ARGOSY

The Complete Man's Magazine • November 25c

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BY MIKE STERN

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NOVEMBER, 1954 HENRY STEEGER, *Publisher*

ARGOSY

THE COMPLETE MAN'S MAGAZINE

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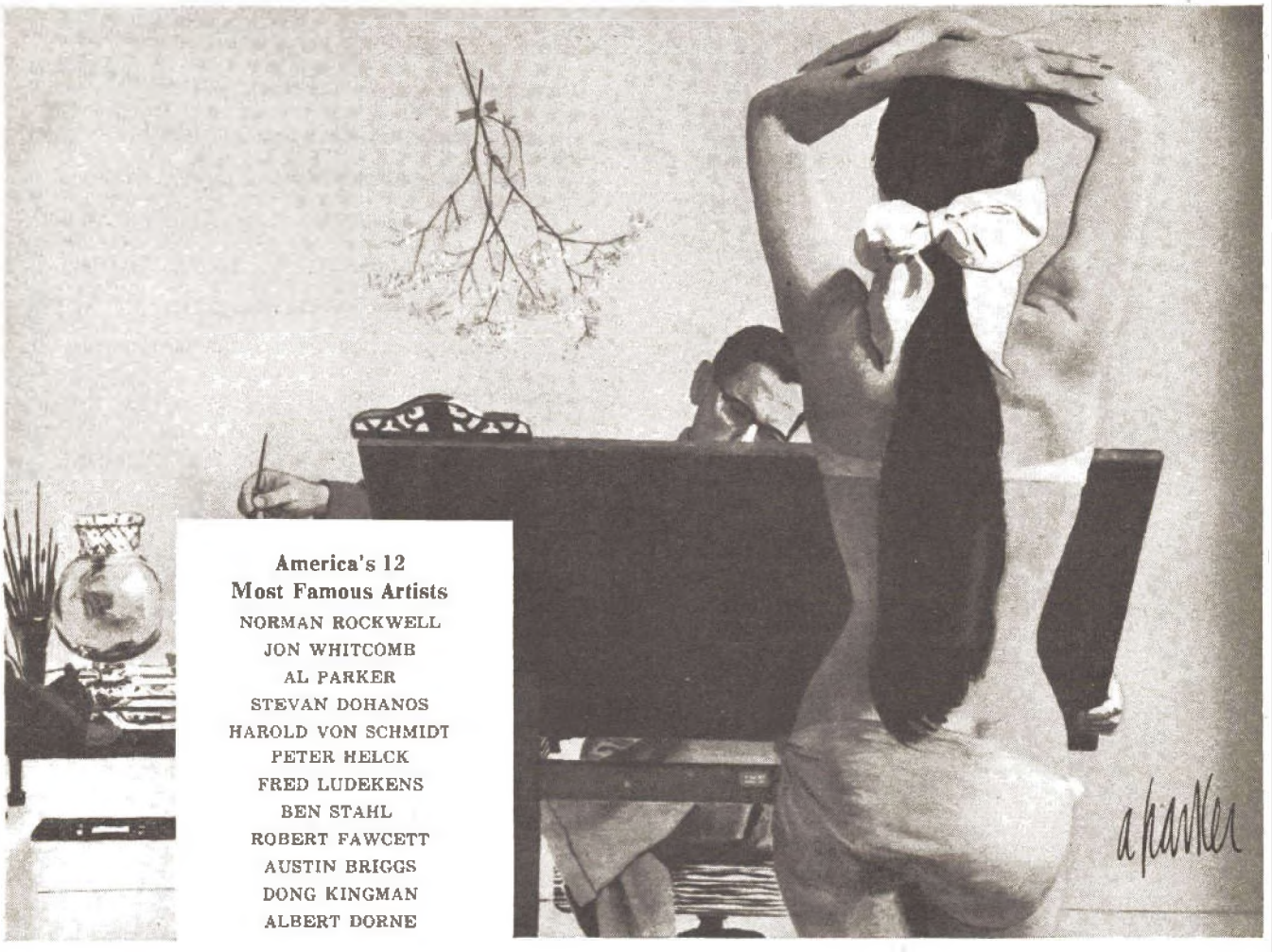

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BACK TALK

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THE CASE OF THE HUSHED-UP BURGLAR ALARMS

Excuse my inferior penmanship but I am still boiling over the fable in your July issue by Gerald Kersh. "The Impossible Robbery." It is either a complete fabrication, or Mr. Kersh has his personal wires crossed.

