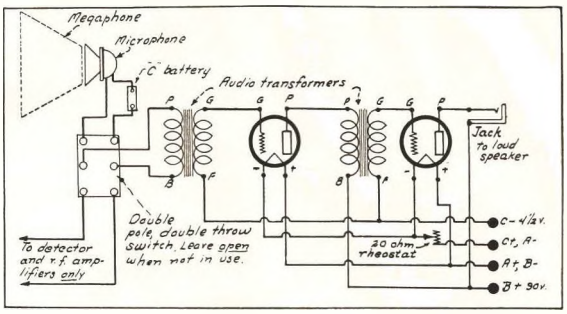
The new Lionel No. 300 Steel Bridge for standard track is a construction masterpiece—a splendid example of Lionel leadership. It is a copy of the famous "Hell Gate" Bridge in New York—measuring 28¾ inches long, 11 inches high and 10¼ inches wide.

Like all Lionel Model railroad accessories Lionel Illuminated Tunnel No. 130 L is attractive, realistic and of enduring quality. Note hand-painted scenic detail and massive masonry portal. There is an electric fixture within.

This fascinating illuminated No. 82 Lionel Semaphore actually operates as a train control—stopping the train when the arm drops—starting it again when it raises.

Throw a Radio Party

By William F. Crosby



WANT to have some fun with your friends? Make yourself a two stage audio amplifier, connect it with a microphone in an upstairs room, and hitch the outfit to a loud speaker in your living room. Then invite your chums over to enjoy an astonishing radio program.

Arrange a double pole switch up in your "studio"—the drawing shows how to hook it up—and you'll be able to alternate between the regular radio set and your own microphone at will. For instance, you can tune in on an orchestral selection over the regular radio. At its conclusion, switch over to your own microphone and tell your unsuspecting friends down in the parlor that Station Blank, two thousand miles away, is broadcasting especially for the party. Name some of the guests. Then proceed to give your listeners a program of real and fake selections that will keep them grinning and scratching their heads.

A mouth organ, you'll learn when you experiment, sounds like a big church organ, after it travels from the "mike" in your studio to the parlor. If you need a little static, just snap your fingers, or whistle.

You may have trouble locating a "mike" for this stunt, but if you try the radio stores, your friends in the telephone company, or someone who has an old set of intercommunicating phones you'll be able to get one. Old Signal Corps "mikes" could once be bought for half a dollar or less—perhaps a neighbor has one.

Two suggestions: If the microphone cakes up and refuses to operate, shake it vigorously. If it still acts balky, reduce the battery voltage on it.

Here's a caution. Don't—in your rehearsals—place the loud speaker too close to the "mike." If you do, they'll act on each other until a terrific howl is set up. Keep the horn and microphone as far apart as possible.

Learn to See It All!

(*Continued from page 18*)

spectator, and watches both teams like a hawk. Sometimes, as he might do at a theater, he uses glasses. To all intents and purposes he is an ordinary paid customer, and if he sees more than the man next to him it is because he has trained himself to observe the byplays. Any boy can do the same, and thereby teach himself to enjoy the game in a way that is completely unknown to the novice.

Just what does a scout look for? Suppose yourself to be watching a game, and I'll tell you. We'll consider the offense first. On the kick-off, that'll be the side that receives the ball.

See how the receiving club lines up. Many teams put the center right in the middle of the field, with the guards flanking him, but close to the side lines. They station the ends on the 30-yard line, the tackles on the 20, and the backs, who are usually the best ball carriers, just inside the goal-line.

Some teams play their first line farther back, but that has its disadvantages. I once saw a high school team post its first wave on the 40-yard line. The kicking team promptly booted the ball to the side, gently. After it had gone ten yards it was theirs if they could get it, and they did. First down for them on the enemy's 48-yard line!

Usually, however, the kick-off goes as high and far as the kicker can drive it. Notice who receives it. Is he exceptionally fast? If so, maybe your own team, when you play these fellows, had better kick the ball to somebody else. How does the interference form, and who composes it? Who are the speediest men? What style of open field blocking does this offense use—shoulder to shoulder, or the side swipe? Do they keep their feet or do they seem to prefer the rolling block?

To good teams, all these points are extremely important. There's a lot of strategy in the kick-off. Four years ago, when "Red" Grange was galloping roughshod over Big Ten teams, Michigan got ready to kick to Illinois. It was the first play of the game. Grange, a slim, nonchalant figure, was leaning against the goal posts. The ball shot up in the air, the Michigan players rushing down behind it. It dropped squarely into Red's waiting hands, and when he stopped running he was just 100 yards ahead of the spot he started from. Illinois 6, Michigan 0!

That flashing run did a great deal to shatter Michigan's morale, and Illinois kept scoring, all through the game. The final count was 39 to 14. If the kick-off had been aimed at some other Illinois player the ball probably would have been downed on the Illini 15 or 20-yard line, and Michigan would have got off to a much more favorable start. So watch every detail of the kick-off.

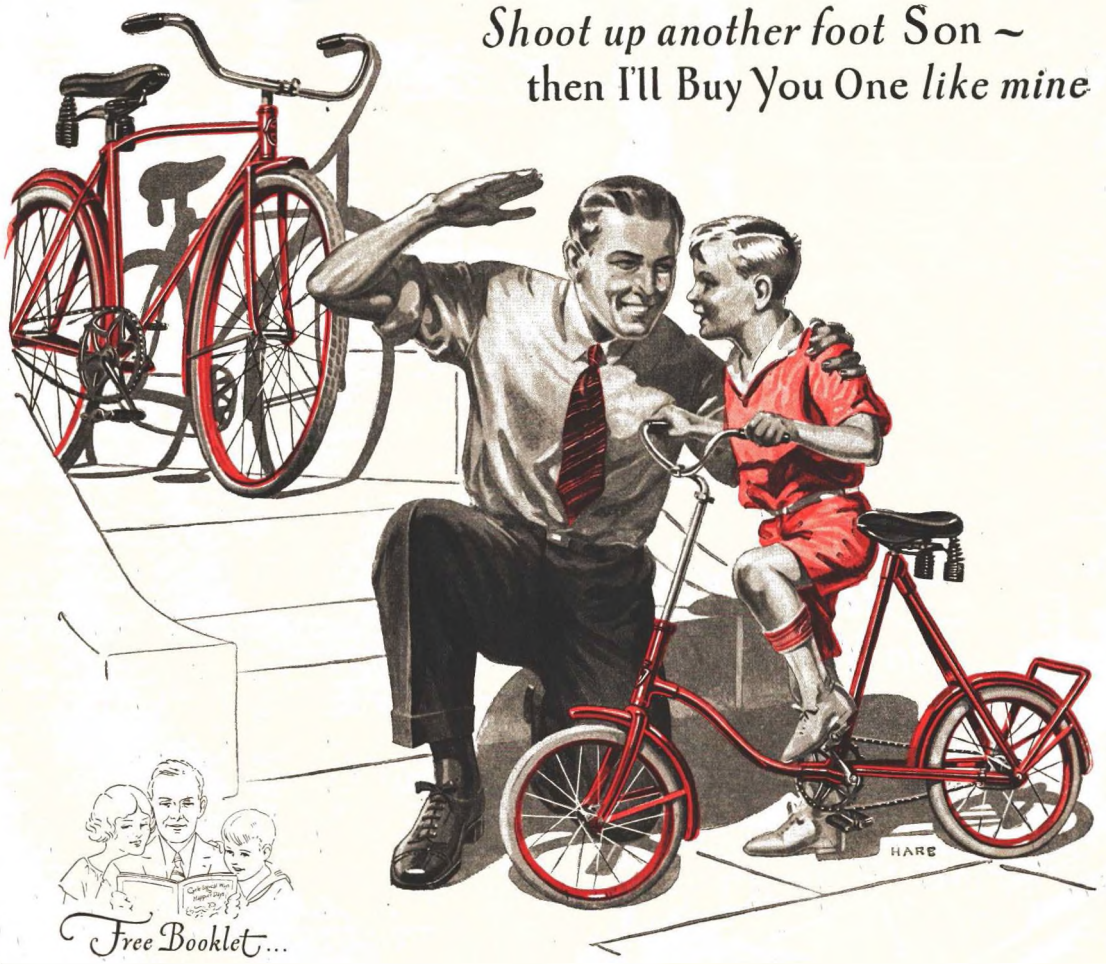
Pay attention to the kicking team, too. How competent is the kick-off man? How far does he usually kick? How many men has he on either side of him and which men, going down the field, are the fastest? Which are the surest blockers and tacklers? You can't discover all this in one kick-off, of course. But there'll be several before the game is over.

NOW the teams are lining up. We're watching the offense, remember. Scrutinize the line. What is their offensive stance? If they are a "four-point" or "sprint start" line, they'll be taking the position of sprinters on their mark. They'll be crouched with the tips of their fingers touching the ground, the legs close together and gathered for a spring straight ahead. Such a line will always start from a "narrow base," feet close together. Perhaps you'd like to prove that statement

(*Continued on page 40*)

Ride a Bike . . .

Shoot up another foot Son ~
then I'll Buy You One *like mine*



Free Booklet . . .

"Cycle-Logical Ways to Happier Days"

A Post Card Brings It to You

A handsomely illustrated booklet with pictures of America's greatest athletes and why they think there is nothing like cycling for combining the greatest fun ever with splendid exercise—both interesting and instructive.

Just write your name and address on a postal card and mail to

The Cycle Trades of America

Room X-205, Fisk Building, 250 West 57th St., New York City, and you will receive one of these booklets promptly.

My Dad's my pal and so he likes
To talk with me about our Bikes;
My Dad can golf and box and run,
But he thinks that Biking's the greatest fun.
And he says to me, "Stick with it, kid,
And train for a goal as your Daddy did."

Your Local DEALER will show latest models

(Continued from page 38)

to yourself. Crouch with your feet widely apart, then try to get away fast. It can't be done.

A sprint start line, you'll find, charges straight ahead, at high speed, with bodies low. Often the heads are down and the eyes closed. There are two good ways to oppose such a line. One is with lateral pressure. The sprint start line plays very compactly, and a husky shove, from the side, will turn it inward and make it sprawl all over itself. Two guards and the center, if they're onto their job, should flatten such a line in jig-time.

Another way of combating sprint start linesmen is to jump between two of them, shove their heads apart, then wedge your shoulders between them, and follow it. Such "knifing" won't spill them, but what do you care about that, if you nail the runner?

Notice, as the offensive line gets ready for another charge, which foot is forward. Often that will tell you in what direction the pressure is to be applied, and hence just where the play is going to go.

Perhaps the line charges very low. In that case a defending linesman, who is allowed to use his hands, can put one husky paw on his advancing opponent's head or neck, flatten him, and go on through.

Watch the line, too, on kick formations. How wide are the ends playing? This is important, because a little later in the season you'll have to take them both out, if your safety is to return the ball very far. If the ends are playing close, perhaps the kick won't be a kick after all. Maybe it'll be another running play, especially if it's the third down.

Just what does the line do in the running plays? Who makes the holes, and when and how? Does the end come in and take out the tackle, or does he dive through and block off a defensive back? Does the offense occasionally use an unbalanced line? If so, who shifts, and how? Is there any cross blocking?

Not long ago I scouted a bitterly fought game at Madison, between Wisconsin and Purdue. Purdue used a particularly effective play inside tackle, and I couldn't quite figure it out. After the game I chatted with a Purdue student, a chap who sat next to me in a street car. He seemed to know the Purdue system pretty well, and he told me that the secret of that play, he thought, was Purdue's clever cross blocking. Eureka! That was it! The Purdue end would rush at the Wisconsin guard and block him in, while two backs took the tackle out so that the play could shoot between. Simple enough, yet I had overlooked it. Watch for these cross blocks.

Watch the offensive center. Do his actions give away the play? If he stands on the balls of his feet, instead of flat-footed, he has to gather himself and sway a bit forward before he can snap the ball. That gives you a warning. Usually he'll accentuate this swaying when he's going to make a long pass, and you know then that the ball is to go back, perhaps for a kick.

Every man on the offense may be useful to you, when you're trying to find out just where the play is to go. A shifting of the foot, a tautening of leg muscles, a hasty glance at the flank—it's extremely hard for a player to keep from tipping you off. As a popular song expressed it: "Every little movement has a meaning all its own." A certain famous end, a bear on defense, never could be used on end-around plays. He simply *had* to pull back his inside foot, just as the ball was about to be snapped, so that he could get a quick start. Of course he "telegraphed" the play, every time.

Find out who, in particular, are the strong men on offense. Usually if your coach can know in advance that one of the enemy linemen is exceptionally powerful, he can arrange to oppose him with two men. It takes a pretty husky player to handle two opponents, and generally they give him a ride. Wickhorst, the Navy's All-American tackle, was ordinarily taken care of in this way.

Harvard, scouting Princeton a few years ago, was dismayed to find that the Tigers had a tackle who apparently couldn't be stopped. He weighed close to 230 pounds, and his beef didn't keep him from being fast on his feet and fast in his head. As a rueful scout put it: "He squashes the end with one hand, kills himself a couple of backs, and then grabs the runner, every time."

The coach—he happened to be no less a celebrity than the late Percy Haughton—gave that tackle a lot of thought. He decided, with good reason, that there was no use attacking him from the front. Too much like trying to push a locomotive off the track. But there were other ways of dealing with him.

WHEN the big Princeton tackle came up against Harvard he got the surprise of his life, and this was the play that ruined him. The quarter, standing well back, received the ball from center and at once spun halfway around, bending over. Another back spun around at the same time, bent over, and faked to his team's left, which was the side of the line the great Princeton right tackle was playing against. When the tackle came galloping through, snorting like a mad bull, the Crimson right end came shooting behind his own line and hit the invader with a lateral block. Of course he wasn't expecting trouble from the side, and he hit the dirt with a mighty thud. Then the quarter turned, *walked* through the hole left by the tackle's departure, and broke into a run.

Harvard used this play time and time again, during that game, and the bewildered Princeton tackle never found out who was taking him out! This was the beginning of Haughton's famous hidden ball play. . . . There's usually a way of dealing with the tough ones, if you know in advance who they are.

Watch for the quick kick. This play, which gives the ball to the opponent forty or fifty yards down the field and which is a morale builder for the team that uses it, is one of the most spectacular in football. A back, not necessarily the team's regular punter, receives the ball close to the line, "fades" quickly backward without rising from his crouch, then boots a long low one over the heads of the secondary defense. It's a surprise play, the ends and backs go down, and before the ball stops rolling opponents have lost half the length of the field. If you can tell your team all about this quick kick—what the formation is, who kicks, and so forth—you'll have done it a real service.

Watch formations and plays. Observe carefully the backfield. Where does each man play? How does the play start? Usually you'll do well to watch the *back man* in any formation. See if he "points" the play. Study the peculiarity of backfield stars—often the whole offensive is built around them.

Take down the distinguishing features of each formation and play so that when you see it next time you'll know what's coming. Most coaches are more interested in getting formations than in getting plays. If they are given a formation correctly, they will know how to stop all plays developing from it.

Remember that each play has its own carmarks, and if you discover those you'll be able to classify and identify it. For instance, if the offensive shifts to an unbalanced line, and three of the four backs are concentrated behind the strong side, you may be pretty sure the play will be in that direction. Remember, too, that seventy per cent of all plays go to the right. Most men can run in that direction better than to the left. The great Walter Eckersall, for one.

Now let's look for a moment at the defensive team. Much of what has been said about the offense will apply also to it. But there are other things to look for. For instance, how do they meet a kick formation? Do they put two men on the tackle, one to go through? Does the guard try to yank his opponent through the line, to open a hole for a teammate? A right-footed kicker needs most protection on his right; does the defense threaten particularly on that side?

What about the backs? Are there any who are poor on tackling, easily blocked

(Continued on page 42)

Hello boys! Send for your free copy of A.C.GILBERT'S SPORTS BOOK

Tells all about the new 1928 ERECTOR worlds sports and champions

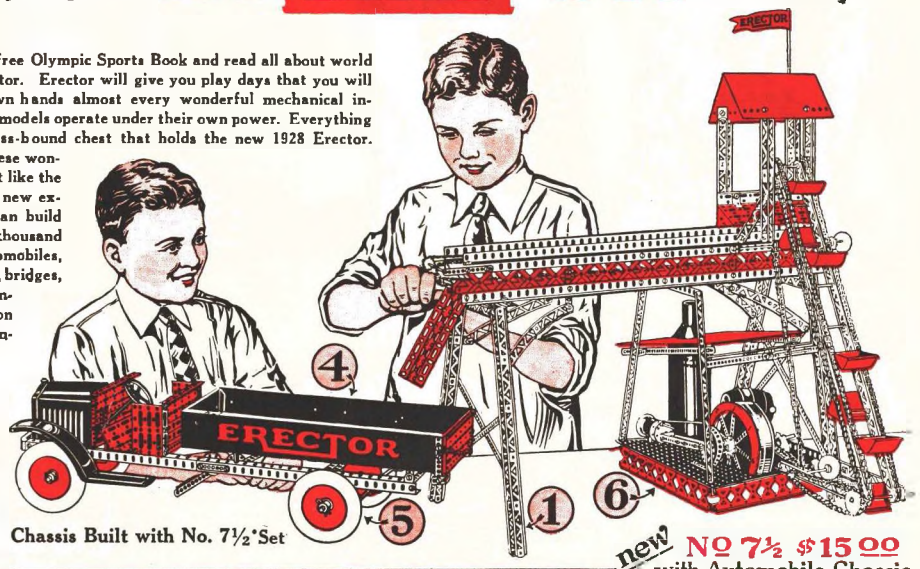
Boys:—I want you to send today for my free Olympic Sports Book and read all about world famous athletes and the 1928 greater Erector. Erector will give you play days that you will never forget. You can build with your own hands almost every wonderful mechanical invention you can think of and have your models operate under their own power. Everything necessary lies beneath the cover of the brass-bound chest that holds the new 1928 Erector. Think what a thrill you will get building these wonderful models that whiz and hum along just like the big ones engineers build. With its many new exclusive and feature patented parts you can build and operate, one after another, over one thousand working models, including airplanes, automobiles, trains, steam shovels, locomotives, derricks, bridges, hoisting machinery, power plants, and construction equipment of every description and kind. Learn about this toy that engineers call the World's Greatest.

A.C.Gilbert

A. C. GILBERT'S RADIO SPORTS TALK

Get in on these big radio thrillers. Every Monday night, beginning Nov. 5th at 6:30 Eastern Time, 5:30 Central Time. Pick out your station now.

WEAF—New York
WTIC—Hartford
WJAR—Providence
WTAG—Worcester
WCSH—Portland, Me.
WFI—Philadelphia
WRC—Washington
WGY—Schenectady
WGR—Buffalo
WCAE—Pittsburgh
WTAM—Cleveland
WWJ—Detroit
WSAI—Cincinnati
KSD—St. Louis
WOC—Davenport
WHO—Des Moines
KOA—Denver
WHAS—Louisville
WSM—Nashville
WMC—Memphis
WSB—Atlanta
WBT—Charlotte
KVOO—Tulsa
WOW—Omaha
WCCO—Minneapolis-St. Paul
WTMJ—Milwaukee
WFAA—Dallas-Ft. Worth
KPRC—Houston
KYW—Chicago
WOAI—San Antonio
—Boston
—Kansas City



Chassis Built with No. 7½ Set

new NO 7½ $15 00 with Automobile Chassis

Why the New 1928 ERECTOR is the world's greatest toy

PATENTED TRUMODEL FEATURES

1. Erector Square Girder. Like real girders engineers use in making Skyscrapers and Bridges. This big exclusive Erector feature makes sturdy and strong models. In all Erector Sets.
2. Erector Motors. Powerful battery motor in No. 4, 77, and 7½. Famous Polar Cub 110 Volt Universal Motor in No. 8 Trumodel Set and up.
3. Completely assembled gear box. Adaptable to every possible gear combination, and for reversing movements. Convertible into 3-drum Hoisting engine. Standardized for use with either battery or 110 volt Motor. Included, assembled, in the Famous No. 4 Set and up.
4. Heavy Solid steel Truck Body. 14⅞ inches long. Complete unit part. Exclusive Erector feature. In No. 7½ Set and up.
5. 3¾ in. solid steel disc wheels with balloon tires—an exclusive Erector feature.
6. Big Giant Channel Girders—straight and curved. Exclusive Erector feature. In No. 77 and up.
7. Large solid steel model building tray. Pierced with Erector standard holes for model building. Exclusive patented Erector feature.

OTHER EXCLUSIVE FEATURES

1. Patented Erector Steam Boiler. This feature makes possible the building of hoisting engines, steamboats, fire engines, locomotives, etc. In the Big New No. 77 and up.
2. Erector Steam Shovel. In the Big New No. 77 and up.
3. Erector Dredge Bucket. In the New No. 10.
4. Tip Bucket. In the No. 8 Set and up.
5. Patented Curved Erector Girders. In all sets.
6. Patented Giant Fly Wheel. In No. 10 Set.
7. Perforated strips, four holes to the in. In all sets.
8. Erector gears. Complete assortment including Pinion, Crown, Flat, Mitre, Helical.

A FEW OF THE MANY OTHER FEATURES

Boiler Plate, Bull Ring, New Chain Bucket, Segment Plate, Ratchet, Cone Pulley, Cams, Rack, Machine Frame, and hundreds of other genuine perfect mechanical parts, mostly patented, for duplicating every engineering feat ever attempted. Possible with no other toy but the New Erector.

Contains more parts, builds more models than any other construction toy.

Made from structural steel—plated, brilliantly enameled in colors, and electrically baked.
Designed, used and endorsed by engineers.

Mechanical features correct—only correct method of reproducing engineering feats.
Perfectly interchangeable, owing to minute details of standardization.

Last, but not least, most Erector sets are packed in big red brass bound chests.

Here's the set I know will give you the greatest thrill you ever had. Fun? Oh, Boy! It's the real thing and there are hours of real sport waiting for you. From this great assortment of patented, feature Erector Parts, you can build 749 models. Automobile chassis, tractors, scooters, service cars, fire engine, and a hook and ladder are only a few. Packed in a big red brass-bound chest, has solid steel 14⅞ inch truck body, combination solid steel model building tray, 100-page manual, powerful motor, assembled gear box, steel disc wheels, with balloon tires and every necessary automotive accessory—in fact, 25 lbs. of scientific thrills for every day in the year.

Famous ERECTOR Sets Consist of

No. 1—Dandy Beginner's Set. Larger size, contaiant more parts, builds 460 models. Price $1.
No. 3—The set with the Gears and the Big Red Wheels. Builds 562 models. No reduction in parts—Price now only $2.50.

THE BIG FOUR

THE FAMOUS NO. 4—with powerful electric motor and completely assembled gear box. Contains more parts, builds 680 models. Price $5.00.
THE NEW BIG 77—Builds the Steam Shovel. Contains big steel model building tray, motor and gear box. Builds 727 models. Price $10.
THE WONDERFUL NO. 7½—Motorized Erector. The set that builds the Chassis. Contains more parts, builds 747 models. Price $15.00.
NO. 8 TRUMODEL SET—with 110 Volt Universal Polar Cub Motor. Contains all features described above, more parts, builds 827 models. Price $25.00.
No. 10—The set with the Giant Fly Wheel. Contains every feature—over 2000 pieces, with 110 Volt Universal motor and builds unlimited models. Price $50.