The story seemed probable until I came across his line, "It occurred that if I could get at the cables that feed electricity to the Jewel Room in the Tower of London, all those protective electrical gadgets would be so much old iron, and all that marvelously intricate system of wires so much old rope." For Mr. K's information, that old iron and rope happens to include a battery stand-by for just such a situation as he dreamed up—namely, in case the outside power cables were cut. Had the author undertaken his impossible robbery as outlined, he would still be serving time in an English prison.

J. E. Cunningham, Jr.

Chicago, Ill.

• *We, too, considered fabulous this story of the impossible robbery, even as did author Kersh. This is why it was listed on the contents page for July under* Fiction.

$5,000 REWARD!

Go back to the May issue, which only recently got to me in Japan. "I Sailed Across the Atlantic in 65 Days—Without Food or Water" is just a bucket of sea water, Mr. Editor.

The Frenchman who wrote that probably had a bet with another Parisite that the Americans will buy *anything*. And he won.

It is a figment of his imagination and I doubt if the author can take a compass reading, much less find his position by sextant. The whole thing smells—fishy—and few of us here believe it was even written by Dr. Bombard. I'd be glad to list my reasons for disbelieving such obvious bunk, but the list is too long for this letter. . . .

Sgt. Lowell C. Cutter

APO 503, Yokahama, Japan

• *This one we offered to thinking readers as a fact article. Sarge, you amaze us so with your sweeping doubts, and since it would require so much space to list our proof, we'll just answer you this way: If you or anyone else can* disprove *the basic facts contained in Dr. Bombard's story in the May issue, which was published in a Simon & Schuster book, then you or the aforesaid anyone else wins $5,000 in cash from the publishers of* Argosy.

WRITER'S REVENGE

Years ago I wrote a novelette, published by Argosy; in the course of the story there was a poker game wherein four aces came up against a royal flush. This obvious impossibility, involving too many aces in one deal, although a mere incident in the novelette, caused me to hear plentifully and lengthily from various subscribers.

I have been laying for a return engagement ever since, and think the July cover of Argosy gives me something: Here are three horsemen. One of them says, "He's agoin' thataway!" And shoots at the moon. Next one says, "He's agoin' thisaway!" And shoots at the North Star. And the third one with his rifle plugs a chipmunk that is sneaking up behind with blood in its eye. Never have I seen so much action getting nowhere. . . .

James M. Henderson

Florence, Ore.

• *Dear Cold-Deck Jim: That stuff is called Artistic License. Writers, unfortunately, have never thought up a gimmick to allow them to get away with their imaginative errors.*

MORE APESWEAT

I allowed my 16-year-old son to subscribe to Argosy, feeling the masculine articles and good clean outdoor stories to be good for character upbuilding. Am canceling his subscription because of:

1. "Tokyo's Biggest Industry: Sex," (July).
2. "Imported Cheesecake." (August).
3. "Apesweat," drama of Thule (August).

The details of sex-for-sin can certainly be kept in the background—especially photos showing the nearly-nude victims of sin. . . . As a student of psychology, I know this only spreads the evil. . . .

Please consider my appeal-for-good, and see what you can do to improve this situation.

MRS. THOMAS JONES

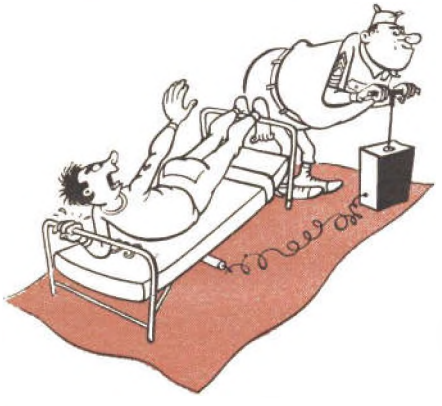
Marysville, Wash.

P.S.—Dear editor, do you want to be guilty of helping to promote evil or of helping to curb it?

• *Guilty either way, eh? Madame Professor Jones, it appears you may have opportunity to upbuild a rare son, one who knoweth not the existence of sin. If, however, you would care to substitute gambling for the more pleasant forms of sin, we will bet you at nice odds that the boy finds out somehow.*

I am sick, sick, SICK of seeing articles about our bitching, moaning, griping GIs cluttering up magazines, taking space otherwise used for enjoyable reading. See August issue, "They Call It Apesweat."