THE NEW FAMILY OF ERECTOR ACCESSORY SETS

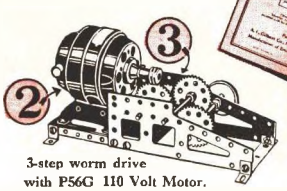
"B" Set—Big Girder Set. The set that builds the Ferris Wheel. Builds 57 models. Price $8.50
No. 3005 Electrical Set—Electrifies and illuminates. Price $5
No. C—Erector Airplane Set. Price $10.

SENSATIONAL NEW 1928 FEATURES

Real Engineering Thrills

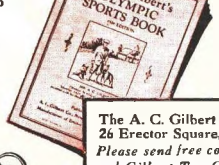
1928 marks a higher new World's standard. My enthusiastic boy friends have inspired me to greater accomplishments. I am presenting to you these latest achievements—they are

1. **Multi-Unit Control—gives realism to models and insures successful operation.**
2. **Famous 110 Volt Universal Polar Cub Motor.**
3. **Patented Machine Frame Foundation. A new exclusive Erector control part. Adaptation of this part makes it possible to build genuine machinery models.**
4. **New Giant Channel Girder—straight and curved. Adapted from the famous patented Erector Channel Girder and embodying all its features. Electrically baked in bright red.**
5. **Duplex Base Plate. Double standard holes, making it possible to use axles of two sizes and also increase the adjustment adaptability. An exclusive patented Erector feature.**
6. **Cone Pulley, Helical Gear, Cams, Rack, etc.**



3-step worm drive with P56G 110 Volt Motor.

FREE! *Send for it!*



You will want to know all about this greater 1928 Erector. It is easy to get the whole story, together with a series of exciting sports talks by America's most famous athletes. All between the covers of A. C. Gilbert's brand new book that comes free to your door for the asking.
The little coupon below brings this free book to you. Just write in your name and address and mail the coupon today.

The A. C. Gilbert Company, New Haven, Conn.
26 Erector Square,
Please send free copy of A. C. Gilbert's Olympic Sports Book and Gilbert Toy Catalog.

Name .....
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(Continued from page 40)

out, or weak against the stiff-arm? If so, note them. They'll be easy pickings for your team's interference. Which defensive player blocks which? Which backs penetrate the secondary and which stay where they are?

Which type of defense does the secondary use? If it's the square, or "box," kind, it's likely to be especially strong against a running attack or short passes, but weak against long passes, and surprise punts. If it's the diamond type, with the safety at the point that's farthest from the line of scrimmage, it can send only three men to back up the line, but it has a better protection against quick kicks, long passes, or the man who breaks away.

OFTENTIMES you can learn quite a bit about a team by observing it in practice before the game starts. One time I was in my seat and watching a certain club warm up when I was struck by the exceptionally clever passing of the left halfback. He handled the ball so well, in the two or three passes that I saw him make, as to convince me that he'd be effective in scrimmage. He didn't pass, during the game, but several times he was used, as a part of a running formation, in a position that would let him pass. So I ticketed him as a probable passer, and sure enough, in our game, he turned out to be. But we were all ready for him.

It's quite common, early in the season, for teams to perfect a certain play and then, in a final game, turn it into another, and unexpected play. Once I became particularly interested in what appeared to be an ordinary running play, off right tackle. The odd thing about it was that the left end always left his place and trailed the play. He was too far behind to do any good, yet he always followed.

It didn't require any Sherlock Holmes to see what was up. That team was using a "chaser," who apparently didn't figure in the play, just to disarm the opposition—to accustom them to seeing but disregarding him. So when they tried this play on us, and when the hitherto harmless chaser suddenly straightened up and received a lateral pass, we smeared him.

You can learn a lot about your opponents through the newspapers. I have generally found the accounts in the daily papers quite inaccurate, both because many sports writers don't know football, and because coaches usually suppress the really vital news about their squads. The college or school newspaper usually prints more authentic information. I buy newspapers, after a game, to get their statistics—how much yardage different players gained, the average length of punts, and so forth. But for very little else.

Once when I was assisting Iowa's head coach, Jess Hawley (he's now at Dartmouth), I read about a peculiar trick play that a kid team had used on a sand lot. The offense, on its opponents' five-yard-line, pulled it. The captain of the attacking team suddenly shouted. "We get a penalty," picked up the ball, and walked through the line for a touchdown.

I took the account as a huge joke, and laughingly told Hawley about it. What was my surprise, that same afternoon, to find the varsity rehearsing the play!

They tried it against Nebraska when a few yards would have given them a badly needed touchdown. The Iowa quarter, Sammie Gross, picked up the ball, but the umpire grabbed him around the waist and shouted: "You can't do that!" Of course we could, and had even gone so far as to notify all the officials, including the umpire himself, that we were going to do it. But the umpire held on, and by that time one of the Nebraska backs had come to life and also grabbed Gross. To this day if you want to make Coach Hawley rave, just mention that game... The following year we worked this play against Iowa State and Northwestern.

If you keep in mind that any team's strategy largely depends on its position on the field, you'll soon find yourself correctly anticipating its plays. An offensive team in its own twenty-yard zone must be a cautious team. Against a strong opponent it will work slowly, keeping its line and team in perfect rhythm. Above all things it strives not to make mistakes. It plays conservative football.

Between the 40-yard lines the offensive team is in clover. This is the zone for trick plays. Here you will find diversified football — short and long passes, slants and veering plays, shifts and all the other devices for making quick yardage. Shifting teams love this zone, because their forward passing threat keeps the defense from reinforcing its line. They buck when the secondary spreads out, and pass when it plays close.

A good quarterback in this trick play zone, if he should be fortunate enough to gain seven or eight yards first crack, will experiment on his second down, trying to find a weak spot in the line. Through this weak spot, when he gets close enough, he'll try to thrust his scoring play.

The last 20 yards is the scoring zone. Here the attacking team will use its strongest plays, some of them, probably, the ones that have previously been its best ground-gainers. Perhaps it's a fake pass, that keeps the anxious secondary fanning out while the fullback crashes the line for three or four yards. Maybe it's a pass to the flat zone, that region around either end of the line of scrimmage that is often left unguarded. Or a longer pass.

Perhaps, if a field goal will win the game, or break the morale of the opposing team, the offense will forego its chance for a touchdown, and kick. Ordinarily, however, unless the last down finds a prohibitive amount of yardage yet to be gained, the offense will make a last try for a touchdown. If they lose the ball, they still will have their opponents in a perilous position. Keep these zones in mind.

Of course, as a scout, you must make a note of playing conditions. A high wind will alter playing tactics. So will a miry field, or a cloudburst. Be sure to take everything into account.

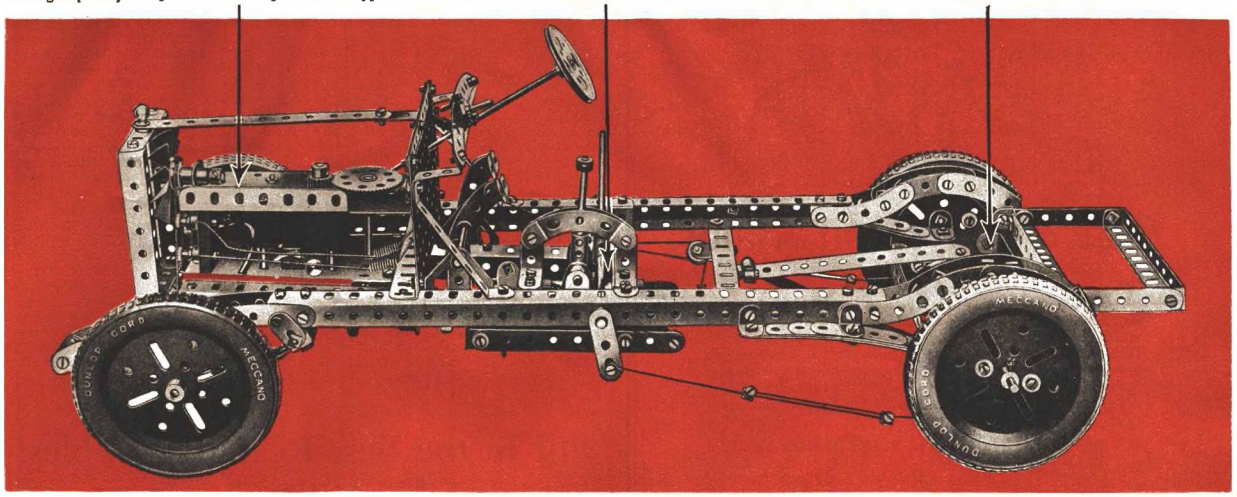
I hope that hereafter, whether you're in the grandstand as a representative of your team or just there as a fan, you'll watch the *whole game*. Most boys, unfortunately for them, see nothing but the ball. Don't forget that the line does seventy per cent of the work—give it the attention that's due it.

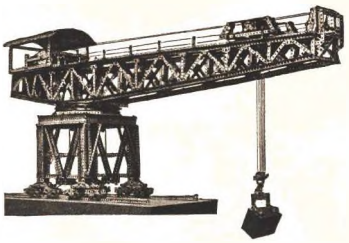
Watch everybody and everything, for football is so much a team game that the shifting of a guard's elbow may tell you just where the backfield intends to go. Football, whether you watch it from the field or from the grandstand, is made up of very little, very important things. Try to see them all.

The Meccano patented two-way electric motor is a remarkable piece of workmanship because it embodies all the rigid principles of construction of standard types.

This transmission gear assembly gives a splendid, clear idea just how these gears mesh. Several prominent automobile schools use this Meccano model in their classes.

The differential gear is a device which transmits the power evenly to the road wheels and at the same time compensates for difference in speed in turning corners.





GIANT BLOCK SETTING CRANE

In harbor construction work great steel cranes are used to place 200-ton concrete blocks in position on the sea bed. All these operations are reproduced in miniature by this Meccano crane operated by the two-way electric motor.

686 Models and a Two-Way Electric Motor to Run Them for $5.00

Shown above is the famous No. 1X Meccano outfit which contains hundreds of precision parts; four big swivel base wheels, braced girders, plates, trunnions and a complete book of instructions.

The magnificent 2X special Leader Set that all the boys are talking about builds 734 special models and has the exclusive Meccano reversing electric motor. In addition to hundreds of scientific parts, it contains a set of four solid massive tread tires giving the last word in realism. This set costs $10.00 and is packed in a fine wood presentation cabinet.

Get Your Meccano Set Today and Join the Experts.

Makes MOST . . . BIGGEST . . . *and* BEST MODELS

Construction parts that satisfy the expert

THE U. S. War Department would never have approved the construction of the New Perth Amboy (New Jersey) projected suspension bridge if they had not been able to examine a scale replica of it made with Meccano. Meccano is the equipment that graduate engineers and architects employ to make their scale models; it is the choice of the experts, and if you wish to build models for real fun, or for profit — as they do — you must join the experts.

Cast your expert eye over this automobile chassis shown above. Here are only a few of its specifications: geared transmission operating three speeds forward and reverse; positive differential gear; Ackerman improved steering; friction clutch; torque rods; foot brake on cardan shaft; internal expanding brakes; radiator fan; semi-elliptic laminated springs; disc wheels; Dunlop tires.

How would you like to make such a chassis? And have it actually run with the aid of the standard Meccano electric motor.

But the chassis is only one of thousands of scale models you can make! Then there are bridges, trestles, miniature cranes, sturdy hoists, and carriers; towers, turrets and skyscrapers that may be built according to the most approved methods of construction. The list is endless, provided of course, you use only Meccano.

Junior engineers the world over prefer Meccano in the ratio of one thousand to one. Meccano's popularity is no accident, but founded on solid worth. Make this test yourself. Compare Meccano's flat steel strips and girders with any others on the market. Note particularly the equidistant holes set one half inch apart and micrometer tested to the 1/1000th part of an inch. Whether you purchase a small Meccano set for a dollar or a *de luxe* outfit for $17.50 only one quality is used throughout—the best.

Fresh from the press is a new leaflet containing detailed instructions how to make the motor car illustrated above. Easily understood diagrams and clear directions make it possible for you to build your own car from radiator to rear axle housing. This leaflet is free for the asking. Just drop a penny postcard with your own name and address to Meccano Co. Inc., Div. A , Elizabeth, N. J. *In Canada:* 45 Colborne St., Toronto.

Over 43,000 hours this famous clock made of Meccano parts has ticked away varying not more than a few seconds a year
A booklet describing how any boy can build this clock will be sent free to all who write for it.

MECCANO

THE TOY THAT MADE ENGINEERING FAMOUS

The Shouting Violet

(*Continued from page 26*)

watched what was left of the practice. To-day there seemed something futile in the whole thing—something he could not grasp. He had deserted Horsey Mott and had come back to Bancker because it was the only thing to do—the satisfying, spectacular thing to do. The others—the players out there flashing through the scrimmages—were moved by something else. They gave and gave, and asked nothing better than to give. Even the night he had gone to Bancker there had been, in his mind, no thought of sacrifice. He had simply wanted to stand square in his own estimation.

His eyes picked out Goodwin. The captain was a problem. Three years on the varsity, three years in the backfield, and never a touchdown to his credit. Roberts couldn't understand it. With the ball near a score Goodwin had the power to call his own signal—and yet, apparently, he never had. Why? The Comet sighed, and shook his head, and turned from the window, baffled.

That feeling of futility, of something he had missed, was still with him when he went out with the team for the Stamford game. The substitutes, talking hoarsely, followed the course of the game, and he sat among them, silent. The field before his eyes seemed part of a dream. The lines appeared to crawl into position, to break into sluggish knots as they scrimmaged, to arise and fall into position again. Finally Stamford, striking again and again at Foxen, managed to score. The kick after touchdown missed.

"Six for Stamford," said a voice.

Roberts awoke from the dream. Suddenly it was all real, the field, the straining players, and Grandon trailing. With hands clenched he watched the tide of battle, muttering to himself, praying and pleading. Once Grandon held on its five-yard line, and when the ball changed hands he found his muscles aching as though he had been taking the burden of the defense.

(*Continued on page 46*)

Fill In the Best Reading Bubbles!

"I'M forever blowing bubb-b-bles!" howled Pluto cheerfully. "Pretty bubbles in the air—"

With a sweeping gesture, the editor clamped the sound-proof muzzle securely over the office pup's nose. In a half hour—that's usually enough to cure Pluto of singing—the ed removed the muzzle.

"I was just thinking," Pluto murmured meekly, "that if we'd get our readers to think of stories in terms of bubbles—gay ones, dark ones, big and little ones—"

The editor made a gesture toward the muzzle, and Pluto hastily concluded—

"—WE'D PROBABLY GET TWICE AS MANY BEST READING BALLOTS!"

That sold the editor. So fill in the bubbles in the picture. In the largest bubble, put the name of the story you like best in this issue. In the next two, put your second and third choices. And if, by any chance, there's a story you didn't like—we hope there's none—honor it with a place in the broken bubble.

Mail your ballot to-day to the Best Reading Editor, AMERICAN BOY Magazine, 550 Lafayette Boulevard, Detroit. Remember, the more ballots we get, the better we'll be able to tell what kind of stories to pick for you in future issues.

Date.....

Name..... Age.....

Address .....

BOYS.. $2000.00 in PRIZES

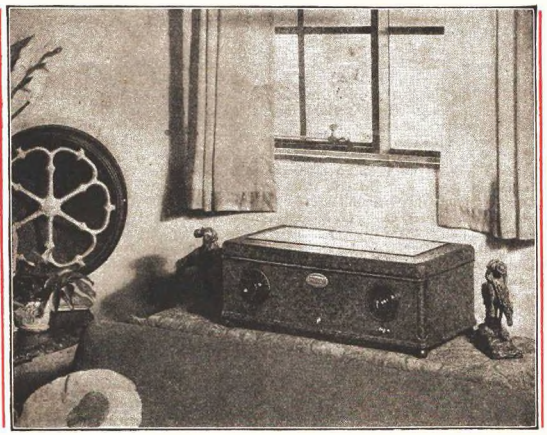
Hundreds of Wonderful Awards given by the Dorfan Company for answers to 5 simple, fascinating questions

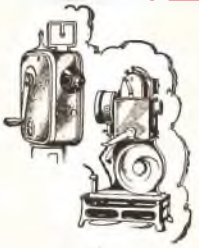
2D PRIZE

Complete Camping Outfit, with tent and accessories. Value $115.00.

4TH PRIZE

Helbros Wrist Watch. Superb 10½ ligne, 15 jewel, star 14K gold filled, engraved oxidized, two-tone 3-piece case, gilt radium-encrusted numerals. Value $40.00.





3D PRIZE

Pathex Motion Picture Camera and Projector. Value $75.00.

5TH PRIZE

Helbros Wrist watch. Superb 10½ ligne, 15 jewel, star 14K white gold filled, engraved, oxidized, two-tone 3-piece case, gilt radium-encrusted numerals. Value $35.00.

BOYS! Here's the snappiest contest ever staged. Two thousand dollars in prizes; 620 separate awards. And it's easy to get set to be in on the gravy. All you have to do is answer five simple questions—and you can answer these easily when you read the Dorfan Official Contest Folder that you can get at any Dorfan Dealer. This free folder tells you all about it. When you read the folder and the gripping page of "Marvelous Railroad Facts" you'll know how to make your short answers. Go to your dealer now and ask for the free Dorfan Official Contest Folder.

Wouldn't you feel just "top of the world" to land that Model 44 Atwater Kent Electric Radio with the classy speaker and seven tubes and all accessories? You *can* do it! And what about that complete Camping Outfit, worth $115 — doesn't that appeal to a red-blooded outdoor boy? Or the Pathex Motion Picture Camera and Projector. Or the Helbros 15-jewel, 14K. Wrist Watch worth $40—to say nothing of scores and scores of other awards like Ken-Wel Basket Balls and Footballs. And 5000 handsome Engineering Certificates given away besides to winners. That makes 5620 chances to win.

FIRST PRIZE

Atwater Kent Electric Radio

Including speaker, seven tubes and aerial. Extra-powerful, extra-sensitive, extra-selective. Value $200.00.

6th to 12th Prizes	Bicycles, each $30.00 value.
13th to 16th Prizes	Helbros Wrist Watches, $13.50 to $25.00 values each.
17th to 21st Prizes	Sidewalk Bikes, each $10.00 value.
22nd to 27th Prizes	Golf Outfits, each $8.00 value.
28th to 32nd Prizes	Tool Chests, each $8.00 value.
33rd to 42nd Prizes	Cameras
43rd to 90th Prizes	New Haven Tip-Top Wrist Watches with radium dial.
91st to 110th Prizes	Ken-Wel Footballs.
111th to 130th Prizes	Ken-Wel Basket Balls.
131st to 150th Prizes	Ken-Wel Fielders' Gloves
151st to 200th Prizes	Roller Skates.
201st to 320th Prizes	Ken-Wel Baseballs.
321st to 420th Prizes	Yankee Watches.
421st to 520th Prizes	Eversharp Pencils.
521st to 620th Prizes	Franco Flashlights.

and 5,000 Handsome "Dorfan Licensed Engineer" Diplomas making 5,620 chances to win! $2,000.00 value in awards.

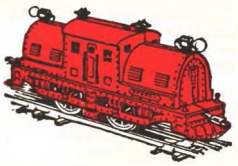
JUDGES

DR. GEORGE J. FISHER, *National Field Director, Boy Scouts of America.*
J. E. MCCRADY, *The Dorfan Company, Newark, N. J.*
MILTON A. STODDARD, *Blaker Advertising Agency, Inc., New York.*

These prize awards are to show the appreciation of the Dorfan Company for the interest that millions of boys have shown in Dorfan Electric Trains. But you don't need to own a Dorfan to win a prize. All you do is write out the brief answers to five easy questions.

When you go to the dealer to get your free Official Contest Folder you'll probably notice the Dorfan Trains. You know, these are the famous trains that have the fastest, most powerful engine made. It's the take-apart Loco-Builder, the engine you can take apart and put together yourself. The one that lets you see just how the motor works. The Dorfan engine is the champion climber too—pulls a train of cars right up a heavy grade without stalling and takes the curves at a lightning clip like a racer of the rails. She's a beauty!

Because Dorfan is made of non-magnetic metal, no power is lost through induction as is the case with ordinary engines made of sheet steel. All the "juice" there is, hums into speed-power. Now, don't forget those prizes. If your dealer does not have the free Dorfan Official Contest Folders, send us his name and address and we will see that he is supplied. The Dorfan Company, 136 Jackson St., Newark, N. J.



DORFAN ENGINE 3920

Whaleback type as on C. M. & St. Paul Railroad. Wide gauge, four driving wheels, head and tail lights, powerful motor, Duco finish, brass radiators. Price $16.50.

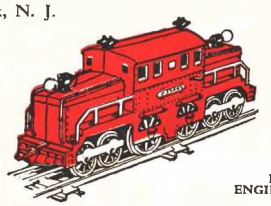
Dorfan Palmetto Limited, No. 915. A wide-gauge, speed-power train. A realistic racer! Price $42.50.

Boys' National Prize Contest

DORFAN

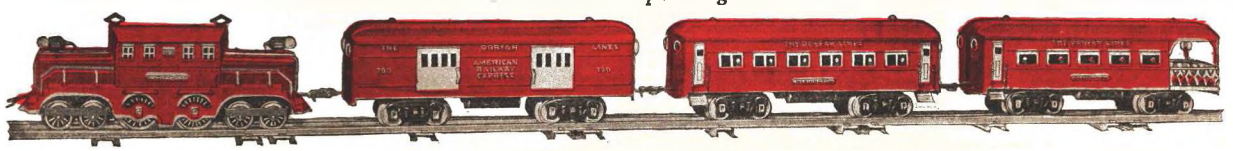
POWERFUL ELECTRIC TRAINS

with the Take-Apart Engine



DORFAN ENGINE 3930

Ball-bearing, die cast wheels; more weight, therefore more traction, more speed, more pulling power. Reversible, wide gauge, 12 wheels, 15 inches long. Price $23.00.



The Shouting Violet

(*Continued from page 44*)

Rowe kicked, and he closed his eyes and relaxed. An instant later the substitutes were shrieking and rocking around him.

"They dropped it. Foxen recovered."

THE Grandon stands rumbled and roared. Roberts shook and shivered. Through burning eyes he watched the uncertainty of the Stamford team, a milling about that told of upset nerves. It was a moment for boldness, and he held his breath for fear Grandon wouldn't see it.

But Goodwin, reading the situation, sent off a long forward pass—and Grandon carried the ball to the twenty-yard line.

"Here's where Stamford cracks," the substitutes cried gleefully.

But Stamford held. An attempt to skirt left end lost a yard, and a drive at the middle of the line lost another. Rowe dropped back to kick. He was right in front of the posts, and the ball sailed true above the bar. The score was 6 to 3.

The crowd hailed the field goal with an outburst of song, but Roberts drew his blanket above his shoulders and slumped. Stamford was still ahead, and if Grandon couldn't score then against a demoralized team, what could she do when that team was steady?

The score was unchanged at the half—and it was still unchanged at the end of the third quarter.

For Roberts the game had become agony. Horsey's advice had been to think of himself; but to-day—at last—he was thinking of the team. In that final quarter Stamford, with her slender three-point lead, elected to play safe, and kicked, and kicked, and kicked. The fullback, rocking to and fro, groaned as each kick took the ball deep into Grandon territory.

The minutes raced away with agonizing speed. One of the substitutes had a stop watch; and after each play Roberts would glance at the dial in a sort of fascinated horror. Stamford kicked again, and Rowe caught the ball on his own thirty, where he was downed in his tracks.

"Four minutes," said the boy with the watch.

Rowe got up from the ground and stood swaying. Bancker, who all afternoon had followed the plays along the side lines, swung toward the substitutes.

"Trim!" he called sharply.

Roberts lifted his head, startled. He saw Bancker's beckoning arm and leaped clear of his blanket.

"Go in for Rowe," said the coach.

The Comet began to tremble, shaken by the memory of all those fumbles. Bancker laid a hand upon his shoulder. Somehow, there was something about the touch that strengthened, and soothed, and made firm. He ceased to quiver.

"I'm sending you in for a touchdown," Bancker said quietly.

"Yes, sir," muttered Roberts, and was out on the field running toward the battle line of the two elevens.

He wore a headguard. That, in itself, was significant, for in the days when Horsey Mott was his god, he had played bare-headed so that his blond mop might be a trade-mark to the stands. The rooters, shouting his name with a sudden note of hope, forgot its past resentment in this possible promise of victory. Foxen grinned, and panted, and wiped his face with the sleeve of his jersey. Goodwin spoke hurriedly.

"It's up to you, Trim. Left tackle's their weak spot."

THE signal was shrilled. Roberts, waiting behind the line, found his legs suddenly filled with tense and eager springs. The ball came back. The line tore a hole. He was through the opening with a desperate burst of speed.

Foxen was through with him. The Stamford left half loomed ahead and Roberts cut in toward the center and left that player to the Grandon end. In front of him, now, was only the full; behind him was pursuit. He swerved and led the full toward the side lines, and then suddenly reversed himself. The full, caught unprepared for the strategy, tried to check, stumbled, staggered and was out of it.

The maneuver had discarded one danger, only to raise another. Roberts' dodging, his change of direction, had given the pursuit its chance. He could hear a breath behind him—a breath that came in a whistling gasp. An arm touched his waist. He tried to leap ahead. The arm slid down, tightened about his knee. He fell with a crash and rolled, and a hot, heavy body clung and rolled with him.

His own goal posts had been right behind his back at the start of the play, and now the Stamford goal line was just ahead. Goodwin shrieked in a delirium of encouragement.

"It's our game, fellows. Their twenty-five yard."

The stands sang and cheered and stamped in a wild outburst of joy.

Goodwin took the ball on the next play, and razored off left end for four yards. Stamford was watching Roberts, and the captain's dash was a surprise. They were still watching the Comet when Condict smashed at center for three yards.

Stamford was swept by panic. These short gains were as deadly as the longer runs.

Goodwin gave the enemy no time to set itself and steady its nerves. His voice rose in a shrill call. He made a megaphone of his hands so that he could be heard above the roar of the crowd.

"Seventeen, 98, 62, 27!"

It was the Comet's signal for another slash at left tackle.

The line failed to make the hole, but the end had gone down. Roberts shot for this strip of open field. The Stamford half met him at the line, to be bowled over by a vicious straight-arm. Then Stamford players seemed to rise up out of the ground. A straight-arm took out another. Abruptly two pairs of arms were locked about him, and Roberts went down again.

"Their three-yard," Goodwin screamed above the din. "A minute and a half to play."

All at once, in all that welter of noise and pounding hearts, Roberts seemed to stand alone and to see things from a height of great clarity. Three yards from a score, and Goodwin's last game for Grandon. Goodwin who had never carried the ball over for a touchdown.

The captain's voice piped hoarsely. "Seventeen, 9!—"

Roberts caught his breath. The 9, in the second numeral meant that it was his ball. He sprang out of place.

"Signal! Signal! Good!" He had the captain by the arm. "Carry it over yourself. It's your last game."

Goodwin's nerves were raw from the stress and anxiety of the game. He shook off the hand. "Who asked you to interfere? I'm running this team. Get back there."

"But Good—"

"Get back," the captain shouted.

Roberts went back to his place. The signal came again. "Seventeen, 91, 46, 35."

The pass from center was perfect. Roberts, storming straight for the line, found a demoralized defense. Stamford toppled and collapsed. Squirming past sprawling players, he was over the line before he was tackled.

THE stands raved and rocked. Goodwin and his players leaped into the air in their joy, but Roberts was lost in the contemplation of a miracle. Three yards from a score, the captain's last chance, and refusing to carry the ball. He couldn't fathom it.

He kicked goal, and stared at Goodwin. A moment later the whistle shrilled for the end of the game. They cheered Stamford, dodged the crowd, and ran for the locker room. Victory! Foxen, running at his side, pounded his back with a madly happy hand. But Roberts kept staring at Goodwin running up ahead.

The first wild flush of victory began to fade. The song in their hearts came down to a normal beat of satisfaction. Roberts, partly dressed, walked over to the captain.

"Why didn't you go over for the touchdown?" he asked in the voice of one groping in the dark.

Goodwin's nerves were now serene. "You wanted me to, didn't you? Thanks, Trim, but it wasn't the play."

"With four downs to go, three yards—"

"It wasn't the play. First, we didn't have four downs—we had just about a minute. Second, I was tired. I might have fumbled. You were fresh. You were the best bet."

"I see," Roberts said thoughtfully. He went back to his locker, picked up his shoes, and dropped down on a bench. With one shoe on, he stared straight ahead. A hand touched his shoulder.

"Good work, Trim," said Bancker.

The Comet's eyes filled with moisture, but he did not stir. The coach shook him.

"Trim! Snap out of it. Are you ill? Is anything wrong?"

He looked up, then, and stared wetly at Bancker. "No," he said after a silence, "everything's all right. I've just discovered what you've been trying to teach me all season."

THE END.

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Mark Tidd in Sicily

(Continued from page 17)

says Mark. "They l-l-lured him."

"It must 'a' been high-class lurin' then," says I, "because John Peter's nobody's fool."

"The m-main thing," says Mark, "is to f-find out if he's a p-prisoner here."

"We'll just ring the bell and ask," says I kind of sarcastic.

"We'll see," says Mark, "if mebby they left the b-back door open like they done once before."

So we hypered along to the door in the wall, but it was locked tight, and then Mark says, "Well, we got to git it open."

"How?" says I.

"I hain't b-built for climbin' walls," says Mark.

"The idea bein'," says I, "that I be."

"You *could*," says Mark.

"But I'm not goin' to. Not if I know myself. I'd look sweet gettin' into that garden with all those Maffias, wouldn't I? Say, I'd come out lookin' like a pincushion that had been used by one dressmaker for thirty year. No, sir. I cal-late on gettin' home to Wicksville all in one piece and without any scars."

"Then," says Mark, "we'll have to f-f-find a ladder. I kin climb a ladder 's good as anybuddy. If it's a strong ladder."

"How would I get over 'thout a ladder?" says I.

"You could s-s-stand on my shoulders and grab the t-top of the wall and p-pull yourself up."

"And nobody'd see me," says I as sarcastic as could be. "Hardly anybody would notice a feller sittin' on top of a wall. He'd be 'most as invisible as a rabbit in a corn patch."

"Well," says Mark, without acting disappointed or mad at me or anything, "let's go f-f-find a ladder."

"I bet they don't have ladders in Sicily," says I. And then I says, "Oh, dog-gone it all, if you've got to get me all stabbed up with jackknives and things, why stand up against the wall and I'll climb you. If you've got nerve enough to get into that garden, I guess I've got nerve enough, too. Only I'm scairt, and I want you to know I'm scairt, and when you get back to Wicksville and tell my folks how it happened I'm not with you, why, you just tell 'em I was scairt."

"Why," says Mark, "s-so be I scairt. But if a body hain't afraid to do a thing, there hain't no c-credit doin' it. If you'd just as soon do it as eat, it don't take no courage a-tall. It's the feller that's awful afraid, but has got the stummick to do it anyhow that turns out to be a hero and all."

"I never hankered to be a hero," says I. "So back up against the wall. If you've got a pencil and paper, you'd better take down my last words."

"S-shake," says Mark, sticking out his hand.

"What for?" says I. "I've been introduced to you."

SO he grinned, but it was a serious kind of grin, and he backed up against the wall and made a stirrup of his hands. First we looked to see if anybody could see us any place, but nobody was in sight, and so I stepped on his hands and then got one foot onto his shoulders. I don't guess he enjoyed the feeling of my heels digging into him, but he never let on. Well, it was quite a scramble, and took a lot of awful skillful balancing before I stood solid on top of him, but he stood like a rock.

"As s-s-soon as you git in," says he, "open the door in the wall."

"I'll do that," says I, "just after I pull out the first dozen jackknives."

"Ready?" says he.

"I can't quite reach the top of the wall," says I.

"Then," says he, "s-s-stand on my head."

So I clambered up on top of his head, and then I could reach the wall, and I grabbed it and clawed around with my legs until I got one foot up. It was quite a tug. Well, I got one eye over the top and looked around, but nobody was in sight. I didn't hurry scarcely any, but took a good long look, and everything was quiet; so I says to Mark, "G'by if I don't see ye again," and pulled myself on top and then dropped down into a cactus. After that I didn't care much whether I got stabbed or not because I was used to it.

I picked myself up and began pulling the needles out of where I lit, which was the seat of my pants, and then I made for the door to open it and let Mark in. But when I got to the door it wasn't fastened with just the bolt that was there before. There was a new fastening with a whopping big padlock and there wasn't any more chance of getting that door open than there was of jumping the wall from a standing start. You could have knocked me over with a feather, and I want to tell you that nobody in this world was ever so lonesome as I was at that identical minute.

It was a sweet pickle I was in. All alone in that garden with no way of getting out, and most of the brains of the party in Mark Tidd's head out in the road. I'm pretty good at doing what I'm told, but I'm not so awful spry at thinking up things to do.

So I got close to the door and says, "Mark, can you hear me?"

"S-sure," says he. "Open the door."

"I've got good news for you," says I. "There's a padlock and nobody short of a blacksmith could get it off."

"Huh," says Mark, only it was more of a grunt than a remark.

"What in tunket 'll I do?" says I.

"Hide," says he, "till I t-t-think up a scheme."

"You'd better think quick," says I, "or it'll be too late to rescue more'n the pieces. I'm shakin' that hard I'm apt to fly into rags and tatters."

"Scrouch down," says he.

"I'm scrouched so low," says I, "that I look like a dent in the ground."

"L-listen," says he, "you can't be no w-worse off'n what you are."

"If you think that's news," says I, "you're about five minutes late with it."

"What I'm g-g-gittin' at," says he, "is that you m-might as well t-take a chance."

"There's not much difference," says I, "between fallin' a thousand feet and fallin' two thousand."

"See," says he, "if you kin Injun across the garden. Keep out of s-sight and s-sneak up on the front wall door."

"You didn't need to tell me to keep out of sight," says I. "I've nothin' else on my mind."

"And hide," says he, "as c-clost to the door as ye kin."

"That," says I, "'ll be quite close."

"And when you hear s-somebuddy ring the bell once long and twice short, why, you git ready, and if a s-s-servant opens up the door, why you be ready to lick out if anythin' happens so's you kin git p-past."

"What," says I, "is apt to happen?"

"You can't n-never tell," says he.

"All right," says I. "Here goes. If you hear a terrible scream, that'll be me."

"Good l-luck," says he.

"I hope you get your wish," says I, and I listened a minute till I heard him move off pretty fast. Then I started sneaking through the garden, and I never did see a garden with so many prickers in it. There were cactuses and roses and everything else that could stab and scratch and tear. I bet you I left a square yard of my hide a-hanging on them bushes. And I missed it. I lost so much skin I began to feel chilly. I wallowed through ponds filled with fish and papyrus and I left part of one cheek on a nail that was driven into a tree. But I kept right on just as if nothing had happened, because I wanted to get across to that door as soon as I could conveniently.

IT took me maybe half an hour, because betwixt trying to go carefully, and prying myself loose from thorns and such-like, I had quite a time of it. But

(*Continued from page 47*)

I got there and sat down in the middle of a clump of bushes about five feet from the door. It seemed as if I smarted from head to foot, and every time I moved I drove in to the hilt a thorn I hadn't had time to pick out yet. But I was ready. I was more than ready.

Then the bell rang so I could hear it faint back in the house and I got ready, but it wasn't Mark Tidd's ring. It was two short rings and a pause and two more short rings. Right away a servant came hurrying down the walk, and I never saw a meaner looking man nor one that I would rather not meet in his master's garden when I hadn't any business to be there. He opened up the door quick, and in slipped the Crooked One and hypered fast for the house. I watched him and saw Andrea Cenci come to the house door, and then I heard the Crooked One say something kind of breathless, but all I could understand was a name and that was Cola. So I guessed that the Crooked One was telling Cenci that Cola the Rock-breaker was in town. Then they went inside and I didn't hear any more.

But that made me pretty certain that John Peter was in that house, and I was more certain than ever when the bell rang two short and then another two short, and the servant let in two awful hard looking people. Then, pretty soon, another come along. It looked as if that house was filling up with all the tough eggs in Sicily. I wished there was some way of getting word to Mark about the two short rings and then another two short ones, because I figgered out that was a signal. It made me kind of proud to figger this out, because, as I say, brain work's not much along my line.

But all I could do was wait. Then, pretty soon, the bell rang again, but it wasn't two short and then two short, but was the signal Mark had told me about. So I got ready to see what was going to happen. And nothing did. I got as close to the front wall door as I could and said as loud as I dast, "Ring two short and wait and then ring another two short."

"I hear ye," says Mark. "Lay low."

He's the darndest feller for telling you to do something you're not at all likely not to do. Nobody ever lay lower than I was laying. I set a record for it.

Well, nobody paid any attention to Mark's ring. I watched the house, but there wasn't a sign of life, and I watched the lock on the wall door, but there wasn't any way to open it. And then Mark rang the two short rings and followed them up with the other two short ones.

It's funny what a body'll do when he's all excited. I found out I had taken out my sling shot and was holding it all ready to shoot. And there wasn't anything to shoot at, and it wouldn't have done any good if there had been. I judged you couldn't keel over a Sicilian Maffia with a BB shot.

This new signal rung by Mark must have kind of confused them in the house, because both Cenci and the servant came to the house door, and stood looking and talking. Then the servant walked down to the wall door and took the key out of his pocket, but he just stood holding it and called out something. I didn't understand the language any, but anybody who wasn't just dumb would know he was asking who was there. Of course Mark didn't dast answer.

I could see the man wasn't going to open the door and that he would be going away in a second; so I got pretty desperate. I must have kind of lost my head, for the first thing I knew I had up with my sling shot and let him have it on the knuckles of the hand that held the key. He dropped it and grabbed his hand and yowled. Well, the fat was in the fire, so I let him have a couple more as tight as I could shoot. He let out some more yells and started to run for the house.

I was in for it anyhow, as soon as they began to think; so I piled out of the bushes, grabbed the key, and shoved it in the lock. I heard hollers behind me and feet running, and just as I turned the key and unlocked the lock somebody grabbed me and jerked me about seventy feet. But I managed to let out a bellow that the door was unlocked. And when I got the garden muck out of my eyes so I could see, there stood Mark Tidd and the Donkey-lifter and Cola the Rock-breaker, inside the garden.

Chapter Nineteen

WELL, for a minute it looked as if there might be a party, but when the folks inside took one look at Cola they kind of collapsed and I don't know that I blame them.

"The boy, is he here?" Cola demanded.

Andrea Cenci kind of hesitated like he figured maybe he would start a revolution or something, but he didn't hesitate very long after he took a look at his friends who had come out and were standing around. They didn't look like people who wanted to start any kind of a rumpus with Cola. So Andrea bit his lip and says, "He is here."

Cola nodded. "And these?" he asked, pointing to the other men.

"You know them," said Andrea.

"I know them," said Cola. "And is some matter to be decided? Who called these men together?"

"It seemed best," said Andrea. "All things should be done in order and according to the ancient rules."

"I persuade myself you speak the truth," said Cola. "There is, then, to be an inquiry—a trial, perhaps?"

"Yes."

"Of the young Duke of Rondazza, possibly?"

"Yes."

"For what offense?"

"For being the son of his father," said Andrea.

"Of that," said Cola, "he is guilty. The father was sentenced and executed. And the sentence extended to all of his blood. Why, then, the need of a new trial?"

Andrea remained silent.

"I can tell you," said Cola. "The reason was fear. It is well. The friends of this boy are demanding justice. The power is mine to grant it. There shall be a fresh trial, as they ask, and the old inquiry shall be reopened. Come, let us go within where all can be done gravely and in order."

We went into the house and then into that room where Mark and I had been before, and Cola the Rock-breaker said, "Fetch the boy."

In three minutes two men came in with John Peter between them, and when he saw us his face got lighter and his eyes kind of shone and he nodded his head. He looked kind of dignified, too, and I bet there had never been a minute when he had let those folks see he was afraid.

"Accused," said Cola, "you demand a new trial?"

"Yes," said John Peter, "or something. What I demand is to be let loose."

The Donkey-lifter stood up and moved his shoulders, but Cola motioned him to sit down again and he did without starting any trouble. But I guess everybody knew he was planning to start something if things went against him.

"Your father," said Cola, "has been found guilty of treachery, of betraying to the law his friends and associates who trusted him. He has suffered the penalty."

"He was not guilty," said John Peter pretty stubborn. "I never saw him and I don't know him, but I know my father never was a traitor to anybody."

"I am powerless to reverse the old sentence," said Cola, "but I may order a new inquiry. Beyond that I cannot go. If you can prove your father's innocence, it will be well. If you cannot, then the thing must stand as it stands."

THE Donkey-lifter spoke. "We came to prove the innocence of my young master," he said. "It was for that I ventured to bring this boy into peril. But there was not time. We ask for time."

"No," said Andrea Cenci.

"If you could not find proofs in fifteen years," said Cola, "how can you hope to do so in a few days?"

"It is known," said the Donkey-lifter, "that this unjust sentence would have been forgotten. But for that man there," he pointed to Andrea Cenci, "it would never have been revived. The times have changed. To-day is another day. Sicily is another Sicily."

"Sicily," said Cola, "does not change—back in the hills."

"If," said the Donkey-lifter, "this boy is executed, who is his heir?"

"Andrea Cenci," said Cola.

"Is it fit that you, who should be devoted to patriotism and to justice and to the protection of the oppressed of our island, should be upon the side of him who would rob?"

"We may not know Andrea Cenci's private purpose," said Cola. "We are concerned here only with the sentence of our court of justice."

"Was not this Cenci the heir of my young master—if his son should be eliminated?"

"He was."

"Is it not," said the Donkey-lifter in a great voice, "possible that the same hand that would destroy the boy was the one that destroyed the father! I, as much one of the Maffia as any here, charge Cenci with treachery to a member, in that he plotted to lay his own guilt upon the shoulders of another. I charge that Andrea Cenci was the traitor for whose acts my young master died."

"Charges," said Cola, "are not proofs. Have you any word by way of proof?"

"None," said the Donkey-lifter. "But there is proof and I will find it."

"That is not to be permitted," said Cola sadly.

"What's g-g-goin' on?" Mark asked the Donkey-lifter, and got the gist of it in a minute.

"D-does that mean we got to prove the whole b-business right *now* or John Peter's apple cart is upset?"

"It does," said the Donkey-lifter.

"Hain't there no way to g-git more time?"

"None."

"Think quick," says I, because somehow I got a lot of confidence in Mark when a body gets into a tight corner. "Think awful quick, Mark."

"The Lion's Claw," says he, kind of to himself. "If we could jest f-f-find the Lion's Claw."

Then there was some more talk, but Cola bowed his head and looked awful grave and sorrowful. "No more is to be said," he says in a kind of discouraged voice. "I can do no more."

"Then," says the Donkey-lifter, "the doing shall be mine."

He got onto his feet and grabbed a chair, and in another minute I guess something would have happened that would have messed up the furniture, but all of a sudden Mark Tidd jumped to his feet and grabbed the Donkey-lifter's arm, and hollers. "P-proof, eh? I cal'late we got the proof!"

(*Continued from page 49*)

"What?" says the Donkey-lifter.

"The proofs," says Mark. "I f-found 'em. I jest f-found 'em."

The Donkey-lifter kind of frowned and says to Cola, "The fat boy says he has evidence."

"Let him produce it," says Cola.

"The Lion's Claw," says Mark kind of excited. "Git out of the way there, you. Lemme git at the Lion's Claw."

WELL, sir, he kind of dived across the room at that big hunk of antique furniture that they called a credenza and he went flat on his stomach, and everybody watched him as if they thought he was crazy. And one of the legs under the thing was shaped like a great big claw. Mark was pushing and pulling and poking and tugging at it like all git-out.

"Press," says I. "*Press.* Press doesn't mean pull."

Well, at that Mark pressed down kind of gentle and the whole front of the leg snapped open as if there was a spring there, and inside you could see a lot of papers. Mark snatched them out and held them toward Cola the Rock-breaker. "There," he says, "is your p-p-proof."

Well, maybe it was, and maybe it wasn't. That was what we had to find out. You never saw such an expression as Andrea Cenci got on his face, though. It was rage and fright and a whole lot of other unpleasant things. And the Donkey-lifter went and stood by the door and looked pretty dangerous.

Then Cola the Rock-breaker commenced to open and read the papers, and his face didn't change a mite, but was kind of set so that you couldn't guess what he was reading nor what he was thinking about. And he kept right on reading for fifteen minutes, so that I got so nervous I thought I would jump out of my skin. But I didn't. I don't know what would have happened if I had, or how I would have got back into it again.

And finally Cola spoke, but I didn't know what he said until afterwards, though I could make a kind of a guess.

"These papers," he said, "are letters from officials of the police in Palermo—to the traitor. They are also letters from the traitor, in his own hand and signed by his own name. There was a bribe of money. The whole plan is here laid bare." He stopped. "Why," he demanded in a queer voice, "were these letters hidden at the trial? Why? Why were they not brought forward?" Then he stopped again, and kind of stared at Andrea.

"Andrea Cenci," he said, "if you had been content, this day would never have come. But you strove to do to the son as you have done to the father—and the day of reckoning has come. You, and you alone, were guilty of that first treachery. You plotted to betray, and you plotted to lay your guilt upon the shoulders of the father of this boy. Because you desired to have his wealth and to sit in his seat. . . . Be still!" For Andrea tried to say something. "Your day for speaking is past."

The Donkey-lifter commenced to walk across the room kind of slow and terrible toward Andrea, and nobody, not even Cola, made a move to stop him. I guess, according to Sicilian standards, they figured it was his right to do about as he pleased. But then everybody got a surprise, because John Peter took a step and held up his hand, and says, "No. We have learned better in these fifteen years, my friend. This is not the way to do. You must not touch him."

"I'll crush him with my hands," says the Donkey-lifter.

"No," said John Peter, and then, all of a sudden he quit being John Peter and got to be a duke. "It is a command," he said.

WELL, the Donkey-lifter stopped and stared and kind of hesitated.

"This is my house," said John Peter, "and I will have nothing like this happen in it. If I am to live here I want not to remember a thing like that." And he went to the door. "I think," he says kind of cold and hard to Andrea, "you had better go now. You had better go far and fast. I promise you no one shall leave this room to follow you for one hour. After that," he lifted his shoulders, "I can do no more."

"But," says the Donkey-lifter, "your vengeance. Think, think of his guilt to your father."

"I am thinking," says John Peter, "of many things." And then he got to be all American again, just for a moment. "Beat it," he said to Andrea, "while the going is good."