Before the howls of the "old-timers" drown me out, let 'em know that I served my share of time in Uncle's sobbing service—four years. During which I developed an extreme dislike for my carping, bellyaching service companions, most of them old-timers who couldn't be blasted out of the Army with dynamite. I accepted my discharge papers with such



gleeful exuberance because of a high hope that never again would I listen to or look at a seething mob of *bitching boys in blue.* I was in the Air Force.

CHARLES COLLIER

Norton, Kan.

OLD DENSINORE UNEARTHED!

In May Back Talk you answered a gentleman in Minnesota by saying (as he had an ancient outboard motor). "Shake hands . . . We have the oldest typewriter." This would indicate to me you have an old typewriter. I own a typewriter that was used by the local banker before the year 1900. It's brand name is *Densinore.* On it is this inscription:

Clean the Machine Daily.
No. *Rubbing the Polished Parts* 1
With an Oiled Cloth

No other plates or maker's mark. This machine seems close to sixty years old. Thought you might be interested in it as a collector's item. If so, you can have it—for a two-year subscription to ARGOSY.

RUSSELL R. HANSON

Latimer, Ia.

(*Continued on page* 8)

Ken Purdy, ARGOSY's new editor (*at right*) is well-known as an authority and writer on high-performance cars. At left is Tom Naughton, new executive editor.

MEET THE NEW EDITOR

BY HARRY STEEGER

BIG news this month! ARGOSY has a new pilot on the bridge. Ken W. Purdy takes the editorial helm with the current issue. Many of you probably know him from his magazine articles and books, as well as from his career as an editor.

Here's what Mr. Purdy has been doing for the past twenty-odd years.

After studying at the University of Wisconsin, 1931-34, he went into newspaper work, pounding a typewriter for various Massachusetts and Wisconsin publishers from 1934 to 1936. He was editor of *The Free Press*, Oshkosh, Wisconsin in 1936.

In 1937 came a switch from newspapers to magazines. He started as associate editor on "Radio Guide" and in rapid succession advanced to associate editor of "Click" in 1937, to managing editor of "Radio Digest" in 1939, to associate editor of "Look" in 1939-41, to editor of "Victory," Office of War Information, 1941-45. The circulation of "Victory" was more than 1,000,000 copies in nine languages. It was considered the most successful propaganda publication on the Allied side.

At the conclusion of the war he was made editor of the weekly "Parade" and during the years 1946-49 helped build one of the largest circulation gains ever registered by an American publication: 2,850,000 to 5,200,000.

From March 1949 to date he was editor of "True."

In addition to his editorial duties, he has managed to squeeze in time for fiction and articles in "Collier's," "The American Magazine," "Scribner's," "Liberty," "Cosmopolitan," "Reader's Digest," and many others. He is an authority on two subjects as diverse from each other as the carillon and high-performance (sports) automobiles. He has probably written more on the latter subject than any other American author. His book on cars, "Kings of the Road," published by Little, Brown and Company, was the first book on automobiles to be issued by a general publishing company in many years. At the present time you can find a Pocket Book he wrote and a new book he has done in conjunction with James Melton on the book stands, "Bright Wheels Rolling," which has been published by Macrae Smith.

Harold Ross, the famous editor of "The New Yorker" magazine, once said that Ken Purdy was the most brilliant young editor in this country.

ARGOSY also notes with pride the successful culmination of its campaign to help save the famous frigate *Constellation*, from an early and watery grave. Last January we ran on our cover a painting of the *Constellation* fighting the French *L'Insurgente*, together with an article about the present disreputable condition of the vessel that fought the first naval engagement of the United States Navy. I had the great privilege of presenting our painting to President Eisenhower and read in last week's paper that he had signed as law a bill assuring snug harbor and perpetual care for one of America's most famous fighting ships. The *Constellation* is presently docked at Boston but will eventually be berthed permanently in Baltimore where she was launched. • • •

• *Pack the damn thing securely against rough handling, Mr. Hanson, ship it via Railway Express to Back Talk Editor, Argosy, 205 East 42nd Street, New York 17. Your subscription for two years to the world's finest man's magazine has been entered, effective with the October issue. Not only have we always wanted a Densinore discarded by an Iowa banker, but we need something to match some of the handwriting found on Back Talk letters.*

BEER, FAT AND TEXANS

In your August Back Talk a gent by name of E. E. Hudgens wrote a few nasty remarks about Texas and the beer here. Also something about Texans being loudmouthed.

As for Missouri (Hudgens' home) I would prefer the sorriest corner of the West Texas desert to it. Instead of the so-called mixed drinks served in Missouri. I'd prefer a glass of tea; it's stronger. Texans loudmouthed? There is a geek

from Missouri who hasn't closed his mouth since his first visit to Washington, hasn't said anything yet, and hasn't shut up yet. Your magazine is fine.

R. F. Hellinghalsen
Monahans, Tex.

Apparently some confusion exists in the minds of your readers as to the height of bars in the Republic of Texas. Fact is, our bars are no taller than those in any other nation. It is the smallness of the people that causes our bars to appear so tall, when they step up to drink.

Let me assure Mr. Hudgens of Kansas City, Mo., that if he will step into any Texas bar and repeat his remarks published in August Back Talk he will gain a fresh perspective—from flat on his back on the barroom floor.

C. D. (Neil) Mann
Fort Worth, Tex.

In your latest April issue was a story entitled "Drink Beer and Lose Weight," by Ruth West. I don't believe Miss West is aware of the evils of achol *(sic)*. . . . Ask her to count the homes broken up by the main topic of her article. . . . She must shoulder the blame for past and future auto accidents and broken homes. It may be her fault if a child is hit by a car.

Ask her for me if she can sleep nights with that in mind. . . .

Karen M. Lawrence
South Bend, Ind.

• *We have examined Ruth West's shoulders and don't believe they deserve to carry the blame for a single auto accident or driving anyone to drink, although, of course, all ladies reserve the right to break up homes (with or without achol) if they wish.*

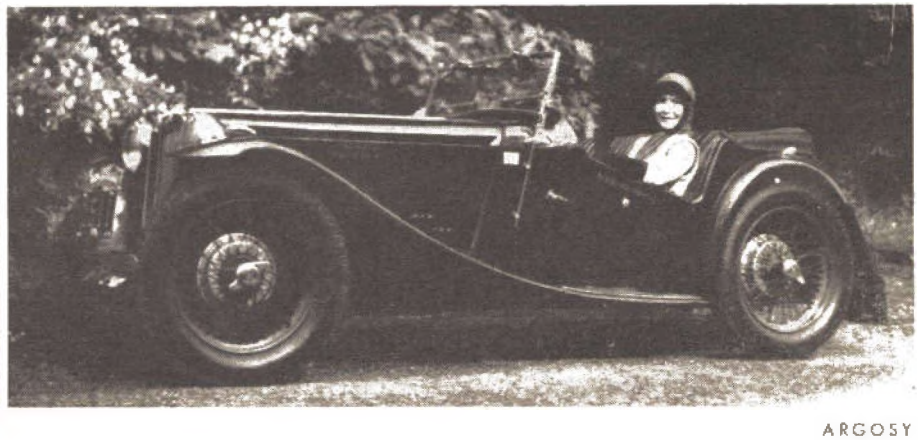
BUGGIES ARE FUN, MAN SAYS

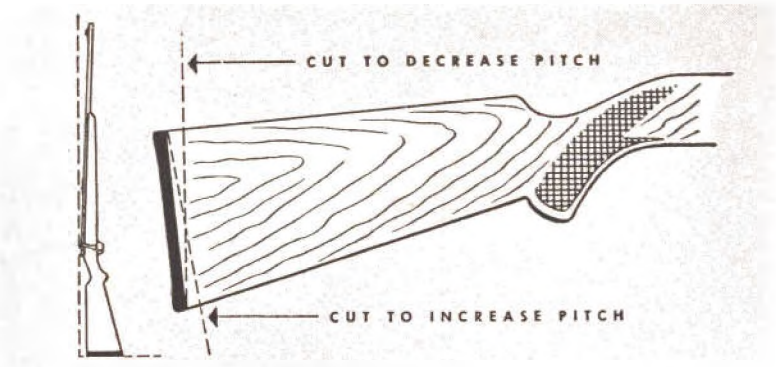
In March you had a fine article by Ralph Stein on "How to Buy a Used Car," cleverly illustrated by him. I didn't see this article until after I'd been exposed to all the hazards he described as characteristic of the freshmen converts to sports cars; last January I acquired two MGs, one a Model TC supercharged. Exactly as Stein wrote, I had been a fascinated reader of the classified ads on sports cars before taking the plunge. The main reason for my letter, though, is this coincidence: the sample advertisement reproduced as one illustration for Ralph's article, a classified clipping captioned Dream Stuff, actually listed the two MGs I acquired shortly before. . . . This same ad, originally in the *New York Times*, was what finally made me a sports-car addict! Ralph rang the bell. . . . these buggies are fun!