So Andrea Cenci went away from there. Cola followed him with eyes that smouldered. The Donkey-lifter set his jaw. So I says to myself that an hour wouldn't be any too much of a head start to suit me. Whether it was enough I haven't the least idea. Nobody has. From that minute Andrea Cenci disappeared and nobody has ever seen hide or hair of him. So I can't tell whether he got away and is hiding some place, or whether the Maffia caught up with him. Either way was bad enough.

And then John Peter came across the room and shook hands with Mark and me, and he said a lot of things that made a fellow feel good, only he didn't say them in a way that made you feel foolish. No, sir, John Peter was a regular fellow, even if he was a duke.

So we all sat on in that room for sixty minutes by the clock, and even Cola made quite a fuss over Mark and me. And then the time was up, and everybody left, only John Peter said that now he was a duke and in his own house, we were all going to leave the hotel and be his guests as long as we stayed in Sicily. Which we did, and that's about all, but not quite.

Chapter Twenty

WELL, that night we all sat in the same room, Mr. Tidd and we four boys and John Peter, who was now a duke, and the Donkey-lifter, and Mark says, "But what gits me is why your p-pa didn't have them l-letters at his trial. It would of s-saved him and convicted Andrea."

"That," said Mr. Greeco, "I can tell. I cannot tell just how the papers came into my young master's possession or how he was planning to bring the traitor to justice. But quite evidently those papers were here in their place of concealment. My young master was taken in Rendazza, miles away, and there was the trial within an hour. Friends of Andrea Cenci were about this house and in this house, so that no man might enter it or leave it. I was not there, not with my young master, nor did I know these things. But I do know he demanded to be brought here, or that a messenger should come. But so black against him was the evidence that he was hardly permitted to speak. Nor would he have been allowed to enter his own house. For it was only with difficulty, on that terrible night, that I escaped with the son. And men were injured in that escaping."

"And that's that," says Mark.

"But," says John Peter to Mark, "how did you ever come to find those papers?"

"I c-cal-late it was luck," says Mark. "I got to thinkin' about the Lion's Claw, and I says to myself that the l-likliest place for a man to h-hide something important was in his own house. And then we were right up against it, where it l-looked like we had to fish or cut bait pretty sudden. So I says to m-myself, Mark, you *got* to find that Lion's Claw. And then I h-happened to look at that hunk of furniture, and, sure enough, there was a c-claw. So I had to t-take a chance. It t-turned out to be the right claw, and that's all."

"If," says John Peter, "it hadn't been for you fellows from the start, I don't know what would have become of me."

"Rats," says Mark.

"But," says John Peter, "all I can do is say thank you, and that I shall always remember it, and that all I have is yours. My home is your home."

"And," says Mark with a grin, "your l-lemonade is our l-lemonade. With all them lemon groves you got, I should think you could contrive to have a pitcher of it, with l-lots of sugar in."

Well, we stayed in Taormina a while, and then the Duke got out a couple of

his cars and drove us all over the island. And we saw everything and had a fine time. And then we got ready to go, but we couldn't make up our minds whether we should go to Naples and take a boat home or if we should go some place else before we quit traveling.

So we argued about that, and Mr. Tidd cast the deciding vote and said we hadn't spent all our money, and that nobody ever went home till his money was gone, and anyhow he didn't feel as if he'd be able to face Mrs. Tidd unless he went to Paris and bought her one of those dresses he'd heard about. And Mark said he thought his mother would have a swell time in a Paris dress, but there weren't any Romans there. But Mr. Tidd said he guessed he'd had enough Romans for a spell, and anyhow they were a disappointing lot, because they didn't wear togas, and there weren't any cohorts nor chariot races nor gladiators. And he had come to figger Romans nowadays were just a fraud.

So we said good-by to John Peter the Duke and to the Donkey-lifter and to Cola the Rock-breaker and to Donna Vanna and everybody, and took the boat from Palermo to Naples, and then started by train for Paris.

"And I hope," says Mark Tidd, "that when we g-g-git there we'll have a nice, p-p-peaceful, quiet time."

"We're just as likely to," says I, "as a rabbit is to lick a hound dog. Anybody who travels with you has got to expect to keep stepping."

Mark grinned. "It's a good habit to get into," he says.

THE END.

That Christmas List!
That Christmas Party!

Boy, but those are two hard holiday nuts to crack. How to send presents to Uncle and Aunt and Cousin Jack when your wallet looks like a day-after-Christmas turkey! And how to give your gang a bang-up, send-'em-home-happy party when your mind's as empty of ideas as your pocket is of cash!

We know how it is. It's a hard life, that's all. But wait, things are coming your way. You don't have to worry. Tell you what to do.

First, read A. Neely Hall's pageful on how to make inexpensive gifts—the kind you like to put together in your own shop and the kind other folks like to get. Then read what our party experts say about holiday shindigs. There will be a lot of hilarious guests at your house when you throw the party we tell you about.

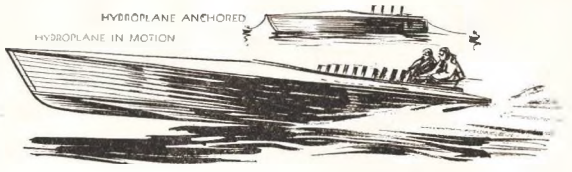
Both articles are coming just when you need 'em most.

NEXT MONTH!

What Makes It Fly?

By Alexander Klemin
Professor of Aeronautics, New York University.

EDITORS' NOTE— *This is the first of a series of acrodynamics articles by Professor Klemin. Don't miss what Franklin M. Reck has to say about him, on the opposite page.*



THROUGH centuries of use, the properties of the wheel, the lever, the pulley and similar mechanical elements have become a matter of instinct with us. Flying is new to mankind and its principles need study to be understood. These principles are, however, both simple and few in number. A pilot who knows them will fly his plane all the better. A builder of model airplanes will experiment and design a new craft with much more confidence, if he understands the underlying principles of flight. Anyone interested in aviation, whether as a hobby or as a profession, will find it helpful to grasp the elements of aerodynamics, which is the science of air flow.

Because flying is so different from the methods of transportation we are familiar with, a great many people do not really know how it is that the airplane stays up. "What happens when the fuel runs out in the air?" asked a dear old lady of one of our gallant pilots during the war. "Why, madam, we stay up till we starve," was the quick reply. And the old lady believed the yarn, which a model builder would have laughed at.

Perhaps the best way to understand how the airplane remains aloft in the air is to compare its action with that of a boat or an airship.

The huge bags of an airship are filled with hydrogen gas which is several times lighter than air. Therefore the contents of the airship hull are several times lighter than the weight of the air it displaces. Naturally the airship floats in the air, whether it is moving or not. The airship is therefore said to be a lighter-than-air craft.

A canoe, hollowed out as it is, displaces a greater weight of water than its own weight. Therefore, like the airship, a canoe will float without motion and might be called a lighter-than-water craft.

But if a man in deep water remains motionless, he will sink. If he swims the upward reaction or lift of the water against his body will support him. To keep moving through the water, the man must work vigorously, propelling himself by the use of his arms and legs against the resistance of the water. The man swimming is a heavier-than-water craft.

A motor speed boat of the hydroplane variety which is seen so often nowadays, is also a heavier-than-water craft. At high speed, very little of the hull is immersed as it skims lightly along. It cannot be the amount of water displaced which sustains it, but the upward reaction of the water against the skillfully shaped lower surface of the hull.

There is a distinct similarity between swimming, hydroplaning and the flight of an airplane.

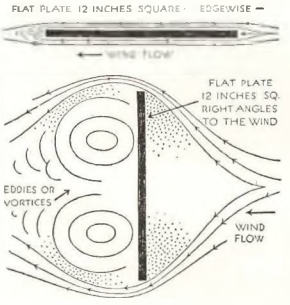
Gas of No Use to Airplanes

THE volume of air which the wings and body of an airplane displace is very small. In an airship the volume displaced is measured in millions of cubic feet; in an airplane by a few hundred. Inventors have often suggested that the wings and body of an airplane should be filled with light gas, but the lift thus obtained would be of negligible importance. The airplane must be sustained by the dynamic reaction, or reaction due to motion of the air on its wings. It is therefore a heavier-than-air craft, which can only remain aloft when in motion. And as with a hydroplane, there must be an engine driven propeller whose thrust overcomes the drag or resistance to forward motion of the airplane.

The peculiar thing is that an airplane, to stay up, must only have motion relative to the air, and not relative to the earth.

A man rowing a boat can make four miles an hour without much effort. But if he is rowing up in a stream which is itself flowing at four miles an hour, he may keep on rowing yet not budge an inch from a spot facing a tree or other mark on the shore.

The same applies to an airplane. An early Wright biplane, flying near Curtiss Field, Long Island, was once seen apparently stationary above a church steeple. It was a slow machine, capable only of forty miles an hour. It happened to strike a head wind of forty miles and there it stayed. The occupants of the Wright machine told the onlookers afterwards that the church steeple appeared very sharp and unpleasant to them. But though the situation was unpleasant, it was not dangerous. The airplane was stationary with regard to the earth, but the air was nevertheless meeting it at forty miles per hour and giving the necessary sustaining force.



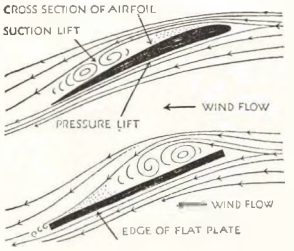
Whether an airplane is flying through the air at forty miles an hour or the air is flowing past the airplane at the same speed, the lift force will therefore be the same. It is convenient to bear this in mind when thinking of aerodynamics.

The Strength of the Wind

THE Chinese are reputed to have invented the kite. It is curious that they never attempted powered or even gliding flight, because the kite is such an excellent illustration of the principles of heavier-than-air flight.

The kite can only stay aloft when there is a steady wind meeting it. Its surface, as any kite flier will tell you, is inclined to the wind. Because its surface is so inclined, it receives lift from the air, and this lift balances the weight of the kite. With a large kite there is quite a pull on the string. This pull is due to the drag or air resistance of the kite, and is equivalent to the thrust of the propeller in an airplane.

A boy's kite is a very light affair, made of a few pieces of wood covered over with thin, tautly held paper. It seems strange however that a thin medium such as air should be able to sustain a great plane, with heavy engine, fuel, and crew besides its own structure.



But the strength of a high wind is extraordinary. The stories of Texas cyclones carrying trees and houses many miles are well vouched for. A man can hardly stand erect in a wind of a hundred miles an hour.

In passenger planes the side doors of the cabin are hinged about their forward end and swing out. This makes the doors perfectly safe in the air, because if they swing out the blast of air closes them tight immediately.

The Causes of Drag

THE air sustains us as long as we can keep going, but it offers resistance to motion or drag. It is the task of the airplane builder to study drag and to decrease its amount in his plane by skillful design.

Imagine a thin plate pulled edgewise through the air. There will be very little disturbance of the air. Will there be any resistance to motion, or drag? Yes, as always, nature opposes. Such drag, termed skin friction and due to the rubbing of the air on the side of the plate, is small, but we may have much more powerful forms of resistance to contend with.

If the same plate is held squarely against the wind, the drag will be very much higher. The air now meets the plate in a very bluff way. Some of it piles up on the front of the plate and comes to rest. Some of the air passes in lines of flow round the edges of the plate and rubs against the air at rest behind the plate. The air at rest retards the moving air and eddies or vortices are formed. Eddies need energy for their formation, and the more violent the eddies, the greater the force needed to hold the plate in po-

(Continued on page 54)

He'll Tell You Why Airplanes Fly

By Franklin M. Reck

N. Y. U. students, under Professor Klemin, study aeronautics first hand! Here they are, listening to Ivan Sikorsky, famous builder.

BACK in 1908, when airplanes were unsafe contraptions, the sport of hardy fools and dreamers, an English professor wrote a paper on stability. It was a highly scientific paper, full of mathematics.

Two men, engaged in building—or attempting to build—flying machines, tried hard to understand the meaning of the paper. Stability, in those days, was a tremendously vital subject. If airplanes were to come into general use, they'd have to be built along lines that would insure stability.

Finally the two men gave up. The paper was too much for them. They brought it to a young man who was just graduated in engineering from the University of London and who was working in the Napier automobile factory for 12 shillings 6 pence per week—about $3.12.

"What's this all about?" they asked, giving him the paper.

The graduate studied it. After considerable mental calisthenics he mastered it and translated it into ordinary language for them.

The man who, twenty years ago, translated the paper on stability for those two airplane builders is the one who—on the opposite page—is translating the principles of flight into understandable language for readers of THE AMERICAN BOY Magazine. His name is Alexander Klemin, and he's now professor in charge of the Daniel Guggenheim School of Aeronautics, New York University. He's had twenty years of interesting and varied aeronautical experience. He's done valuable work for the government. He's designed planes—and built them. In his series of articles for THE AMERICAN BOY, he'll take you into the laboratory and explain in vivid, straightforward fashion the basic principles of flight.

Professor Klemin is an extremely regular guy. He's square-set and athletically inclined. He likes to box. And after you've shaken his hand you'll agree that he possesses ample armament for boxing. This brief description, he protests, has nothing to do with aeronautics, but it helps you to know him—and that's the object of this article. In fact we're going to add that he has a fertile crop of black hair and a pair of brown eyes that harbor a humorous gleam.

Every fellow is usually able to point to some event that marks a turning point in his life. That paper on stability was Professor Klemin's turning point, because after he read it he was—in spirit at least—an aeronautical engineer instead of just "engineer."

Of course other things interested him in aeronautics. The Wright brothers were becoming more and more famous. Louis Bleriot, the daring Frenchman, made a hop across the English Channel. Young men in every country were starting in to build flying machines.

But most of these men—like the two who consulted Klemin on stability—had little scientific training. They built a ship, and if it failed to fly they tried a new design. Many of them "cracked up." Some of the builders lost their lives. On the one hand were scientists who possessed the training and knowledge that would advance aviation but who were not interested in the air; on the other hand were men without scientific training who built ships and attempted to fly them.

Klemin saw a chance to do his share to bring science and practice together. He had the education that enabled him to apply scientific laws to aeronautics. In his spare time he began to read everything he could find on aviation. And finally—even though he had been raised to 21 shillings a week (about $5.25) in the automobile factory—he decided to devote all his time to the new science.

He came to the United States and in 1914 got his degree of master of science in aeronautical engineering from the Massachusetts Institute of Technology. Until this country entered the war he was instructor at the institute and rendered valuable consulting service to a number of aircraft manufacturers. During the war he held a commission in the Army and was in charge of the research department at McCook Field, Dayton, Ohio.

HERE, because he understood French, he acted as interpreter for the French Commission that was in this country to help the United States built better fighting craft. He was the first man in this country to establish methods for determining the strains to which airplanes are subjected in diving and looping.

He developed the practice of sand testing. In this method of testing the strength of ships, you turn a plane upside down and load it with sandbags until you learn just the number of pounds pressure that structure will stand. The reason you turn the ship upside down is that in normal flight, the lift is from below—so far as strain on the structure is concerned.

At McCook Field, Professor Klemin learned to pilot a ship.

"I didn't become a very skillful pilot," he confesses. "I got so that I could handle a ship, but I always had a pilot in the ship with me. I'm naturally heavy-handed, and flying requires a quick, responsive touch."

Other men of Professor Klemin's muscular type have bumped into this same difficulty. For instance, two university graduates recently went to Brooks Field,

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What Makes It Fly?

(*Continued from page 52*)

sition, or in other words the greater the drag.

The famous physicist Lord Kelvin said that we only understood a science when we can make exact measurements relating to that science. Great pains have been taken by aeronautical scientists to measure the wind forces on all possible objects.

For a flat plate, one square foot in area held at right angles to a wind of ten miles per hour, such measurement in the laboratory gives a drag force of three-tenths of a pound.

Can we from this one measurement predict the force on a larger plate of ten square feet held in a stronger wind of 100 miles per hour? Yes, by using common sense to deduce a simple law.

Intuition tells us that as the area of the plate increases, the drag will increase proportionately. A plate of ten square feet in the same wind of ten miles per hour would therefore have a drag of three pounds.

In a wind of 100 miles an hour, there would be ten times as much air reaching the plate in a given time. And each particle of air would have ten times as much impact force as before.

Therefore the force would be ten by ten, or one hundred times as great as at ten miles.

The result is 300 pounds, much more force than a man could exercise.

Ten by ten is of course ten squared and this valuable, yet simple law emerges: the drag forces on a flat plate, a wing or any other object, increases with the area, and with the square of the speed.

The lift force on a wing will also follow the same law, as a little consideration will show.

Streamlining for Speed

THE above simple calculations show how powerful drag forces may become. One of the main problems of the aeronautical engineer is to keep the drag down to a minimum.

The art of reducing drag is often termed streamlining, because reduction of drag follows when objects are given a fish-like, streamline form, calculated to produce few eddies or vortices.

Streamlining is partly a matter of scientific measurement, partly of intuition.

The beautiful lines of a yacht look much speedier to the eye than the clumsy outline of a barge, and of course the yacht is speedier. A man with artistic feeling is likely to design a speedier craft than the engineer who only calculates. The great American yacht designer Herreshoff was blind and whittled his yacht models out by feel. Sir Thomas Lipton, seeking to regain the American cup for Great Britain, employed skilled naval architects who used every method of scientific calculation and measurement. Yet Herreshoff's models always won.

The same principle, that beauty of line will make for greater speed, applies in airplane design. But the aeronautical engineer nevertheless studies the results of tests on all sorts of bodies with great care, because there is such an enormous difference in their drag values.

For example, the resistance of a cylinder ten feet long, and one foot in diameter in a wind of 100 miles per hour will be 314 pounds. The cylinder has an eddying or whirling flow behind it which accounts for its high resistance. But an airplane strut of the same length and the same thickness as the diameter of the cylinder, in the same wind of 100 miles an hour, has a resistance of only 21 pounds or only one-fifteenth as much as the cylinder. The strut is carefully "streamlined" and scarcely any eddies are to be found at its rear end.

If any airplane be examined, it will be found that while the exposed structural members may be made of round steel tubing, these tubes are always faired at the rear with wood, (preferably the very light balsa wood) to reduce their air resistance.

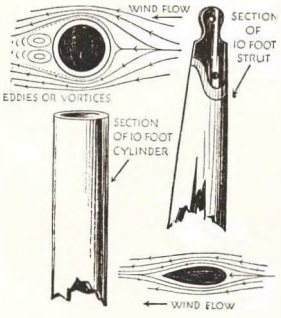
In modern airplanes the exposed stranded wire cables, bracing the wings, are now replaced by streamline wire, which for the same breaking strength has only fifteen per cent of the air resistance of the cable.

Particularly in high speed or racing machines, streamlining is used to the very limit.

Why a Curved Wing Is Better

IT is not only in designing the non-lifting elements of an airplane such as the bracing struts and wires that we must keep resistance down to a minimum. Drag must be avoided also in the design of the wing.

A wing means to us a carefully curved or cambered surface, but a flat plate will give lift too if inclined to the air stream, and the Wright brothers in their first patent show a flat plate as their wing. The flow round the flat plate is shown in our sketch. The air eddies or whirls at



the back of the plate, and in general is deflected downwards. If the air is pushed downwards, the plate must receive an upward reaction or lift, from the air, at right angles to its original line of motion. Since there is some disturbance of the air flow, drag along the line of motion must make itself felt.

At the same wind speed, both the lift and the drag vary with the inclination of the plate to the wind, which is defined by the angle between the direction of the wind and the surface of the plate. This angle is called indifferently angle of inclination, or incidence or of attack.

We discussed the flat plate first, because the Wright brothers thought it good enough once, and because it is the best illustration for certain definitions. But is it likely to show the highest ratio of lift to drag, of load sustained to the thrust required for propulsion?

A comparison of the flow round a well shaped wing or airfoil with that round a flat plate will indicate that the curved or cambered airfoil must be superior in efficiency. No matter how slightly the flat plate is inclined to the wind, there are the fatal eddies on the back. With the cambered wing, when slightly inclined the flow is perfectly streamline. Instead of tearing away violently at the top edge of the plate, the air follows smoothly the beautifully rounded edge of the wing.

How the Wings Really Lift

OUR explanation of the lift of a flat plate was based on the fact that the air passing the inclined plate was deflected downwards, and so gave an upward reaction to the plate. This is quite true, but there is a far more searching explanation of the lift of the wings.

The earth's atmosphere extends to a great height above the earth; fifty miles is a fair estimate. So that although the air is very light, it is pressing down on the earth's surface with an appreciable force, nearly fifteen pounds per square inch and nearly 2,160 pounds per square foot, more than a ton. If we do not notice this enormous pressure, it is because this pressure acts inside our bodies as well as outside. If it only acted on the

outside we should collapse miserably.

The air exercising this great pressure is said to have pressure energy and it can have just so much pressure energy, no more.

To set air in motion requires work or energy and this can only be obtained at the expense of the pressure energy. In other words air in motion has less pressure energy than air at rest.

A very simple experiment will illustrate this. Place a sheet of paper flat on a table and blow along its surface. The air in motion loses pressure. The pressure above the sheet of paper is therefore less than that below, and the sheet curls up.

Air flowing round a wing has a longer path above than below. It is therefore moving faster above the wing than below. Accordingly above the wing it loses pressure and is said to be in suction. Below, the air is retarded by the surface of the wing, and its pressure increases.

Suction above, pressure below—evidently this is the best explanation of wing lift.

And what can be more surprising than that the suction is responsible for the major part of the lift, namely 70 per cent? This is a fact which everyone finds very hard to believe, but it has been verified by the most careful experiments.

Professor Klemin's second article, "Experiments With Wings," will appear next month.

Winged War

(*Continued from page 23*)

Delroy said, leaning casually against a locker, "the dope is that this note could not have got in Russ's pocket through anybody except one of the men working here on the field or—"

"One of us," Blackie finished for him. "Is that what you mean?"

"Exactly!" blazed Russ. "Furthermore, whoever put it here knew what was going to happen—"

"Or what had happened," Delroy put in. "We mustn't forget this. If this Hawk guy has an ally around these diggings—or is around here himself, maybe, he might take advantage of a purely accidental happening, make it seem as though he had arranged it and put this note here just to scare us and send Russ back to the States with his tail between his legs."

For a moment there was silence. Williams appeared to increase in stature, somehow, and his hawk-like face grew steadily blacker. Russ did not notice the expression in his eyes. That dark face had grown grim and cruel, but somehow there seemed to be suffering in those eyes.

"Furthermore," Russ burst forth, "every man on this field has been carefully investigated and there isn't a breath of suspicion against any of them. Unless what's-his-name—the chief pilot, I mean—found out within the last two minutes that there's been some stranger sneaking in here while we were gone, it looks very much as though the man that placed this note here and who is an ally of the Hawk's is right among us!"

"Oh, why don't you come out with it?" Blackie said harshly.

He looked at the two flyers as a king might have looked at groveling subjects. They might have been children whom he could handle with consummate ease, and for whose ability he had nothing but savage contempt.

"You mean that you think I fixed a parachute, faked a forced landing, made you jump, supposedly to your death, and then came back here and planted this note when the stunt didn't work! Come on now, be men, and come out with it!"

The very fact that Russ was suffering as he had never suffered before lashed him into forthright speech from which he would ordinarily have shrunk.

"Suppose we do think that?" he said, taking a step toward the lean Texan. "Why shouldn't we? And what have you got to say about it?"