Eric Fleming
New Brunswick, N. J.

(*Continued on page* 10)

Mrs. Fleming drives "Wee Beastie," husband's supercharged 1947 MG-TC.





Hunting and Fishing

WITH LARRY KOLLER

DON'T STICK THAT DEER: You can get yourself into needless trouble by rushing up to a downed buck with your hunting knife, ready to impart the *coup de grâce*. For one thing, your buck may not be dead and he can give you a real going over with sharp hoofs and antlers if there's a spark of life left in him. For another thing, if he's dead—and you shouldn't approach him if he isn't— it won't do a bit of good to either cut his throat or stick him in the brisket with your knife. Once the heart action ceases there's no further bleeding, so your efforts will be wasted. Furthermore, any unnecessary slashing with the knife will make the taxidermist's work tougher if you decide to mount the head. As a rule, the animal will bleed properly from the wound which put him down, so there's no great need for sticking. You'll do a proper job on the carcass if you field-dress it as soon as possible, then hang it to drain.

CHECK SHOTGUN PATTERNS: If you're not sure if you have a long-range duck gun or not, there's a fairly simple way to find out. Take your gun out to a firing range and set up a big piece of wrapping paper on a temporary backstop—an old barn door is as good as any. Step back sixty yards and fire one of your favorite duck loads to cover the paper. Prepare beforehand some cutouts of a flying duck or goose made of stiff paper or cardboard. Lay these at random over the pattern spread and check the number of pellets each will cover. If the profiles won't cover at least five or six shot holes consistently at this range you just don't have a long-range duck gun.

KEEP YOUR EYES ON THE GAME: Most big game, deer in particular, have the nasty habit of blending perfectly into the background, due largely to nature's protective coloration during the hunting season. Thus, once you sight that buck moving toward your stand, don't drop your eyes to your rifle action to check the safety—or anything else. The abrupt change in eye focus will make it difficult for you to pick up the deer again. Once you take your eyes off the target, it may not be possible to find it again, especially if you're hunting in typical eastern deer cover. It's important to be so familiar with your weapon that you can check it by feel alone, without taking eyes off the game.

GET AN ASSIST ON GAME CALLS: When you buy a new duck or crow call, get an experienced hunting pal to check on your performance after you get a reasonable distance apart. Your virtuosity on the caller may sound great to your own ears but may sound like the cries of a banshee a hundred yards away. The important thing is to make the call sound natural. This you can do by practice and adjusting the reed.

EMERGENCY FIRE STARTER: It sometimes happens that you'll be out in the woods without matches or lighter to start a fire. If you're hunting big game—and carrying a center-fire rifle—there isn't much problem in getting a flame going. First, prepare your tinder—pine needles, dry leaves, birch bark—and have a supply of small stuff at hand to keep it going. Next, pry the bullet out of a cartridge between two rocks and dump *most* of the powder on the tinder. Then tear off a small piece of your handkerchief or shirttail and stuff it into the cartridge case. Insert this in the chamber and fire the rifle. The rag will smoke, and careful blowing will get a good glow. This, when dropped on the unburned powder on your tinder, will burst into flame. • • •

FILE 13—PEOPLE WHO WOULD LIMIT THE USE OF SEX

Have just read your article on Tokyo's sex by Dick Tregaskis in the July issue. Thought your magazine was for men, not boys.* My husband and I have nothing against Sex. We have three children with a fourth on the way.** If it didn't disgust me so much (your story), I'd laugh! American men love the American Woman because she is not and would never be a prostitute, polite or otherwise.*** All I have to say is your boy Richard is pretty hard up . . . forward this letter to him. I know we American women are pampered; my husband just bought me a fur coat and I didn't need it merely to keep warm.# I leave you now, just a buxom, large-eyed lass, forgive mistakes; I'm also stupid.##

MRS. W. T. BAUER

St. Louis, Mo.