For a moment Blackie was like a statue. There was thunder and lightning in his long, narrow eyes and his

(Continued from page 55)

mouth was a mere curved slash across his face. The atmosphere was heavy with menace as he faced his enemies as though daring them to come on. He raised his hand slowly and pushed his sombrero farther back on his head. His body seemed to slump. He bent one knee and his shoulders drooped. His eyes found the ground, and there was something unutterably weary in his voice as he said slowly, "Not a thing, I guess—not one dog-goned thing!"

"Sure?" snapped Russ. "If you have anything to say I don't know a better time to say it. I'm leaving for town in just about one minute, and if you haven't a word to say it looks as if the job were pretty near done, Blackie."

Russ was gazing with hot eyes at the man who had aroused his interest and respect as no other human being had ever done. He was almost beside himself with mingled emotions that fought for mastery. At that moment, he hated the man who had disillusioned him, and his big body was quivering with the strain.

Blackie Williams was just a born outlaw, that was all, Russ told himself furiously—a crooked roughneck who did not stop at murder!

But despite the anger raging within him, he got a shock when Williams raised his eyes. For just a second it seemed as if Blackie Williams' soul were bared to his gaze. It was as if the light had been snuffed from life for him and as if he were looking into a future that held nothing but pain. There was shame and heartbreak and bitter discouragement in his face; he had the look of a man who has seen his all swept away.

Then suddenly the sardonic suspect threw back his head. His body straightened and his eyes became two lines of light beneath lowered lids. His mouth widened in a contemptuous sneer, and he seemed about to spring.

"So I'm the fall guy, am I?" he said with slow savagery. "You've tried me and condemned me, have you, you brats, accusing me of murder? Be that as it may. Got it all nicely settled with your one-track minds, have you? Going to leap into town and tell the boss you've got the Hawk with your little hatchet, are you? All right—go ahead! You think you've got it all figured out, do you? Well, either you two get out of this little job or I do, that's a cinch, and we'll see just how we come out, and who's the biggest around here. Great pals, aren't you? Giving me an even break, I suppose!"

FOR some reason or other each word Williams spoke seared Russ to the quick. There was such unutterable contempt and blazing hatred behind those words that the impulsive youngster felt himself withering before the blast of Williams' wrath.

"You might be interested in this," Williams went on contemptuously. "They've just got a wire in Tampico and the detectives that have been looking up Arch Avery found out something. He had a brother back in Minneapolis who was in the Army Air Service during the war and Arch not only visited him for two months at Kelly Field but was turned down by the Army Air Service on account of his eyes. Then Arch took civilian flying lessons for a while, trying to get into the Air Service by that method. That might interest you strangely. Or again, it might not—"

"That wouldn't stop him from having an ally around here. He's not alone!" Russ broke in. His suffering was so great that there was perverse satisfaction in making it greater. The strain of the situation and the bitterness of his disillusionment had turned him temporarily into a sort of madman striving to hurt the thing he loved. For the moment he was beyond logic or reason, rushing ahead because he could not do otherwise.

"Now listen, Russ," Delroy said quickly, "let's not go off half cocked. We might be wrong."

"Oh, no—nothing like that! That would be impossible for the great Russ Farrell!" Williams spat.

Farrell glanced quickly at Delroy. The Duke seemed unhappy, more or less uncertain, and scarcely able to decide what to do.

"Say all you like, Blackie," Farrell raved, "but if you think that we're going to stick our heads into a lion's mouth when we know what's going on—"

"Get on your flying clothes pronto!"

That shout resounded through the hangar. The three men turned as though pulled by one string. It was Appleton, one of the oil field flyers, and he was speeding toward them across the big hangar floor.

"Just got a radio message," he yelled breathlessly. "Three airplanes were sighted over Cordoba, headed for Rebrache, and flying high!"

"What?" yelled Delroy, and the shout was so loud that it reverberated from the hangar roof.

"Then we've got to get going," Williams snapped. "There's your dog-goned Hawk in spite of this note!"

"What makes you so sure?" Delroy demanded. The handsome young pilot was fairly on fire and Russ found himself almost unbearably taut, as though in sympathy with the intense excitement that had seized Williams and the Duke.

"I'll tell you why," barked Williams as he tore off his coat. "Not a soul except a half dozen big bugs were supposed to know it, but the oil company secretly shipped close to a half million dollars in cash to be stored at Rebrache for the pay rolls all through the fields, and the regular pay-roll trips from Tampico were to be fakes to fool the Hawk. Outside of me, there isn't a soul lower than a treasurer and three high bank officials who is supposed to know anything about it—"

"But the Hawk does evidently!" blazed Russ.

Blackie, who had flung the door of his locker open, whirled like a shot. "Another nail in my coffin, eh?" he sneered. "Well, we've got only two ships now. I guess you'd better stay home."

"You're staying home, Williams," barked Delroy.

Out on the line a motor burst into a deep roar.

"I am, am I?" shouted Williams.

For the first time in Farrell's entire acquaintance with the saturnine adventurer, he saw Blackie Williams facing a real crisis. Gone was the languid ease and effortless poise with which he met the ordinary emergencies of life and he was like some flaming superman who would not be denied. In the twinkle of an eye a gun was in his hand.

"I'm still your boss, you brats," he told them icily, "and I go. Understand? If the two of you want to take the other ship, O. K., or either of you separately, it's all the same to me. If you're yellow, stay behind, but don't try to stop me, or as sure as there's a heaven above us, I'll plug you. Get some sense! Get on your clothes! Snap it up, you two, and we'll settle this other business when we get time!"

There were a thousand things Russ wanted to say but could not. He felt himself caught up in a resistless rush of excitement. He seemed to be swept along in a stream against which he was helpless. He found himself tearing off his coat and getting into his flying clothes as though in a dream. Williams was already rushing toward the line where the second motor in the untested ship had joined the mighty chorus that fairly made the hangar walls shake.

"We're a couple of star-spangled nuts, kid," came Delroy's voice, and there was laughter and excitement and a sort of mad delight in it, "but we're on our way!"

Suddenly Russ's head cleared. His blue eyes were shining and his freckled face radiant as high adventure loomed before him.

"If we don't get them," he half shouted, "we'll get some dope one way or another."

"May heaven have mercy on our souls," chortled Delroy. "Let's go!"

Chapter Six

FIVE minutes later the two Bullets were roaring southward over the monte. Blackie, in the untested ship, was nearly a quarter of a mile ahead of Russ and Delroy, and Russ was very

thankful that his deliberate maneuvers to stay in back had been successful. What lay ahead he did not know, but there was one thing he felt certain would occur. Blackie would not do his work obviously—he was too smart for that—but at some time during the next two hours the red-headed pilot was certain that their supposed ally would find a way to be of assistance to the outlaws. Once he had tried murder to get rid of Russ. It would not be strange if, during the course of the battle—if there was a battle—he would find a way to dispose of Russ and Delroy once and for all.

As Russ sent his shiny ship ever higher above the jungle, the twelve-cylinder motor wide open, he scarcely noticed the wilderness below. His mind was too much occupied to have any room for thought about lack of landing fields. It seemed to him in his abnormal mental condition that Blackie's fiery insistence on making the trip was simply another proof of his guilt.

"The Duke and I could have flown the two ships and he could have stayed behind," Russ was thinking. "If I knew that I was under suspicion and that those I was with wouldn't be worth much because they were watching me as much as the enemy, I'd stay behind until things were cleared up. He just wants to be on hand so we can't do any harm."

On the other hand there was Williams' frank statement that beside himself no one but the high officials and respected business men knew anything about the cache of currency at the remote pumping station.

During the last few minutes before taking off, Delroy had said in a manner that indicated plainly his utter astonishment:

"I can't get it. That Hawk guy, whoever he is, knows that money is there or he wouldn't be on his way. Great guns, Russ, we don't know what man we're fighting. It may be one of our own bosses as well as Blackie!" And Russ could not help but agree.

His eyes roved automatically from oil gauge to tachometer, to the thermometer, as he reflected:

"If one of the real big bugs like White or Ransome was crooked on the side and was robbing his own company by backing this Hawk, that makes Blackie's connection with everything much more logical. Those higher-ups would have to join in with the others, of course, on the outside, but all the mystery about where the Hawk gets his dope would be solved that way."

His gaze shifted momentarily to Blackie's ship ahead of them. He was not going to give Williams any opportunity to get in a quick, unexpected shot at them if he could help it. He was wondering what in the world he could do. There would be three certain enemies to fight in a few minutes and very probably a fourth one besides—

As though the desperateness of his predicament was such that it was beyond worrying about, he suddenly thrust out his jaw as though daring fate to do its worst. He could not turn back because he wasn't sure. There was nothing to do but trust to luck, and no amount of figuring or planning could be of any help to him if Blackie Williams turned against him.

This one thing though he knew: that the first suspicious move on Williams' part would find him prepared. He had turned into an automaton who would have no mercy on the dark ex-outlaw ahead of him.

Rebrache was sixty-five miles away, the Duke had said, and the planes had been reported from a point of fifty miles south of the oil station. Their ships would not be as fast as the Bullets and if luck was with him, the outlaws would not have been at their destination more than five minutes before the Curtins arrived.

There was another knotty point. As Delroy had said during those last few hectic moments on the ground:

"If the Hawk isn't one of those three, it will be the first time he has failed to be on the job when there was something big up. But that signature on your note

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is his and nobody else's, and so was the other one that you got in the club!"

If that was true it meant that the aerial outlaw was in Tampico and not in one of those ships. For the moment it seemed to Russ that he was fighting some enemy who was more than human. Then he got hold of himself and soliloquized swiftly:

"I'm getting to be like a kid afraid of the dark. This bird gets a big kick in advertising himself and doing all this mysterious note-writing and grandstanding, that's all."

They had been in the air thirty-five minutes when he turned to Delroy and pointed to his wrist-watch. Delroy nodded. If ordinarily he was a vital personality who fairly exuded energy and joy in living, he was now a veritable dynamo. It seemed as if the news of those three ships almost certainly bound for the biggest haul the Hawk had ever made, had lit a fire within him. For some reason the Duke seemed astonished, bewildered, and utterly delighted all at once to an extent that was scarcely explainable by the mere fact that they were about to come to grips with their enemy. Russ himself was quivering with eagerness but even he, impulsive and eager as he was, was not transfigured as the Duke was.

Russ strained his eyes over the colorful jungle trying to spot the station. It should come in view any moment now. Far to the east of them two gaunt derricks reared their crown blocks to the sky, and westward three neatly painted buildings and some tanks and a battery of pumps indicated a relay pumping station. Here and there an opening broke the monotony of the tangled monte and one rutted road was like a white streak through the luxuriant growth which covered the ground.

It was hard to remember that uncounted pipe lines were buried beneath the ground below and that at dozens of points there were wells and pumping stations and isolated drilling camps. He had always thought of an oil field as a compact group of wells—

Suddenly he leaned his head out the side of the cockpit and strained his eyes ahead. In the sky a few miles ahead of them were two black specks. He pointed and so far forgot himself in his excitement that he failed to take into account the terrific air stream compounded of his speed and the propeller wash. His arm was thrown back and almost dislocated before he stiffened it against the pressure. Delroy nodded vigorously and significantly patted the machine guns that swung on a scarf mount in the rear cockpit.

Russ took a look at his instruments and throttled slightly as though to rest the motor before he should call upon it for its all. Blackie, a quarter of a mile ahead, was hurtling southward with unslackened speed. A moment later Russ could see their destination. There were a half dozen derricks in an area three-quarters of a mile square, and in the center of the rough circle they described the jungle had been cleared. Huge sumps—storage places for oil, were like black sheets against the green. Half a dozen rough roads twisted and turned to the wells and a dozen black storage tanks were connected by pipe lines. In the very center a big shed masking a battery of pumps was the center for several large pipe lines.

For just a second Russ wondered why those pipes gleamed as white as snow, but he forgot that as his attention centered on one airplane that was on the ground. The other two were still circling. He almost jumped in his seat as the motor suddenly died to a whisper. The next second Delroy was shouting in his ear.

"Don't worry. I cut it. That's the Hawk as sure as you're alive: He always does that stunt when he has more than one ship. One lands and gets the swag and the other protects him from the air with machine guns. Leaves a whole regiment helpless on the ground, see?"

Russ nodded as he turned the motor on again. That was the old method of the Border patrol. One machine in the air could handle an army on the ground if there was ammunition enough. They were but three miles away now, and apparently still unnoticed by the outlaw fliers who were circling the pumping station steadily. Two miles beyond it a large settlement of thatch-roofed huts must be the original Mexican town of Rebrache. Dozens of peons dotted the crude street, and now Russ could see that around every well there were men standing motionless watching the planes.

IN front of the group of screened buildings that were doubtless the living quarters of the oil men, there were still others; and no one was even moving in his tracks.

"Well trained, I see," Russ thought excitedly.

His heart was pounding and every nerve in his body seemed to be leaping within him as he tried to make a plan. They were higher than the circling outlaw ships, almost two thousand feet higher, in fact; it gave them the advantage. But what about Blackie Williams?

Suddenly a thought occurred to Russ. One ship was on the ground now. He could see an excited group just emerging from one of those screened buildings. Probably one of them, or perhaps two, would be from the ship which had landed. Blackie or no Blackie, there was one way to make sure that their mission was not entirely unsuccessful.

He cut the gun and turned to yell to Delroy. He saw that the circling planes had seen them. One of them started climbing like mad. The other stayed on guard as two men fairly shot from the group he had noticed on the ground and dashed toward their ship, almost a quarter of a mile away. There was but one landing field and that was on the outskirts of the camp. Farrell's voice rang out shrill with excitement as he shouted his desperate plan to Delroy.

"O. K.," shouted that blond young daredevil. "Let's go!"

Chapter Seven

RUSS took one look at Blackie. He was just starting to dive earthward. Then he shoved the stick forward almost as far as it would go. He did not cut the motor. That ship which was the last word in airplanes would be tested to its utmost capacity in the next moment.

He was four thousand feet high. Within five seconds he was diving like a meteor straight for that plane on the ground. He trusted to Delroy to watch their enemies, were there two or three of them in the air. He himself kept his eyes on the ship below and the two men who were speeding toward it.

The air speed meter went from one hundred and fifty miles an hour to one hundred and seventy-five, two hundred—and still Russ did not falter. He was crouched behind his windshield to prevent the breath from being torn from his nostrils and every once in a while he glanced at his instruments as the speed meter went ever higher. Two hundred and twenty-five, two hundred and fifty—

Every strut was leaping in its socket and that marvelous ship was quivering in every brace and spar. The landing and flying wires were wide blurs and the scream of the wind through them almost drowned the frantic roar of the motor.

Could he beat those flyers to their own ship? He did not want to kill them—

Out of the corner of his eye he saw one of the outlaw ships send a burst of machine gun bullets into the ground as the knot of men in front of the buildings started to scatter. Not a soul on the ground dared to shoot at the fleeing airmen, apparently, or else they had no weapons handy.

Fifteen hundred feet high, and the air speed meter needle was jammed tight against the peg which read three hundred miles an hour! It seemed as if the ship could not stand another moment of it, but still Russ did not draw back on the throttle.

The men below were almost beside their ship now. It looked as if he could not carry out his plan to keep them on the ground.

He felt a grip on his shoulder and to his dying day he will never forget what he saw as he turned. Scarcely two hundred yards behind them and on their tail was the ship that had been doing guard duty. The flyers on the ground were out of danger from the oil men now. They were ready to fly away. From the guns of the outlaw ship came spurts of red. Russ did not know it then, but there were bullet holes in his right wing as he swerved automatically to spoil their line of fire. Directly behind the outlaw ship was Blackie Williams; and behind Blackie, five hundred feet higher, the remaining enemy plane was firing at Williams. Four ships were diving terrifically in single file, each one shooting at the ship ahead of it.

Blackie, of course, knew that he had an enemy on his tail because he was swerving as though to spoil its aim, but always he was shooting at the ship that had Russ in its power. Blackie was deliberately allowing himself to be a target in order to save Russ and Delroy from destruction—and he did it.

JUST as the windshield in front of Russ shattered into a thousand pieces from one of the enemy's bullets, the khaki colored plane fell on its side. The next second it was speeding downward out of control and Russ got one lightning-like glimpse of a single figure slumped in its front seat. Blackie had got him, and as his Bullet went into a terrific bank to escape the remaining outlaw ship, Russ turned back to his work again.

It was well that he did. His mind had been a riot of conflicting emotions but the shock of seeing the ground almost hitting him in the face wrought a magical change in him. Suddenly his mind was as clear as crystal. The infernal din of the racing motor and screaming wires was forgotten. That his ears were ringing with the steep descent and his eyes watering as the terrific air stream crept in under his goggles seemed to make no difference.

The plane on the ground was in motion and Russ was still three hundred feet high but flashing earthward with almost incredible speed. The outlaw plane was in the air now, climbing madly. For a moment his hands tightened on the gun control alongside the stick. No, it would do no good to kill them—

An explosion that shook his own ship was followed by a crimson glare that momentarily seemed almost to cover the ground. Blackie's victim had crashed and the gas tank had exploded. Russ swerved slightly. Now he was but a hundred feet from the fleeing plane, behind it and above it. If he could only get the men in it alive, perhaps the job would be done in one fell swoop. It must be

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that one of those men was the Hawk—

Careless of the air stream, which was like a solid substance fighting him, he leaned out the side of his cockpit, holding his goggles to keep them from being ripped from his head. He could not breathe, but his mind was miraculously clear and his eyes held steady as he darted toward his prey. Three hundred hours in the air and hundreds of emergencies where there was but a hair's breadth between himself and disaster had contributed to the expertness that enabled him to handle his stick with such fine drawn skill that an eighth of an inch was automatically and accurately estimated.

His body was stiff as a poker as the outlaw ship loomed before him and a hail of bullets from the free swinging gun mounted on its rear cockpit poured straight into the radiator. His eyes were on the tail controls. A split second later he eased the stick forward an infinitesimal fraction of an inch. The wheels of his undercarriage ripped through the rear end of his adversary's fuselage as though it had been paper. The next instant the Bullet was arching upward in a mighty zoom that carried it eighteen hundred feet higher without a break.

That ship might crash without killing its occupants, now.

Russ's eyes swept the sky. At almost the same altitude as his, Blackie and the remaining outlaw ship were engaged in mortal combat. They were twisting and turning through the sky like huge dragon flies, and scarcely a second passed without a burst from the guns of one or the other. The enemy ship had two men, and rear seat guns, Blackie was alone.

Russ's eyes darted to the ground in time to see what happened. The ship which he had collided with in his desperate effort to avoid shooting down the fugitives crashed into an oil derrick, out of control. The gaunt structure of unpainted boards crumpled like a house of cards as the heavy motor ripped down through it and shattered on the heavy cast iron valve. Those flyers were killed inevitably.

Then there burst on his vision a sight that momentarily paralyzed him. He forgot those ships above as it seemed that a vast bonfire had been lit in the very air.

He was far to one side of the wreck, but he could see it plainly. For an interval of fifteen feet above the well and the wrecked ship there was no fire except for what was dwarfed into a tiny bonfire—the ship itself burning. But, starting fifteen feet high in the air, a vast cloud of red-hot black smoke was bellowing over the earth.

Russ knew something about oil and immediately he grasped the explanation. The valve had been knocked from the top of the flowing oil well, and all Mexican wells in that vicinity were heavy gassers. The gas had not ignited until it had expanded, some fifteen feet up in the air. There it burst into flames started by sparks from the wreck and was consuming the oil in an aerial conflagration. He could feel the heat of it, far away from it as he was.

IT was a scene of horrid grandeur, but Russ had no time to admire it or to speculate on the almost limitless possibilities for destruction that lay within that mass of smoke. His eyes were on the combat above him, and as he started to climb desperately he felt as though he must help lift his ship upward faster.

Blackie was on his way down now, twisting and turning to escape the bullets of the enemy.

"Out of ammunition, or out of control, or hurt!" Russ thought.

There could be no doubt about it. Blackie had ceased to fight back and the other ship had him at its mercy. Only Williams' marvelous mastery of the airplane had saved him during the past few seconds, but no flyer in the world in his predicament could hope to reach the ground safely. Then, as though an evil fate were piling blow on blow to destroy the aerial policemen, Russ heard Delroy's voice shouting in his car, "Look at your thermometer!"

Farrell, climbing automatically, glanced at it. The mercury stood at a hundred degrees centigrade, and that meant that the water was boiling. In a second he realized what had happened. Bullets from the outlaw ship he had fought had poured into the radiator, and most of the water had leaked out. It was but a question of seconds, probably, before his motor would be useless, and fire was a strong possibility.

Blackie was below him now and five hundred yards to one side. He was endeavoring to maneuver himself into the dense black smoke of the oil well fire to escape his Nemesis. The pursuing plane was also below Russ, firing steadily at the elusive target beneath it.

In an instant Russ made up his mind. He must save Blackie, motor or no motor. As he threw his ship into a bank and got on the tail of the enemy plane, he cut the gun momentarily and yelled, "You'd better jump. There's no need of both of us—"

"Aren't you funny!" yelled Delroy. "Ride him, cowboy—you've got the guns!"

But Russ didn't have the guns. The enemy plane was too far below him now for accurate shooting, but nevertheless he pressed the gun controls; and the Marlins did not answer.

"One of those bullets jimmed up the C. C. gear!" he thought despairingly.

He continued to hold his ship in the dive automatically. It was flashing downward toward the enemy now at two hundred miles an hour. Blackie was partially concealed by thin wisps of smoke on the rim of the fire. The heat was terrific, and growing more intense every instant as Russ hurtled closer to the conflagration. Blackie must be suffering the tortures of the damned already and if he got fairly into that mass of smoke, death would be almost certain.

Then and there Russ made up his mind. Fate had pounded him into a state that approached physical insensibility. There was no fear in him, and life itself seemed bound up in one single objective. Foot by foot he overtook the plane below. It was banking and twisting in an endeavor to keep a bead on Blackie. Russ was conscious of the fact that a stream of lead from the rear guns of the bandits below was pouring into his radiator, which acted as a shield.

He was but twenty-five feet from the bandits now, and it must be that they realized that all the guns on his ship were useless. The man in the rear seat was firing steadily, but there was no attempt on their part to get out of his way. Russ's wings were a mass of bullet holes and the duralumin struts did not have an inch of surface undented by the hail of bullets from below.

NOW he was almost on top of them and the time had come to dare his all. Blackie was almost hidden by the smoke now and Russ himself could scarcely breathe. Veteran of a thousand emergencies of the air as he was, he had never been so certain that death or serious injury awaited him as he was when he deliberately thrust his head over the side of the cockpit and out of the bullet-proof shelter of his motor. He had to look to make sure of what he was doing—

It seemed as if a red-hot iron had seared the side of his neck in the instant before his metal prop cut through the tail surface of the outlaw plane. He held on to consciousness long enough to jam his stick to the left and forward. The Curtin tore loose from its victim and whipped backward and downward out of the range of fire of the rear guns. He got a flash-like impression of a leather-masked face in that rear cockpit; then unconsciousness came like blessed escape from a world gone mad.

He came to briefly an hour later to find his aching head bandaged as well as his neck. He was lying on a cot that was one of four in a bare room. It was just getting dark and through the screens that were the only walls in the room he could see that the fire was still raging.

"Delroy brought the ship down, and there must have been a wreck," he thought vaguely.