P.S.—My husband, a MAN, agrees with me.##

• *We have been obliged to annotate Mrs. Bauer's breezy letter, which we appreciate, to keep points in order and answer, respectively if not respectfully:*

**Boys should have all the fun?*

***Congratulations.*

****Never? This does not check worth a hoot with municipal, state and national police and/or uplift societies' statistics on the number of prostitutes operating in America, as all over the world since time began.*

#Are you making a point, or just bragging?

##Lady, we leap to your defense; your husband should not call you stupid when you are in no condition to hit him back.

Tregaskis' article is sickening, disgustingly true. But we ought to be ashamed that such "goings on" are allowed anywhere, instead of bragging about it as he did. A sad and discouraging truth. Sex is sacred and not meant to be used so freely. . . .

MARY A. HUSSER

Minneiska, Minn.

• *Stop. For dangerous ideas that might influence public thought, and possibly the country's legislation, Mary is hereby forever barred and banned from making statements on the sacred subject of sex in* ARGOSY*'s Back Talk.*

THAT WAR

Recalling the story "McCorkhill's Private War." (January) and Messrs. Frazee's and Bibb's letters (July Back Talk) on relative battle strength of the United States and the Confederate States armies during the Civil War:

One point neither gentleman mentioned was that the Confederacy had a different method of computation. . . . Only actual combat effectives were counted in the Rebel Army, e.g., riflemen, artillerymen, cavalry, etc. But the Federal Army, as it does today, counted every man on the payroll, including clerks, cooks, bakers, orderlies and officers. . . . The count method made the Rebels seem much weaker than they actually were. As for the editor asking who really won the Civil War, I can only say that. . . .

ED GREEN

Rochester, N. Y.

• *You, too, may join Miss Husser in silence, although your ban will not be permanent.*

GAFF FOR HEMINGWAY

I seen this poem in a magazine called "Atlantic Monthly" in a dentist's office while I was waiting to have a tooth pulled.

"Oh, nothing much, Vivian. What's new with you?"

It made me forget the tooth, for twenty minutes, trying to figure out if this fellow Archibald is for or against Hemingway. (See June ARGOSY). I decided he is neutral, but has been smitten with the fisherman's bug—like Hemingway himself and a lot of other good men. I'd like to know if I'm wrong. . . . Here it is:

POEMS*
by ARCHIBALD MACLEISH
POET
For Ernest Hemingway

There must be
Moments when we see right through
Although we say we can't. I knew
A fisher who could lean and look
Blind into dazzle on the sea
And strike into that fire his hook,
Far under, and lean back and laugh
And let the line run out, and reel
What rod could weigh nor line
could feel—
The heavy silver of his wish,
And when the reel-spool faltered,
kneel
And with a jumbling hand that shook,
Boat, all bloody from the gaff,
A shivering fish.

HOMER BLAKESTON

Pittsburg, Kan.

• *Homer, we don't know of a better time to be neutral than right now.*

MORE APESWEAT

Reference to "Apesweat on Thule," I feel as sorry as you do for those guys up there, but what about the forgotten men—like us, who also scream "I hate this goddam place!" Many people bemoan the terrible Greenland winters but who ever cries over the Kansas summers? . . . Just as bad in a different way. You can't even buy a decent beer here.

ED, R.J., R.F., DAVE, OTHAL

Forbes AFB, Topeka, Kan.

• *Well, we could just scream, too.*

We thank you with all the apesweat we can muster here on The Rock where Frank Harvey got his story. His enthusiastic, eye-opening article was by far *the most*—interesting and truthful—ever read by we Thuleites. . . . Therefore we await your return engagement with a promise of hot C-rations and skilled Honey dippers. Respectfully,

A/1c LEON ROYCE, A/1c CHESTER HIATT, APO 23, Thule.

SURVEYOR'S MYSTERY

Enjoyed Jerome Ellison's "The Green Tower Mystery" very much . . . but he injected another mystery. Where did the hero get a surveyor's rod graduated in 1/100ths inches? A surveyor uses a rod graduated in feet and 1/100ths of a foot.

WM. A. JOHNSON

Tucson, Ariz.

Leave it to ARGOSY editors to find authors with a new twist . . . "Green Tower Mystery" . . . the hero is a man with a head the same thickness as your magazine. Why? So he could stick that head in between the compass and eye-

*From *Atlantic Monthly*, July '54.

piece on a transit and take a reading *straight up* (page 70, August). Mighty handy, them wafer-heads.

BUD KIMES

Kansas City, Kan.