A Mexican boy was sitting outside, but Russ was too weak and his head was pounding too cruelly for him to bother to ask questions. Wondering about Blackie, he lapsed back into slumber that was almost a coma.

He awakened again three hours later and this time his head was clearer and he felt a great deal better. The fire was still raging and the eerie glow of it lighted the room sufficiently for him to see the figure of a man on the cot farthest from him.

It was Blackie Williams, fully clothed, and apparently sleeping the sleep of the dead.

A great wave of gladness swept over the young flyer. Blackie was all right—all right in far more than a physical sense. He had fought like a madman that afternoon—more than that, he had risked almost certain death to save the lives of the two men who had accused him of being a traitor.

It was characteristic of the sensitive Farrell that he entirely forgot his own efforts to save Blackie and he was thinking miserably, "I wonder if he'll ever forgive us—"

Cat: "The next time this bird comes out of that hole I'll sprinkle some salt on his tail!"

Blackie stirred, and his eyes opened. The lean Texan sat up, and his eyes met Farrell's. For a moment it seemed as if Russ could not speak. Then he said awkwardly, "Am I hurt badly?"

THERE was no softening in Blackie's face as he returned shortly: "No. Bullet creased you and you hit your head on the compass, landing."

"Where's the Duke?"

"Left for his oil camp in a car going that way."

Russ strove to say the words that were on the tip of his tongue, but somehow he could not. The hundred apologies and pleas for forgiveness that he would have liked to utter were almost choking him, but the coldness in Blackie was like a dam of ice that held them back. Williams slumped back on the bed, his arms behind his head.

"Everybody's fighting the fire, I suppose?" Russ stammered finally.

"Uh huh."

"Did we get any of 'em alive?"

"No. Couldn't even identify any of 'em."

"Well, then, I guess the Hawk's wings are clipped, eh?" Russ said with an effort.

There was no answer from the other bed. Williams lay motionless, staring at the ceiling.

"Good evening, gentlemen."

The two flyers turned toward the door. Russ was startled because he had heard no sound. The next second he had snapped up in bed, his mouth open with astonishment. Standing five feet from him was a very tall, very broad-shouldered and very powerful man, lounging easily with long legs bent slightly as he leaned against the wall. His face was covered with a leather mask that fitted it almost as closely as though it were his skin. There were dark glasses covering the eye holes, and behind the opening provided for the mouth Russ could see gleaming white teeth with a prominent gold filling in one of them. The man's head was covered with a soft leather helmet that met the mask over his forehead, except at the right temple. There face-covering and helmet did not quite join, and a stray lock of black hair was visible.

"I heard you were sick," came that deep bass voice, with a laugh; "so I thought I'd call before I borrowed one of your ships."

"Who in Tophet are you?"

It was Blackie, and his question was like a blow.

"I haven't a card with me," laughed the stranger, "but you'd probably recognize my signature. People have got into the habit of calling me the Hawk. Silly name, what?"

(*To be continued in the December number of* THE AMERICAN BOY.)

He'll Tell You Why Airplanes Fly

(*Continued from page 63*)

the Army Flying school in Texas. One was tall, broad-shouldered, a football star, the other was small and had never played on any athletic team. The smaller, more sensitively muscled man, stuck it out. The other never became a safe pilot and finally had to give it up.

After the war Professor Klemin resumed his practice as consulting engineer. During that time the government was asking for competitive designs on Army and Navy planes. Professor Klemin had a number of designs for Army training planes and Navy expeditionary planes accepted. He designed the first amphibian gear applied to an American flying boat.

When the government decided to establish an air mail, he was called in as consulting engineer to Otto Prager, second assistant postmaster general. In this capacity he advised on the types of planes to buy, on the routes, landing fields, and equipment to be used.

The time will come, Professor Klemin believes, when letters will go by air more generally than by first class. He believes, too, that ships will become larger, and that 100-passenger ships are entirely feasible.

In 1922, he gave the first course in aeronautics at New York University, and later, when the Daniel Guggenheim school was established through Mr. Guggenheim's $500,000 gift, he was asked to take charge. He designed and supervised the construction of the laboratories that now comprise the school. It is an exceptionally well equipped school, with a large and small wind tunnel, a room for testing airplane motors, equipment for testing ribs and beams and other structures, and a shop for constructing experimental models.

He has many side duties. He's consulting engineer for the aeronautics branch of the U. S. Department of Commerce. He's technical adviser for the Guggenheim Safe Aircraft Competition. He writes for aeronautical magazines and has published a textbook on aeronautical engineering.

In THE AMERICAN BOY, he'll give you—step by step—a ground school that will help you to understand correctly the laws that govern the flight of an airplane.

His Night of Glory

By Allan Swinton

High in India's hills, Mark Slane the Fifth fought at the head of Slane's Own—fought as all Slanes had always fought, won as no other Slane had ever won.

A December Story of Courage

Spies of Suleiman

(Continued from page 10)

there in the dark, and buried, hearing the celestial host.

As the chanting died away, Benedict drew a choking breath. "The Knights of St. John—at their services!" he said between clenched teeth, his hand gripping Oliver's arm painfully.

Then, echoing through the pillared crypt, sounded a voice from the chapel above, the austere, profoundly stirring voice of the Grand Master himself:

"*Thou shalt love the country where thou art born. . . .*" And a mighty murmur answered him.

"*Thou shalt never retreat before the enemy. . . .*" intoned the deep voice. Again rose the response, like the rise of water in sea caves.

"*Thou shalt wage war without truce on Infidels. . . .*"

"It is the oath of loyalty," Benedict whispered. "This must be the sacred mass that begins at midnight."

Then Oliver suddenly shivered as he understood. "Benedict, don't you see? We have found the listening gallery of the spies of Suleiman!"

AT that instant, Benedict clapped a big hand over his mouth—breathed a warning: "A light!"

There, far between the pillars, a light was coming toward them, wavering, growing brighter, coming nearer. Down the crypt they saw approaching the monk's frocked figure, with the cowl thrown back revealing the lean cruel face of Riego the Spanish mercenary. Behind him the Armenian wine seller's puckered face showed ghoulish in the hollow shadows.

Rousing from thunderstruck horror, Oliver drew Benedict swiftly behind a pillar. But an unseen keg of powder there treacherously tripped the big boy, so that he fell with a crash and rattle of the keg.

From Riego, now all too near, came a cry of triumph: "We have them, Namidian! We have them!"

"Take the cutlass, Oliver—I've my fists!" And Benedict vanished into deeper shadows.

Oliver dodged behind another pillar. He could hear the asthmatic panting of the Armenian, see the wavering of his lamp, searching out the shadows. From somewhere near, came the stealthy pad of Riego's feet. . . . Where was Benedict?

There flashed into Oliver's mind the memory of old games played on the cliffs of Devon by the sea. Hide-and-seek, played in the sunshine, to the sound of laughter. But torture and murder stalked the hiders here, and the fate of Rhodes hung on the outcome.

Suddenly in the flashing beam of the lamp Benedict's startled face shone out, and the old man gave a cry like a swooping hawk's. Just as Riego wheeled to look, Oliver with a shout leaped out upon him, and drove his cutlass through the monkish robes. But he heard the sound of steel on steel, and realized that hidden armor had turned his edge aside. He fell back, struggling against Riego's counter attack. Blade clashed on blade. But it was the battle of a slight boy against a strong man.

At the instant when Oliver's thin wrist flinched sickeningly, however, strong fingers caught the cutlass from his hand, and Benedict was there, shielding him with his body, parrying and thrusting, sending weird shadows wavering wildly over the vaulted ceiling. Yet back and back Benedict fell before the Spaniard, his slow bulk no match for that fierce skill.

All at once, Oliver woke from paralyzed watching, and with a cry lunged out upon the Armenian and sent the lamp crashing, with a clatter of metal and a reek of oil, into darkness.

"Hola!" he shouted desperately. "Hola, Sir John! Help, help!" His voice all but burst his throat, and with a leap of his heart he heard Benedict's lusty shout joining his, till the crypt rang with tumult and the clash of arms.

It seemed an age of torturing pandemonium until a door crashed open, defying rusty bolts, and a blinding shaft of light streamed into the crypt. Swords drawn and torches aloft, the Knights came pouring in and surrounded them. The Spaniard, with a curse and a groan, fell to his knees, fumbling to pull the cowl over his head.

But nothing could avail now to hide the arch-betrayer of Rhodes from the stern eye of de l'Isle Adam. The boys' story was told, and the traitor was led off in chains, with his whining confederate.

Then the Grand Master turned a face alight with austere approval to the two who knelt, each on one knee, before him.

"This night's work is well done." He spoke in the serene, stern voice that thrilled all men who served him. "You are both young—younger than any who have entered our Order. But you have proved yourself men, both, and for your valiance and your loyalty you shall be permitted to take the vows of faith and chivalry that will grant you sword and armor and the cross of our most puissant brotherhood."

In the Morning Mail

PLUTO and the ed in deep conference. Pluto's tail thumps nervously, switches to the other side and thumps again. Pluto's ears prick up. Finally the two nod and Pluto turns abruptly to his desk.

"All right," he yaps, "we'll send the five dollars of my salary, this month, to a girl. Our readers are sportsmen, and if a girl sends in the best letter they'll want her to have the prize."

Miss Caroline Claiborne, Des Moines, Iowa, has sent Pluto one of the most interesting letters he's ever received. It deals entirely with stories in the magazine. It's loaded with praise and criticism that is carefully and sincerely phrased. Here's as much of it as we have room for:

"What I rabidly crave," writes Miss Claiborne, "is some more of Lex Brassgat's adventures. Kent Curtis is a fine writer, and from the impression his stories gave me, he is also a fine man. Anyway, his stories are unexcelled. Their plots are always well conceived; things happen and keep happening with more quirks and turns, more adventure and excitement than a lesser plot could possibly afford. Kent Curtis's characters are real and life-like. On top of this, his style of writing is genuinely good. You cannot put his story down unfinished. These, and many other excellent points, make perfectly delightful tales, such as 'The Blushing Camel' and 'Drumbeaters Island.'"

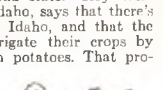
The writer then goes on to plead to have Renfrew back in the Mounted Police. She says that the Wally-Stanguey Navy stories are often hard to understand because of the technical material they contain, and that the Thomson Burtis air stories are too similar to each other in plot. Mr. Burtis, though, she agrees, knows his flying. She wants sports stories that are unusual, spook stories and mystery stories. She likes animal stories—not fish stories, but yarns about foxes, tigers, horses, dogs, elephants and grizzlies.

"Pluto," she concludes, "I intend to take the magazine until I'm ninety. Then I will renew it for another ten years. If you don't think I'm AMERICAN BOY all over you should see me scrap my brother for the latest issue the minute the postman shows up with it."

There were five pages to Miss Claiborne's letter, and every page was filled with careful analysis. She told not only what stories she liked and didn't like, but *why* she felt as she did.

Like Miss Claiborne, Bob Sohngen, Cincinnati, wants mystery stories. "Mark Tidd," he explains, "is good, but he's only in four issues a year at the most. Jerry Todd and his pals used to solve many a humorous thriller in THE AMERICAN BOY. When Todd and 'The Whispering Mummy' were running, the fellows on our street would get together in an old hammock after dark and spin blood-curdling solutions for the mystery! For a contest, why don't you print an unsolved mystery story and let the readers solve it?"

"Here's a letter," grins Pluto, "from Idaho, the great spud state. Roy Wiedenman, Wendell, Idaho, says that there's not enough rain in Idaho, and that the farmers have to irrigate their crops by crossing onions with potatoes. That produces a potato with watering eyes. Roy also says that he's experimenting to graft milkweeds on strawberries to produce strawberries and cream. Roy has Luther Burbank skinned a mile."



Extra! F. F. Seeburger, Denver, Colorado, has put himself on a diet. He permits himself to read only one story a day from THE AMERICAN BOY so that the time between issues won't seem so long!

"Here's an interesting stunt," Pluto enthusiastically exclaims. "Clement Fairweather, Jr, Metuchen, New Jersey, who has been taking the magazine for two and one-half years, gives us a best reading ballot that covers the entire period. The best cover in that time, he says, is the Harrison Cady cover showing scores of boys at work on airplane models. The best serial was 'Seventy-Six' by Reginald Wright Kauffman. For the best short story, he couldn't decide between 'The Great Lazy Mush' by Ellis Parker Butler, 'Crusoe Treasure' by the same author, 'Tierney Meets a Millionaire' by John A. Moroso, 'Whistling Jimmy, Coach' by William Heyliger, and 'The Boy in the Silver Ship' by Thomson Burtis. The best article was 'The Yale and Princeton Quarterbacks Talk It Over'—the article in which the two quarters talk over their 1926 game and tell just why they played as they did.

"Gosh," grunts Pluto. "Here's a fellow — John Roth, Evanston, Illinois — who noticed that the girl character in 'The Phantom Fokker' had gray eyes at the beginning of the story and blue ones at the end. Nothing gets by our gang of lynx-eyed readers!"

"And here's another chap," comments the ed, "Jack Atkinson, Kenmore, who says that Wally Radnor, the Hairy Ape, in Miller's sea stories, is the best character in the magazine. I wonder what some of the other contribs think."

Send us your letter, fans, selecting the best all-time character in THE AMERICAN BOY, and telling us why you like him. Russ Farrell, Doug Renfrew, Connie Morgan, Mark Tidd, Bonehead Tierney barred!!!

"I wish," Pluto eagerly goes on, "we could get some all-time best reading ballots from five and ten year subscribers!"

Two months ago Pluto asked Morning Mail fans to send in their selection of stories for an ideal issue. He asked the readers to name two serials, six short stories and two departments. Here's Fairweather's selection:

Serials: one by William Heyliger; a Nicholas Rowntree serial by Kauffman. Short stories: Jibby Jones, Jim Tierney, athletic story by Ralph Henry Barbour, college story by George F. Pierrot, sea story by John Webb, and a Connie Morgan by James Hendryx. Departments: AMERICAN BOY contest, Funnybone Ticklers.

WILLIAM FREEDMAN, Albany, New York, suggests this ideal issue: A baseball serial by Heyliger, a Mark Tidd by Clarence Budington Kelland. The following short stories: Jibby Jones, a Sheriton story by Pierrot, Russ Farrell by Burtis, Derry by Hubert Evans, Navy by Miller, pirate story by Stephen Meader, author of "Longshanks." Departments: Stamps in the Day's News, Funnybone Ticklers.

Here's an issue that would certainly be crammed with adventure and excitement. It's selected by Bob Crossley, Arcadia, California. An African adventure serial by Major Charles Gilson (Remember his "Zulu Trail"?), a sea serial by Howard Pease, author of "The Tattooed Man." Short stories: Bonehead Tierney, Sheriton, Heyliger athletic story, Renfrew Mounted Police yarn, Russ Farrell, Connie Morgan. He'd like, also, an athletic feature, a biography like "They Gave the World Wings," and Friendly Talks and Funnybone Ticklers.

Scores of other ideal issues came in and nearly every selection was good. One suggested a futuristic air serial by Thomson Burtis. Nearly every one asked for a Heyliger serial. Many want another serial by Stephen Meader along the order of "Longshanks." In short stories, Tierney, Russ Farrell, Sheriton, and Renfrew lead. Everyone seems to be unanimous for Funnybone Ticklers.

Two letters, this month, from far-off lands. John Frame, Resht, Persia, informs Pluto that Resht is a prize place for fleas, dogs and cats. Philip H. Chadbourn, Dordogne, France, says that his father runs a school for English and American boys. The school is located in an old castle that was built in the year 1553.

"This summer I was allowed to take a trip on a steamer to the Panama Canal," writes Howard Young, Berkeley, California. "John Stein, who won first prize in the September Morning Mail column, spoke of the heat. Boy, he ought to get down in Guatemala about two o'clock in the afternoon. The native proverb is that 'only dogs and white people walk in the sun.' You can imagine us 'tourists' shuffling around in the heat of the day, just dripping perspiration while the better class natives surveyed us amusedly from the cool depths of shady patios. On the average I changed shirts three times daily—and the shirts weren't dirty either. They were dripping with perspiration. If you took out a handkerchief to mop your face, you had to get out another one to wipe off the arm you were using!"

"If I went down to Guatemala," mutters Pluto, "mebbe I could drown my fleas in sweat!"

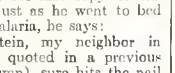
In this month's mail, the subscriber who has taken the magazine longest is Maurice Hartz, Huntington, West Virginia. His record says nine years. But Edward Raschke, Oaklyn, New Jersey, is out after the prize. "I've been taking THE AMERICAN BOY for five years now and have enjoyed it more and more each year," he states. "Will you please tell W. Irvine Wiest, Shamokin, Pa., that I expect to catch up to him some day on his fifteen-year subscription because I have no intentions of ever stopping mine."

And here's a take-off on the cartoonist, Claire Briggs, by Bruce Pickett, Hamilton, Ontario. He writes: "When you leave for your summer cottage before you get your AMERICAN BOY, and you know it will be a good issue, and you can't find a news stand that has any copies left, and you endure two weeks of misery without one, and then you return home, to find your own copy right where the postman dropped it. . . . Oh boy! Ain't it a grand and glorious feeling!"

Many readers are writing in about the biography of the Wright brothers. "The story of the Wright brothers is perfect," writes John B. Castyglone, and his sentiment is echoed by a lot of contribs.

But before the rest of the office howls that Pluto and his department are eating up all the space in the magazine, we'll have to ring off. Remember that we want letters and every letter will get at least a postcard acknowledgment. We'll quote from every one we can and give five bones of Pluto's salary to the winner.

We'll end up with a paragraph from the letter of John P. Crawford, Kokomo, Indiana. After telling us that his last copy of the magazine arrived just as he went to bed for a week with malaria, he says:



"Pluto, John Stein, my neighbor in Illinois, (who was quoted in a previous Morning Mail column), sure hits the nail on the head when he asks if a man would amount to much if he had everything he wanted. He'd be miserable if he had everything he wanted. It's fighting and building and dreaming for the goal at the foot of the rainbow that makes life the great game it is."

Build These All-wood Models

(*Continued from page 19*)

If you want to cut a shallow groove in the fuselage to receive the fin, you'll reduce weight a trifle and increase strength.

Right now you've done most of the work. If you're furnishing your own material, you must warp your wing and elevator at the exact center to the dihedral angle shown in the drawing. This you do with steam or heat as explained in the A. M. L. A. Manual which is included in every League kit—on this page you are told how to get this if you are not using the kit. Once you have the warped pieces, you may either leave the ends square, round them or give them any other desired angle. Greater lightness may be obtained by sanding the elevator to 1-64 in., though this is at the expense of strength.

Now, with two rubber bands, attach wing and elevator to the fuselage. Each band goes under the fuselage and is drawn up over the wing or elevator. The drawing shows the model set for a long, even glide.

Your glider's ready to fly! Simple, isn't it?

To launch it, hold it in your hand with the elevator forward, your forefinger at the rear end of the fuselage stick, thumb and second finger grasping it firmly. A little practice will tell you the proper "horse-power" to apply to get best results. It won't be much, for a very little push sends the McLaughlin Glider scooting and sailing along.

By setting the wing forward, you can make it climb; by advancing it still farther, you can loop it. Some fellows, removing the elevator entirely and setting the wing almost at the center of the stick, have obtained four loop-the-loops!

To use the glider with a rubber sling, get a piece of 1-8 in. flat rubber eight feet long, double and tie it, and fasten the ends of this two-strand motor to two stakes set in the ground about three feet apart. Fasten the glider hook (made of No. 13 piano wire, .031 size) into the lower side of the fuselage as shown in the drawing, using ambroid to strengthen the fastening after the prong is pushed firmly into the wood. Catch the hook over the rubber, pull it back five or six feet, and let it ride! One boy sent his glider 200 feet over a big church with a rubber catapult like this. See what your best record will be.

Now you're ready for the Tichenor Midget—a mite, but mighty! Its namesake is Frank Tichenor, a vice-president of the League and the publisher of the *Aero Digest*—a great friend of model aviation. The Midget is a pusher, and a corking good model. You'll recall that Albert Mott of Detroit won the national senior indoor championship, with a record of 342 seconds, by using an indoor pusher of another variety.

Next, the Pusher

THE Tichenor Midget, though not so excellent a performer as the Mott pusher, is a lot easier to build and productive of a lot of interesting stunts. Once you've built it, moreover, you have a good start toward putting together the more complicated model. So take your motor stick and commence.

The motor stick receives the stabilizing fin or rudder in exactly the same manner as the glider, except that the fin is set at a slight angle if the model is to be flown indoors—this makes the plane circle. The drawing tells you dimensions, and shows the angle and position of the fin.

Cement the front hook to the under side of the fuselage, and the thrust bearing to the rear end—again the drawing shows you how. Now take your propeller—already prepared and drilled if you're using the League kit, but a thing you'll have to make according to directions in the Manual otherwise—and insert the propeller shaft. Notice that, since the model is a pusher, the shaft goes through from the straight leading edge. Be very sure that the propeller shaft is straight; otherwise your prop will wobble and upset the balance of the plane.

When the shaft is through the prop, bend the projecting end back upon itself in a U and push the U so that the short end locks itself in the prop. Ambroid the prop lightly all around its hub for strength. Put the two small brass washers on the shaft, slip the shaft through the eye in the bearing, and you may hook the two-strand motor, a tied piece of 1-8 in. x 22 in. rubber, to the front hook and the shaft.

Wing and elevator, you'll note, are almost identical with those on the glider. The elevator is 5-16 in. wider; the wing has wash-in and wash-out, and a slot 3-8 x 3-4 in. cut in it. Once they're made, attach them with rubber bands to the fuselage.

You're ready to take off!

First, you should glide the plane several times to be sure the wing setting is right. When wing and elevator are adjusted so that you get an even, loafing glide, give the propeller 150 turns, counter-clockwise. Hold the fuselage in the right hand, the prop in the left; when you're ready, release the prop and give the plane a gentle push forward.

Then watch her fly!

The pusher type of plane is sometimes erratic, but there are a number of ways of overcoming balkiness. One is wing-setting. Another is "wash-in" and "wash-out," a twisting of the two wings (the Manual explains it fully) to increase stability and overcome the torque of the propeller.

What's Your Record?

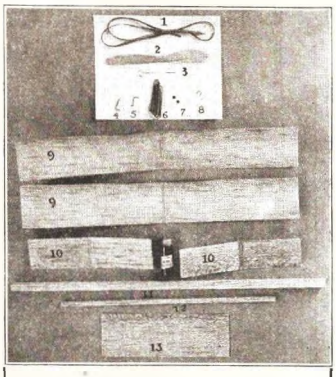
YOU can have a whale of a lot of pleasure with the Tichenor Midget. You can fly it, if it's carefully made, for as long as 60 seconds; 30 seconds is a good flight, though, and will win an official honor certificate if you send in a record of the flight witnessed by an adult, together with ten cents to cover issuing and mailing the certificate.

What's more, you can teach yourself the fundamentals of model building, so that next month, when THE AMERICAN BOY gives you the plans for the McCoy-Abgarian indoor tractor you'll be able to go ahead.

So watch for the tractor. Make use of the League's question and answer service, too; let League headquarters tell you how to organize a local club, how to hold contests, how to get an official charter. Start right away to get ready for next year's national contests.

Remember that, if you haven't the materials at hand, you can join the League and get them at cost. There's a kit for each flying model in these articles.

You're starting right toward a knowledge of aeronautics—perhaps toward being a pilot yourself—by building the McLaughlin Glider and the Tichenor Midget. William B. Stout started with models. So did the Wrights. Why not you?



A Flight in Every Kit

Sometimes it's hard for League members to get just the right materials for building scientific models. Balsa wood grows only in the tropics. Ambroid cement isn't always available. Thrust bearings are ticklish things to make, without costly machinery. Wire parts, too, are often tough assignments for the beginner.

So the Airplane Model League of America has established a special parts-at-cost department for its members—a central supply depot where they can obtain kits for the models Mr. Hamburg is going to tell them about. And in the Two-in-One All-Wood Kit members will get a lot for their money! A finished *bent* balsa propeller, drilled for the propeller shaft! Two ready-warped wings, two ready-warped elevators! Fuselage sticks, cut to size! Metal parts, the right kind of rubber motor, ambroid cement—everything you need to build the McLaughlin Glider and the Tichenor Midget.

HERE'S WHAT THE TWO-IN-ONE CONTAINS

(Numbers in parentheses refer to picture)

2 balsa wings, warped (9)	$.12
2 balsa elevators, warped (10)	.08
1 glider fuselage stick (11)	.04
1 pusher fuselage stick (12)	.02
1 bent balsa propeller, drilled (2)	.12
4 rubber bands (6)	.02
1 glider hook (5)	.03
1 A.M.L.A. Manual	.05
1 piece flat balsa for fins (13)	.02
1 propeller shaft (3)	.05
1 thrust bearing, drilled (4)	.05
1 front hook (8)	.05
2 bronze washers (7)	.02
1 rubber motor (1)	.02
1 bottle ambroid glue	.05
1 set of instructions	.01

THE KIT COSTS 65 CENTS

Here's how you get the kit: Send your order and sixty-five cents to the Supply Department, Airplane Model League of America, American Boy Building, Second and Lafayette Boulevards, Detroit, Michigan. Send either check or money order—the check or order should be made out to Merrill Hamburg. The kit will be sent you postpaid. *Stamps are not accepted.*

If you want individual parts, send the total cost of the material you need, figured on the above list, *plus ten cents for packing and mailing.* And don't forget that, to use this service, you must be a member of the A. M. L. A. If you haven't already joined, use the coupon on Page 69 to do so.

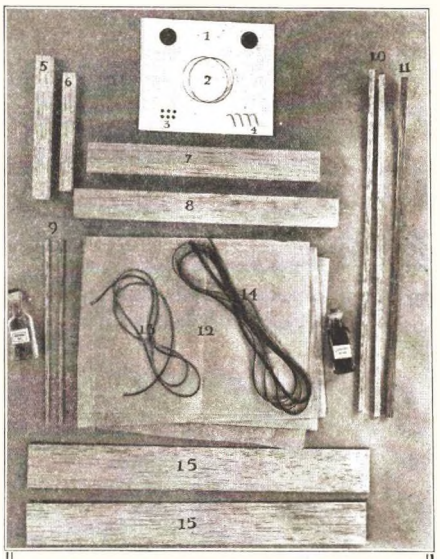
The Manual Tells How

DO you know how to bend balsa? How to cover a contest model wing? Are you up to snuff on propeller carving? Can you make a pontoon waterproof?

Do you know what *air-foil, wash-in, torque* and *drag* mean? Are your tools exactly the right ones? When your wing warps, do you know how to straighten it?

All these things, and a great many more—all the fundamentals of model building—are told in the brand-new A. M. L. A. Manual, by Merrill Hamburg, that is now available to League members. You're going to want this manual as an aid to your model building this year—if you're a new builder or an old. It will be included in each of the *new* League kits, or it may be obtained by sending five cents in stamps or cash to the Supply Department, Airplane Model League of America, American Boy Building, Second and Lafayette Boulevards, Detroit, Michigan.

GET YOURS NOW!



Now You Can Experiment

Lots of fellows want to build models to test their own ideas—use designs of their own, improve on established planes by varying the construction. That is the way the cambered wing indoor tractor and pusher were developed, and that—most likely—is the way some League member is going to win himself a trip to Europe next June!

So the League is announcing, this month, the new Experimental Kit—a kit intended for no particular model, but containing materials so that you can build yourself just about any kind of indoor model that meets your fancy. There are four sizes of propeller blocks—four fuselage sticks—two sizes of rubber motors, enough for four models. There are bottles of banana oil and ambroid, and two sizes of piano wire. There are strips of bamboo and balsa for ribs, wing tips, struts. There is Japanese tissue—a full-size sheet.

With this kit you may find the road to a world's championship!

HERE'S WHAT THE KIT CONTAINS

(Numbers in parentheses refer to picture)

1 ½-oz. bottle ambroid glue	2 strips flat balsa (15)
1 ½ oz. bottle banana oil	4 fuselage sticks (9-10)
1 yd. .045 in. square rubber (13)	1 strip bamboo (11)
2 yds. 1-32 x 1-8 in. rubber (14)	1 lot piano wire, size .016 (2)
1 sheet Japanese Imperial tissue, 21 x 31 ins. (12)	1 lot piano wire, size .020 (2)
4 propeller blocks (5-8)	4 thrust bearings (4)
	6 washers (3)
	1 A.M.L.A. Manual
	2 fibre wheels (1)

THE KIT COSTS 95 CENTS

To obtain this Experimental Kit, send ninety-five cents in check or money order (payable to Merrill Hamburg) to the Supply Department, Airplane Model League of America, American Boy Building, Second and Lafayette Boulevards, Detroit, Michigan. The kit will be sent to you postpaid. Parts for this kit are not sold separately. *Stamps are not accepted.*

THE LEAGUE ACCEPTS CASH ORDERS ONLY

The Pants Slapper

(Continued from page 7)

for Cy Young, the captain dashed through a hole in left tackle and took out the first defensive back. Cy pounded on far into the secondary, and Bud—diving at him—missed the tackle. As on that day in spring practice, he managed to get a hand on the fullback—managed to do a convincing tumble. Johnny ran up.

"Bud," he murmured, "you could have had him. He's a tough baby to handle, but you could have had him. Promise me you won't—"

But Hill walked away. It was the second sharp rebuff the captain had received that day. Pained and bewildered, Lambert walked back to where the teams were forming.

"A week from to-morrow," the coach was saying, "we play Hartford. They've won every game. We've had a tie. Papers are saying the Hartford-State game will decide the national championship. Hartford has Carney, MacIntyre, and Walsh. You'll never stop those boys unless you try to remember for at least two days straight what I've been telling you. . . . Dennis, what's your idea in twisting and charging when there's nobody near you? And all of you—why did you trot when the referee took the ball back to the middle of the field? Never let a referee run you back. WALK. Save your energy!"

Lambert only half-listened to the coach's biting instructions. He was thinking that Bud had soured. And he was bitterly disappointed.

"What's wrong, Bud?" he asked the sophomore in the locker room. But the younger player, looking at his cleated shoes, didn't answer.

In the days that followed, Lambert's every friendly advance met with a cold rebuff. Hill's good-looking face wore a savage, intent expression. Whenever Johnny approached, the sophomore walked away. And finally, the captain, growing tense over the Hartford game—his last collegiate game—concluded, regretfully, that the misunderstanding would have to remain until he could collar Bud some place and good-humoredly wring out of the scrub an explanation. Bud was too good to sour that way.

THERE was a hint of snow in the air, and the ground was hard as a concrete drive when the State squad—forty strong—clattered out from the south wing of the field house and trotted to the side lines in the shadow of the huge stadium. Johnny's steel-muscled body vibrated to the prolonged, crashing roar that thundered at the team from the human cliffs surrounding it.

Three teams took the field for a brisk running through signals, and Lambert's roving eyes caught Bud Hill playing on the third. The pants slapper—the kid who couldn't be depended upon! Johnny found himself hoping that Bud, somehow, would get into the game. That, alone, would make the youngster happy. And Bud was *good!*

The Hartford squad was already on the field, and the captain looked them over. Bright yellow headgears, blue jerseys. Number 35—that was Carney. The heralded Carney! Boy, he was big! And he moved down the field with the peculiar loping ease of the perfectly trained and fit player.

Carney, like Cy Young, was an impact player. He liked to turn and crash into you. Before tackling Carney, Lambert had heard, it was wise to call up the college infirmary and order a bed. His lips closed tight. He hoped that he'd have at least one chance to dive into Number 35 going full tilt. They'd never come too tough for him yet.

Captain Lambert was used to big crowds, to bands, to cheers; but when he heard seventy thousand throats bursting with his name as he walked out to meet Captain Carney and the referee, his heart caught. With an effort he calmed himself, stuck out a steady paw, and shook hands with his tall opponent. Carney smiled down at him—one eyebrow level, the other raised.

While the referee spoke, Johnny looked at his own crimson jersey, and dug at the hard ground with a hobbed toe. Then the coin, and Carney calling "Heads!" in a deep, rumbling murmur. Heads it was, and the Hartford captain took the north goal to win the advantage of a light breeze. Johnny chose to receive. He had orders to get that kick-off no matter where it went and run it so far down the field he'd have to ship it back air mail.

One thought ran through his head as he trotted back to his team, and one thought pounded in his brain as the team spread out—"Run that kick-off back for a touchdown. . . ."

The swirling oval of humanity, the noise, even those yellow headgears faded into the back of his mind as he stood on his own goal and gazed at the white crossbar far down the field. Between him and that crossbar stood the best team in the country, lined up, to contest the way. But he didn't care. He felt fit. And his own team—those crimson-jerseyed stalwarts—they were great!

The sharp whistle. Stands hushed to silence. A hollow thud.

The ball came tumbling toward him. He stepped gingerly sideways to get under it. As it fell, he stepped forward, gathered it easily in his arms, and started down the center of the field where his interference was forming.

He scooted deliberately, straight ahead. Yellow headgears converged toward him, looming larger every minute. Some of them went down. Sanders was running at his side. He stuck close to Sanders until a burly tackle came at him from the side and Sanders had to take him out. Now it was up to him alone.

OUT of the corner of his eye he saw a yellow head. He slowed his pace. It skidded in front of him. Another yellow head, and he increased his pace. It tumbled behind. And now there was an open space before him. He let out and sailed along.

He saw Carney tearing at him across field. Carney would be easy. As the big player charged at him, Johnny speeded up until he was fairly flying—but just for an instant. As the body left the ground, he slowed. High over Carney's prone form he stepped. White lines passed. An increasing roar like a raging surf sounded in his ears—he speeded up—and just then something hit him from behind. He thudded to the ground with the ball tightly clutched in both arms.

He was dimly conscious of the wild, dervish-mad stadium as he rose to his feet and noted that just ten yards remained to be covered. The team huddled, hopped to the line, and Cy Young cracked right tackle for six yards.

The next play was his. He ran wide to the left; then cut in sharply behind Robertson and dove like a streak of lightning for his hole. When the players were lifted off him, the ball was over. Hands pounded his back, lifted him to his feet, almost knocked him over again.

In another minute, Robertson had kicked goal over a chagrined, angry row of yellow headgears. The teams trotted back to the center of the field. Hartford, still determined to take advantage of the wind, was again kicking off.

On the side lines, wrapped in a crimson blanket, a bitter, black-haired scrub watched while the State machine systematically smashed the panic-stricken Hartford team into bits and scored another touchdown. Watched the yellow headgears, suddenly roused to fury, break through and block Robertson's attempted kick for extra point. If the scrub was elated at his team's brilliant playing, he didn't show it.

Through the second quarter he sat motionless, his brows drawing together more darkly, while Lambert continued to reel off long gains through a thoroughly awake, desperate Hartford eleven. Occasionally Bud's lips moved.

"I taught him that," they were mumbling. "I ought to be out there. . . . Lambert ought to be here, cooling his

(Continued from page 65)

heels. The dirty . . ."

A whole season on the scrubs—tearing through the varsity time after time—and never getting a chance. Not one chance. And now he knew why. . . .

"Get your elbow out of my ribs," hissed the substitute next to Hill. "What's the matter—what're you sore about?"

The sophomore stared unseeing in front of him, numbed with the poison in the cup he was drinking. Then the first half was over and Bud was trotting stiffly to the lockers. Thirty minutes later, he was trotting out again, to warm the bench for another three-quarters of an hour. Then he'd go back to the field house to put away his suit for the season. An involuntary sob tore at his throat and he clamped his teeth sharply down to stifle it.

State rooters were thankful for that 13-point margin before the third quarter was five minutes old. Carney—MacIntyre — Walsh, cool, plowing destroyers, tore disastrously at the fighting State line. Plowed and tore into State territory. Then Hill's eyes cleared to see the great Carney loose. A gigantic, fearful murmur rose from the stands.

Robertson, from the defensive right half position, sped across the field to head him off.

"Get him—get him—get him—Robertson!!"

Just as Robertson was about to leave his feet, Carney turned full tilt into him. They smacked into each other, but Carney's pounding knees battered the State player to the ground. Lambert caught him at the goal line—too late.

A half dozen players ran over to the crumpled Robertson and rolled him over. A few minutes later they helped him off the field and the substitute sitting next to Hill went in.

Hartford kicked goal and the score was 13 to 7.

Farrell and Dean, the ends, were tired and bruised. Carney began getting past them oftener. Five minutes later the light Sanders tackled him—and had to be helped off the field. Hill—who knew that he wouldn't be called—looked toward the coach half hopefully, but the coach summoned Simons. Within a few minutes, Simons came out with a wrenched knee.

How the shattered State team, without the help of Robertson's kicking, kept Hartford from scoring again in the third quarter was a mystery to the rooters. Coach Richter knew it was the heroic work of his two six-foot tackles in the line and Lambert and Young in the backfield. But Young had reached the end of his string, and there came a time when he was unable to get to his feet.

Hill, gazing blackly into the ground, didn't even see Young come out. The blanket-shrouded player next to him nudged him sharply. "He's calling your name, Hill. Snap out of it!"

The sophomore leaped to his feet and ran to the coach, tearing at his sweater.

"Go in and help Lambert hold Carney," the coach said. "Lambert's nearly done." Then at the wild look in the young player's eyes, the coach grew doubtful. Finally he grinned, gave Bud's shoulder a pat, and repeated sharply, "Help Lambert hold Carney."

Lambert! Lambert! That's all Bud had heard. As he ran out on the field, the stands gave him a perfunctory cheer.

After the first play had been run off, Johnny—his drawn face breaking into a grin—said warmly:

"Golly, Bud, I'm glad you're in."

Bud looked at Johnny coldly and replied, deliberately: "It's not your fault, you dirty double-crosser."

The captain looked at the scrub blankly. Then, staggering slightly, went to his position at left half.

Hartford smashed center again for first down. On the next play Hartford fumbled, and a State lineman recovered the ball. In the huddle that followed, the captain patted the scrub on the shoulder.

"It's your turn, Bud. Show 'em your stuff. You can do it."

Bud threw a glance, full of hate, at the captain. They lined up, crouched. The ball came back to Bud. Johnny, acting as interference, scooted through the hole at right tackle and smacked into the opposing half. Bud carried the ball with all his uncanny ability for 30 yards before Carney smashed him to the ground.

"Great work, Bud," Johnny said quietly.

Bud grunted and turned on his heel.

The captain, hurt, pressed his lips tightly together.

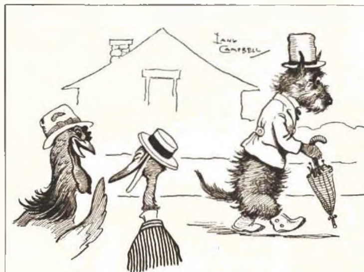
The quarter ended, and the tired captain drew the sophomore aside.

"What are you driving at?" he asked.

Bud, with smoldering eyes, spat back: "You know."

Johnny drew a deep breath: "I swear to heaven I don't."

The sophomore's bitterness of heart overflowed: "Why, blast you, Lambert, you know I've been warming the bench all season, and you know why. If it hadn't been for you and your lying tongue, you'd have been on the bench—not me!"



Rooster: "Scottie is so economical that he sent a pair of spats to the cobbler's and had them half soled and heeled!"

"I don't know what you mean."

"Don't try to soft-soap me. You know that when I started going hot on the scrubs you pussy-footed up to the coach and spilled all the dope about Bergwin and me breaking training early in the season. Bergwin overheard you and the coach talking on the way to the field house. Heard you agree solemnly with the coach that I couldn't be depended on. After you'd given your word! That's the way you kept your job, you—"

The captain was too weary to understand. "You've gone crazy," he said in a tired voice. "And you couldn't pick a worse time. Cut it out and play ball. Do you hear me? I've had—all I can stand."

Bill, steeped in anger, looked at the captain contemptuously. The teams lined up. State, in three plays, couldn't gain. An exchange of punts gave State the ball again on her own forty. Bud, spurred by his mood, released all his pent-up playing ability. A lithe ghost, he filtered through the heavy Hartford line, dodged the halves, and carried the ball to Hartford's forty-five. And again, to the twenty.

The air rocked with his name. He felt intoxicated. His grin returned, and except for the contempt in his eyes when he looked at Johnny, he was himself once more. The star—of high school days.

To give Bud a rest, Lambert tried the center of the line. A yard. Then, a short forward pass over the middle of the line, but MacIntyre, anticipating it, intercepted. Hartford's ball. There was less than ten minutes left, and Hartford knew that this might be her last chance to avoid defeat. Methodically, coolly, she proceeded to display the kind of game that had made her great.

Pile-driver smacks at the line. Sweeping slants, behind perfect interference, that crushed opposing ends and backs with high-explosive force. Johnny, playing like a wounded tiger at bay, found it harder and harder to rise to his feet.

And then the sanguine giant, Carney, broke loose for a second disastrous time. The play went to the right—away from Lambert's side. Completely out of the play, the captain nevertheless trotted gamely after it. He saw Bud Hill angling to meet the threat. Drawing in a hoarse breath, he prayed.

Carney pounded on, his knees going high. Hill dived, managed to get a futile hand on his bruising opponent, then rolled over twice on the hard ground. A convincing attempt. Lambert groaned. Unmolested, Carney trotted over the goal line.

Searing rage fired the captain's brain as he saw the fresh, unhurt Hill roll to his knees. Reaching over with a powerful hand, he grabbed the handsome scrub by the shoulder, lifted him to his feet, and shook him until his teeth rattled.

"You yellow pup," he whispered. "THAT'S why you haven't played all season."

"Let go of me, Lambert," cried Hill. "What do you mean?"

"I mean you didn't try to make that tackle!"

"I did too!"

"You did NOT. You just took a pretty tumble—that's all. You did it last spring against Cy Young. You did it again this fall. And now you've lost this game. Now do you understand why the coach said you couldn't be depended upon? You're just a PANTS SLAPPER!"

Hill went white. His bloodless lips trembled as the captain walked away. The thing he had not known himself was suddenly clear to him. And the knowledge was bitter as death. Dumbly, he stood between the goal posts and watched Hartford kick goal and take the lead, 14 to 13. For the kick-off, Johnny had to lead him into position.

"Forget it, Bud," the captain said, placing a hand on his shoulder. "You didn't know. Forget it. The game isn't over yet."

Hill came back to his senses; felt Lambert's hand on his back. Tortured with self-hatred, he shuddered—then turned away roughly. The pill had been too bitter.

"Don't touch me, Lambert!" he cried. "Keep your hands off me! I'll—you—"

LAMBERT, his face like a mask, walked back to kick. He got it off prettily, and Walsh of Hartford, catching it on his own ten, was downed in his tracks. But Hartford was in a triumphant, indomitable mood. Two plays netted a first down. A ripping smash at center put the ball on the thirty. Then Carney again cracked through tackle, and because he had once found Hill wanting, he made for the young scrub's side of the field.

The stands, sensing a complete rout, rose screaming, imploring. Lambert, dismayed, sped with all his might to the aid of Bud. The yellow-headed giant got up steam. The slender Hill, jaw set, waited for him. Then every muscle in the scrub's body seemed suddenly to spring into life. Carney sped for the side lines. Bud tore after him. Carney turned in and thundered straight at the now speeding tackler. Bud, recklessly adding every ounce of power to his run, hurtled at those pounding knees.

Crack! Carney stopped as though he had hit a wall. He was lifted high, and when he fell, his head smacked back against the frozen ground. The ball tumbled from his arms. Farrell, State end, who had vainly pursued Carney all the way, scooped it up, turned, and ran down the side lines like a scared deer. Nobody was near him.

Seventy thousand fans went crazy as he crossed the goal, futilely chased by a handful of Hartford players.

Lambert bent over the prone Hill. He waved nervously to the side lines and the trainer came hurrying out.

"Pants slapper," muttered Hill, trying—with eyes shut—to crawl to his knees.

"Sense knocked completely out of him," muttered the trainer. "He's coo-coo. Lie still, you heathen!"

Hill was struggling to get up. Overhead, the air was rolling with the State song. Finally, the sophomore's eyes opened, and cleared. He saw Johnny leaning over him. Saw the worried look in the captain's eyes. Remembered the shocking tackle.

"How was that?" he whispered.

Relief filled Lambert's soul. With a happy grin he uttered the old password: "Better."

A. M. L. A. Chat

ECHOES of the First National A. M. L. A. Contests, held in Detroit last June, come from Los Angeles, where the National Air Races took place early in September. William L. Dennis, 17-year-old Miami, Florida, boy whose expert Curtiss Hawk won the scale model contest, was collecting his first prize—the trip to the races offered by Mr. Frank Tichenor of the *Aero Digest*.

And what a time Dennis had of it! The races themselves—stunting, zooming planes, flashing scouts and graceful lazy transports! A young man known as Lindbergh leading two other planes through a spectacular threesome, with all three ships doing Immelmans, barrel rolls and loops as though one hand operated them. The finishes of the ocean-to-ocean air derbies, the sight of hundreds of planes in the air at one time!

There were Hollywood and the Grand Canyon, the California mountains and the California beaches, too. There was


Dennis and his prize cup.

Mr. Tichenor himself as host to Dennis, and "Tich. Jr." as co-host.

"The national contests lasted two and a half months for me," grinned freckle-faced Dennis. "I wish there were more contests to conquer!"

William M. Kelley of Baltimore, Maryland, takes a page from the books of the transatlantic fliers when he goes out with his twin pusher to try for a record. "We find," he writes, "that we make the best flights in a low pressure atmosphere preceding storm forecasts from the weather bureau."

And Kelley's achievements seem to show that he knows whereof he speaks. "In company with a friend and my father this afternoon," he says, "I flew a twin pusher two flights—one of 12 minutes 15 seconds and a second of 27 minutes 28 seconds. The first flight resulted in a landing, but the plane, the second time, went out of sight behind a white cloud—and was easily a mile or more high! Still rising, too."

More recently, from Columbus, Ohio, comes word of a flight of one hour and four minutes with an outdoor twin pusher. In the national contests one outdoor plane, after disappearing from the judges' sight, rose so high that it was taken by a reverse current of air *in the direction opposite* to that in which it started, and landed in Mt. Clemens, four miles away!

True, these are "freak" records—dependent on exactly the right weather conditions. An outdoor flight of two to four minutes is a very creditable one. But the records show what models will do.

Joe Martin and Edward Cordell of Columbus built a six-foot flying model of a Fokker Super-universal monoplane and took third place with it in a contest at the Ohio State Fair. Then, before they got the plane back, it was stolen. The machine had scarlet fuselage and silver wing. Anybody know anything about such a plane?

Twenty-six boys' leaders—Y. M. C. A. men, vocational training teachers and others—were on hand to attend the first school in model airplane building ever held when it opened in Detroit late in


The teachers learned how.

August. The course, under the direction of Mr. Hamburg, was given by THE AMERICAN BOY. It provided the men with groundwork in airplane model building and flying, and gave them hints on club organization, contests and a lot of other features of the science. Those who attended were:

Arthur F. Peterson, Worcester, Mass.; Edmund B. Redington, Owego, N. Y.; Harlan A. Colburn, Battle Creek, Mich.; M. S. Grant, Battle Creek; Lloyd W. Norris, Chicago; Perry S. Bogart, Owego; W. L. Osmun, Cleveland; Eugene Lutzeier, Detroit; John Pollard, Amsterdam, N. Y.; Leonard Popham, Port Huron, Mich.; M. A. Shook, Bay Village, O.; Henry Nessner, Detroit; Edward Walters, Grand Rapids, Mich.; Fred P. Lirette, Ann Arbor, Mich.; Howard Rarick, St. Clair, Mich.; M. Lincoln Miller, Ambridge, Pa.; C. H. Stolpe, Pontiac, Mich.; Walter B. Baird, Toledo, O.; Louis W. Ulrich, Buffalo; Raymond W. Brown, Newark, O.; Howard D. Walters, Fort Wayne, Ind.; L. R. Stolpe, Pontiac; Fred C. Finsterbach, Buffalo; John A. Kubiak, Wausau, Wis.; Henry B. Mulder, Grand Rapids; Wilbur J. Brown, Newark.

Out in Los Angeles they have a junior airport—a big tract of land for the exclusive use of model builders and fliers. And last summer, under the auspices of the Air Cadets of America, a summer camp for "future fliers of the country" was held at Tuxedo, N. Y. Headquarters of the A. C. A. are at 11 West 42nd Street, New York City, under the direction of George R. Coe.

Model aces haven't waited for the new Experimental Kit, announced in this issue of THE AMERICAN BOY, to start experimenting. Albert Bardwell, of Keene, N. H., tells of using aluminum wire for his Baby R. O. G. landing gear. Robert Mertens, Fairview, Pa., built a model of tube and sheet aluminum, with balsa propeller and rubber motor. James Flynn, Newark, N. J., discovered that banana oil could be used in mending broken balsa parts.

And so it goes. What have *you* discovered?

The Elkhart Model Airplane Squadron, the first model club in Indiana to have the official A. M. L. A. charter, is a "he-man rarin' to go club of 12 members," according to Charles Longacre, its secretary. Longacre writes that in the recent Elkhart American Legion Air Circus his club won $40 of the $50 in prizes offered.

• Albert Schwarzkopf, Jr., took first place in the outdoor contest on September 14, in his home town, Norfolk, Va., with a good flight of 234 3-5 seconds. Schwarzkopf was a medal winner in the 1928 national contests. Smith McKann won the Norfolk indoor contest, with 164 1-2 seconds. Judges were George A. McLaughlin and Lieut. Alfred J. Williams, famous flier; medals and a cup were donated by Frank A. Tichenor.

Have you seen "Beginning to Fly," Mr. Hamburg's new book telling everything about model planes? You can borrow it from your library, or buy it from your local book store or from A. M. L. A. headquarters. The cost is $2.50.

Stamps in the Day's News

By Kent B. Stiles

Dominican Republic. Design, map of country with air mail route traced across it from Porto Rico to Cuba.

Uruguay, commemorating triumphs of Uruguayan soccer teams at Amsterdam in 1928 and Paris in 1924.

French Offices in Morocco. The air mail and charity semi-postal series.

THE air mail review published in THE AMERICAN BOY created a lot of interest, and some of you fellows who wrote to the Stamp Editor asked particularly about first flight covers. Here is a typical query: "I know that a first flight cover is one postmarked on the day of the first flight on a new air mail route, but I do not understand how you can know in advance when there is to be a first flight and what one has to do to arrange to get one of the covers." A detailed answer must be informative to collectors generally.

Uncle Sam co-operates with philatelists in providing special postmarks to distinguish first-flight letters. R. S. Regar, third assistant postmaster general, said at the recent convention of the Society of Philatelic Americans:

> "Every facility of the postal service has been made available to serve the needs of collectors. I am sure that this policy . . . has been productive of beneficial results, serving to create better and more nearly complete collections, thus broadening and adding new interest to stamp collecting generally. . . ."

Suppose you learn that an air mail route is to be inaugurated between "Minnefrisco" and "Chidelphia" one month hence. Do you want a first-day cover from Minnefrisco? Write to the Minnefrisco postmaster. Send him an envelope that, addressed to yourself, is franked with a 5c air mail stamp and bears the caption "Via Air Mail," and tell him specifically that you want it to go by air mail plane on the opening day of the new route, with the envelope postmarked on that day.

The Minnefrisco postmaster will do his best to comply, for postmasters have been authorized and directed to co-operate with collectors desiring first flight covers.

Now you are asking: "But how do I learn in advance about new routes?"

One way is to watch the Washington dispatches in the newspapers. The Post Office Department makes announcements when there are to be new routes.

There is a more direct way. Do you know that the Department has names of approximately 1,200 philatelists in the United States and Canada? B. F. Myers, traffic agent of the Department's Division of Air Mail Service, Chicago, says that the Department wishes to build up this list, which is comparatively small. Write Mr. Myers. Ask him to place you on

the list. If you are interested in collecting first flight covers, tell him so and ask to be notified of new air mail routes.

In Canada, P. T. Coolican, assistant deputy postmaster general, at Ottawa, is compiling a mailing list of United States collectors interested in Canadian first flight covers, and Mr. Myers writes: "It would be a fine thing if you advise your readers that Mr. Coolican is anxious to place any and all of them on his mailing list. . . . In that way they will be advised sufficiently in advance of the effective dates of any Canadian flights to enable them to forward their covers . . . for special cancellation."

There is still another way. In Chicago there has been organized the National Air Mail Society. It aims to keep its members posted on air mail news far enough ahead of each flight to enable them to write to the postmasters. Membership dues are $3 a year. If you are interested, drop an inquiry to the society's secretary, H. A. Opalla, Room 1627, 159 North State Street, Chicago.

New Portraits

TOLSTOY, Philibert, Bem, St. Etienne I. Of course you have heard of Tolstoy, but it is timely to tell something about all four, because their portraits are on stamps issued recently by Russia, Italy, Poland, and Hungary respectively.

The one hundredth anniversary of the birth of Count Lvov (Leo) Nikolaievitch Tolstoy, on Sept. 10, 1828, was celebrated throughout Soviet Russia this past September, and the commemorative stamps issued are a 10 kopecs bearing his likeness and a 28k with Repin's picture *Tolstoy Working in a Field*.

Emmanuel Philibert was born on July 8, 1528, and Italy has been celebrating the fourth centenary of this Sixteenth Century Duke of Savoy, who consolidated Piedmont and Savoy into a leading state. The House of Savoy has since ruled over Italy. The special stamps issued show Philibert, in armor, either standing or on horseback, on the following values: 20 centesimi brown and ultramarine, 25c carmine and green, 30c green and brown-red, and 1.25, 5 and 10 lire. As part of the same series are four adhesives—50c, 75c, 1.75 lire and 10 lire—which commemorate the tenth anniversary of Italy's World War triumph; the uniform design is an allegorical figure of "Victory."

Josef Bem was a Pole who won distinction in the armies of Poland and Hungary. The 25 groszy red stamp which Poland has issued, bearing his portrait, is inscribed with four dates: 1794, the year of his birth; 1831, the year of the Polish revolution, when he became commander in chief of artillery; 1848, the year he defeated the Austrians and drove the Russians into Wallachia; and 1850, the year of his death.

As a Reporter, Rate Yourself!

Enter This News Writing Contest and Go After a Cash Prize

PERHAPS, some day, you'll be a reporter. The lure of newspapering, sooner or later, will get into your blood. Then you'll wonder if you could hustle out, assemble a bunch of facts, trot back to the office and pound out a story that's fit for publication!

Here's your chance to test yourself out—to observe an interesting event and write it up. Even if you never expect to work on a newspaper, you'll get a whale of a kick out of this contest.

Imagine yourself, for the present, a reporter on the Brookville *Eagle*. The city editor sends you out to get the story that's told in the accompanying picture.

First of all, study the picture. It gives you every fact you need to know, except the initials in the names of the principal parties to the event. A good reporter would get those initials, but you'll not be able to because they're not in the picture.

Write the story in about 300 words. Tell everything that you think is necessary and interesting. But don't tell things that are not so! A reporter who expects to keep his job doesn't imagine things. He sticks to facts.

Go to it. Your assignment is to study the picture carefully and write up the story in the most interesting fashion possible. Write clearly, or typewrite, on one side of the sheet. At the top of each sheet, put your name, age, address, and year in school.

Get your story to the Contest Editor, American Boy Magazine, 550 Lafayette Boulevard, Detroit, by November 15. Please don't ask us to return your entries. (Along with your entry, why don't you send in your Best Reading Ballot?)

And Prizes!

Winner of first place gets $5. Second and third, $3 and $2. For every other story we print, $1. In selecting the winners, the judges will watch the story closely to see that it gives only the facts told in the picture and that it does not omit essential facts. They'll judge it for readability and clarity, for humor that is in good taste, and accuracy.

Try your hand at reporting! Send in that story.

Make Yourself Air-minded!

Here's Your Air Directory

How Can I Build Champion Models?

First join the Airplane Model League of America. Then read, in THE AMERICAN BOY, articles on gliders, pushers—the McCoy world's championship indoor tractor—lots of others. Write the League, enclosing return postage, about bothersome questions, kits and parts at cost. Start now—

Turn to Page 19.

What Can I Do for Aviation?

Enlist in THE AMERICAN BOY Air-marking Campaign. Help the fellow in the clouds. "Air-marking," says William P. MacCracken, assistant secretary of commerce for aviation, "is the greatest need of commercial aviation to-day." To enlist in the campaign—

Turn to Page 46

What Lifts an Airplane?

Alexander Klemin, head of the Daniel Guggenheim School of Aeronautics, tells you why it's largely the air *above* the wing. He gives you an entrancingly interesting picture of aviation. The fellow who follows Mr. Klemin through his air-talks is going to *know* about the droning plane he sees above him. To start—

Turn to Page 52.

How Does Uncle Sam Make Fliers?

How about the adventures that come their way? How about the indoor sport of "bunk flying" and the intricate art of air-navigation? Fred N. Litten writes of these things in a corking series of air cadet stories—he tells experiences you may yourself go through some day. For the first, "Dodo Birds,"—

Turn to Page 3.

How Do Airplanes and Business Mix?

Thomson Burtis takes you to Texas and Mexico with his daring, skillful flier-hero Russ Farrell, and through Russ's stirring adventures in the air and on the ground around Tampico he gives you a gripping cross-section of the oil business. It's in the Burtis serial, "Winged War." If you haven't already started it—

Turn to Page 21.

Trips to Europe!
$3,000 in Cash Prizes!
$3,000 in Cups and Medals!

Those cash prizes, cups and medals—those *trips to Europe*—are waiting for the boys who attend the Second National Airplane Model League of America Contests in Detroit next June. Start improving your models and increasing their records—and get your club working now to send its champions to the Contests!

Good news for newcomers—winners of the European trip in 1928 are ineligible to win again in 1929.

Fill This In—or Give It to a Friend

.....192....

Airplane Model League of America,
American Boy Building,
Second and Lafayette Blvds.,
Detroit, Michigan.

Gentlemen:

Please enroll me in the Airplane Model League of America. Enclosed is a two-cent stamp to cover postage on my membership card and button.

Sincerely,

.....
Full Name Age

.....
Street

.....
City State

FUNNYBONE TICKLERS

Two Edged Compliment

"Mummy, isn't that monkey like Grandpa?"

"Hush, darling! You mustn't say things like that."

"But the monkey can't understand, can he, Mummy?"

Blazed Trail

Heavy Stranger (returning to theater between the acts): "Did I tread on your toes as we went out?"

Seated Man (grimly): "You did, sir."

Heavy Stranger (to wife): "That's right, Matilda, this is our place."

The Lazy Lummox!

"In the summer the oyster has a long vacation," remarks an exchange.

Much longer than he deserves, brother, considering that he never gets out of his bed if he can help it.

A Deceitful Adjective

"You are working too hard," said the doctor.

"I know it," sighed the patient, "but it is the only way I can keep up the easy payments."

Earlier Model

Little Johnny: "Look at that rhinoceros."

Little Willie: "That ain't no rhinoceros; that's a hippopotamus. Can't you see it ain't got no radiator cap?"

Wide Discretion

"Well, now, what time do I have to git to work mornings?" asked the new hired man.

"Any time you like," responded Farmer Fumblegate. "So's it ain't later than half-past four."

The Age

"How old is your son?" asked the visitor.

"Well," replied the dad, "he's reached that age when he thinks the most important thing to pass isn't his examination but the car ahead."

And How

Q. "If oats are given a horse immediately after hard work or exercise, what happens?"

A. "He eats."

Serious News

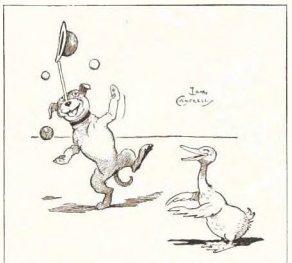
Castor Oil Strongher.—*Trade paper.*

Ask Dad, He Knows

A young man arrived home after having received the degree of M. A. for graduate work at college.

"I suppose Robert will be looking for a Ph. D. next," said a friend of the family to the father.

"No," was the reply, "he will be looking for a J. O. B."



"It must have taken a long time to learn that trick."

"Oh, no—it comes easy, there's a jugular vein in our family!"

Cats?

A grammar-school boy handed in the following composition on "cats."

"Cats that's meant for little boys to maul and tease is called Maultese cats. Some cats is reckernized by how quiet their purrs is and these is named Purrsian cats. The cats what has very bad tempers is called Angorie cats, and cats with deep feelins is called Feline cats. I don't like cats."

Classified News

Caller: "Look here, I want to see you about this paragraph announcing my resignation from the Chamber of Commerce."

Editor: "But it's quite true, isn't it?"

Caller: "Quite. But I should like you to explain why you've printed it under 'Public Improvements'."

Strict Economy

One of the neighbors recently overheard two of her small sons discussing the story of Adam, Eve and the Fall. A little while later Bobby, not quite seven, asked: "Mother, what made God so tight with his apples?"

Baffled Heroes

The blaze was extinguished before any damage was done by the local fire department.—*Lansing (Ill.) paper.*

Hardened Culprit

Briggs: "I've lost my new car."

Griggs: "Why don't you report it to the sheriff?"

Briggs: "He's the one that took it."

Somebody Loved Him

Lost—Brown, blue and tan shepherd dog, one glass eye, lame back foot.—*Mountain Home (Ida.) paper.*

Try It

Nature Teacher (to pupil who has brushed off a bee that stung him): "Ah, you shouldn't do that, the bee will die now. You should have helped her to extract her sting, which is spirally barbed, by gently turning her round and round."

Pupil: "All very well for you, but how do I know which way she unscrews?"

He Might Jig

Doctor: "You want to cheer yourself up as much as possible—sing at your work."

Patient: "It can't be done; I'm a glassblower."

Too Many Holes

Mrs. Newwed (at dinner-table): "I was going to have some sponge cake as a surprise for you, dear, but I confess it was a failure."

Mr. Newwed: "What was the matter?"

Mrs. Newwed: "I don't know for sure, but I think the store sent me the wrong kind of sponges."

Another George Washington

Passenger: "Conductor, that fellow sitting opposite us is a lunatic and is scaring my wife and children. He claims he is George Washington."

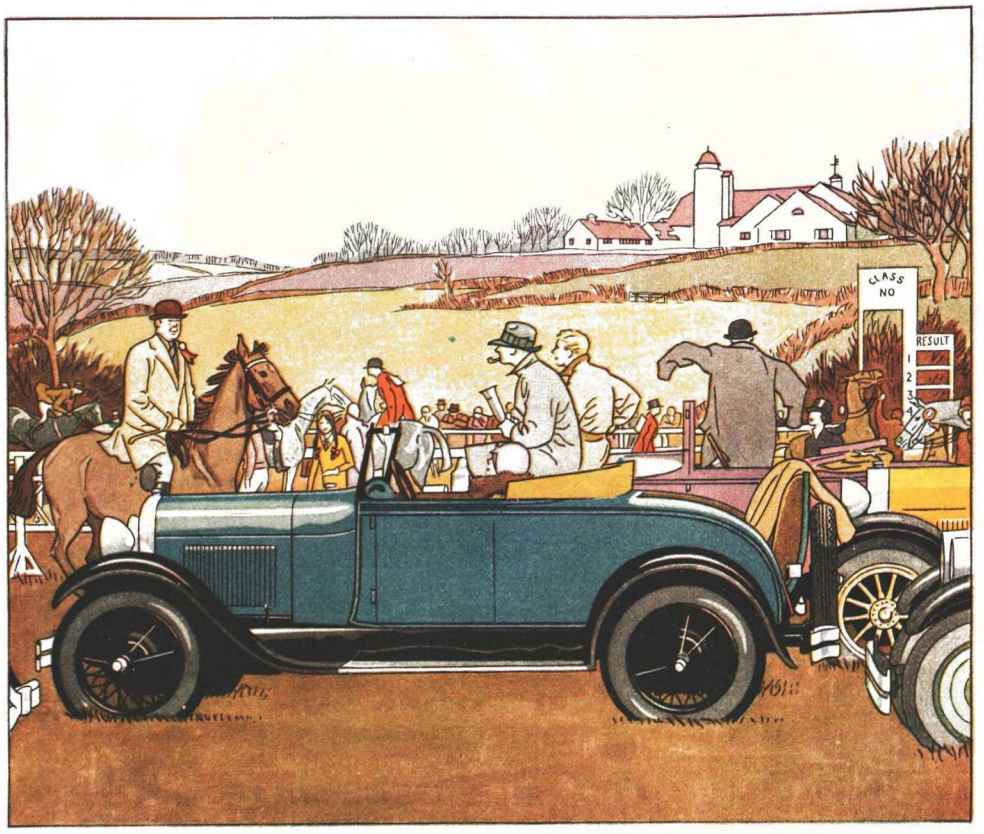
Conductor: "I'll take care of the matter." (shouts). "Next station Valley Forge!"

Without a Swat

"One interesting event of the millenium," says *Life*, "will be the spectacle of the mosquito and the camper lying down together."

Contents for November

Cover Drawing by *Conrad Dickel.*



The new Ford has a very simple and effective lubrication system

If you could look into the engine of the new Ford, you would be surprised at the simplicity of the lubrication system. It is a combination of pump, splash and gravity feed and is unusually effective.

Let's study it a little and see just how it works.

The oil pump draws the oil from the bottom of the oil pan through a fine mesh wire screen or filter and delivers it quickly to the valve chamber. Even when you are traveling at only thirty miles an hour, the five quarts of oil in the pan pass through the pump *twice* in every mile.

From the valve chamber the oil flows by gravity to the main bearings of the crankshaft and front camshaft bearing. Reservoirs of oil are provided for each main bearing pipe opening through a series of ingenious dams at the bottom of the valve chamber.

After filling these reservoirs, the surplus oil flows down an overflow pipe to the front of the oil pan tray. In this tray are four troughs into which dip the scoops on the connecting rods. These scoops pick up the oil and throw it into the grooves of the swiftly moving crankpin bearings. They also send an oil spray over the cylinder walls, camshaft and timing gears. From the tray the oil flows back to the oil pan, from where it is again drawn through the oil strainer into the pump.

The only movable part in the entire Ford engine lubrication system is the oil pump. From valve chamber down, the entire flow of oil is an easy, natural flow—as simple in principle as water running downhill. There's no need of pressure.

Because the new Ford is such a good car and is built to such close and exact measurements, it should be given the care that is given every fine piece of machinery. When you consider that each piston moves up and down at the rate of 1300 times a minute, when your car is moving at only thirty miles an hour, you can see the need of complete and proper lubrication.

The oiling system of the new Ford is so simple in design and effective in action that it requires practically no service attention. There is only one thing to do, but that is a very important thing . . . keep enough oil in the oil pan so that the indicator rod always registers full (F) and change the oil every 500 miles.

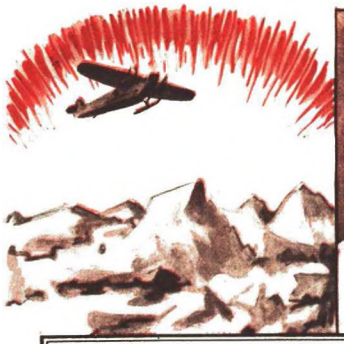
The lubrication of the chassis also is important. It has been made simple and easy in the new Ford by the use of the high pressure grease gun system. In order to insure best performance, the chassis should be lubricated every 500 miles.

Every 2000 miles the distributor cam should be cleaned and given a light film of vaseline. At 5000 miles, the lubricant in the differential and transmission should be drained, the housings cleaned, and new lubricant added.

Ford dealers have been specially trained to oil and grease the new Ford. They know which oil is best and they have special equipment to do the job right, and at a fair price.

Ford

Ford Motor Company
Detroit, Michigan



I believe that a good aim in rifle practice is a good sign of the stuff which makes the kind of men aviation wants. Boys alert with the rifle are apt to be alert on the field of action, whether it be in sports or in business, or in commercial aviation.

Bernt Balchen

"Alert with the Rifle — Alert on the Field of Action"

A message to the Boys of America, from Bernt Balchen, South Pole Flyer

EVERY boy who is thinking about a Daisy Air Rifle will be interested in Bernt Balchen's opinion on rifle practice. Bernt Balchen is known throughout the world's flying fraternity as an aviator who says plainly what he believes, and his words are backed by a wealth of experience on the pioneering side of aviation.

"I believe that a good aim in rifle practice is a good sign of the stuff which makes the kind of men aviation wants," Balchen writes in his message to American boys. He is widely versed in the ways of airplanes, and rifles, and men! With Byrd as a member of the North Pole Expedition, Balchen again accompanied the great explorer as a pilot on the famous flight of the transatlantic monoplane, *America*, from New York to France. And his skill and quiet daring won him the distinction of chief air-pilot of Commander Byrd's South Pole Expedition. "Boys alert with the rifle," says Balchen, "are apt to be alert on the field of action."

Here is a way to train your mind and muscles to click together at exactly the right second—and it's lots of fun, too. Get a Daisy Pump Gun like the one shown on this page, and watch how target practice speeds you up.

Millions of alert, successful men, the world over, started their target practice with the Daisy when they were boys, for the Daisy has been the standard boys' rifle for 40 years. And today the Daisy is still the favorite among American boys, and boys in other countries, too.

Ask your dealer to show you the Daisy Pump Gun, which has the same sporting lines as the high-powered magazine rifles used by explorers and big game hunters. Safe and accurate, with true gunlike qualities, it shoots 50 times without reloading. $5 at all dealers. Other Daisy Air Rifles, $1 to $5.

BOYS!
Get a FREE Copy of the DAISY MANUAL

Go to your nearest hardware or sporting goods dealer and ask him for a free copy of the Daisy Manual. It tells how to become a crack shot, and how to form a drill company. Ask him to show you the latest Daisy models. If he does not carry them write us, and we will send any model on receipt of price.

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