• *Thank you.*

PIGGYBACK

Letter of Cpl. David F. Jones, Far East (August Back Talk) comes to my attention. The practice of truck trailers being loaded on modified railroad flatcars for the long haul has been successfully tried out by a lot more than the two roads he mentioned; at least half a dozen lines, with the list growing. . . . And if the truckers and railroads can get together on splitting the swag—with ICC sanction—you may shout halleltujah.

This compromise solution and not-too-well-known improvement in the midst of a bitter battle will surely solve most of the problem of truckers running rubber-tired locomotives on our highways. The argument pro and con gets fairly senseless at times, both the trucks and railroads being here to stay. . . . Commercialism aside, ask the military if they want to dispense with either. The idea, of course, that trucks pay in taxes more than a fraction of the *total* cost of pavement they destroy with their ungodly loads per axle, is ridiculous. . . .

The new flatcars truck-trailers freight has been christened "Piggyback" service, some years ago. The entry of General Motors into this field, the very boys who shoved the diesel down many a die-hard railroader's throat, means it is no passing fancy. If the public (some of your ARGOSY letter writers, for instance) will twist the ICC's tail in Washington, D.C., as well as that of either party obstructing the general spread of this new rail-highway system, wherein each accuses the other of wanting to grab an undue share of money, we would quickly get the monkey off our backs in the national highway dilemma.

CLYDE CARLEY

Broken Arrow, Okla.

EDITOR'S NOTE:

Archie Robertson, author of "World's Wackiest Fish" (September) wishes to chill the following beef: On seeing proof (too late to correct) on the Siamese fish story, note that the byline giving me credit for the photos is wrong. The top-left picture (page 50) was by Gene Wolfsheimer of Washington, D.C., others by Surathoen Bunnag of Bangkok, taken especially for this article. In the complete rewriting apparently done on my story at ARGOSY, a charming little fish was described as "a shmoo, or . . . the Bald Iggle of Lower Slobbovia," and is then, with ineffable consequences, compared directly to the facial expressions of the Siamese people. . . . The Mutual Security Agency was incorrectly called part of the U.N. Food & Agriculture Organization; actually, now titled Foreign Operations Administration, it is part of the U.S. government. . . . The whole story in rewrite was hammed up and loaded with sour notes and poor taste which I never put there. . . . It used to be a nice story.

ARCHIE ROBERTSON

Brooklyn, N. Y.

• Editor's L' Envoi (French for Vaya con Dios): *We print Archie's letter that he may keep his record straight with readers, not as criticism of previous editors in*

"Begging your pardon, Sir Cedric, Timber, sir."

charge of the September issue. To the Siamese people who might take offense where none was intended, please be reminded that the shmoo is loved in America as a symbol of goodness and lots of it.

FIGHT IN ALASKA

Big thrill with nostalgic memories to read Larry Koller's story, "Alaska's Gentleman Scrapper," in August. I was with the 18th Engineer Combat Regiment assigned to construction of the Alcan Highway, arrived at Whitehorse, Yukon Territory in March, 1942. Surprised to learn we would work out of Whitehorse as far north as the Donjek River. Fished one virgin stream after another . . . streams near our camps with grayling by the hundreds. One wash-back lake off a small river had grayling actually jumping out of the water by the hundreds, hungry . . . unbelievable to see. A freshwater fisherman, I don't hesitate to say that I'd just as soon tie into a medium-size grayling as a large trout of the stock

A portrait of a satisfied fisherman

variety found around Philadelphia here. No better description than Larry's, to call them "gentlemen."

Enclosed is a picture I sent to my wife which she still refuses to believe. She hasn't read your article yet, so I still hope to convince her even after twelve years. I'm going back for a vacation some day with the "gentlemen fish."

SAM MICKLE

Philadelphia, Pa.

● *Mrs. Mickle will kindly take our word for it that this snapshot of Sam and the polite fish is as authentic as ever we saw, and that the look on Sam's face convinces us (old experts on fishermen's grins) that nobody else but Sam had anything to do with the catch.* • • •

how to steal $8,000,000 a year

BY MICHAEL STERN

Maybe GIs in Europe could keep away from Texas insurance, overpriced liquor and slot machines in their service clubs. But they couldn't very well stay out of the PX, and there the little band of crooks called The Combination was rooking them with the biggest swindle of all

NOT long ago Mr. David Sokolow, merchandising director of the U. S. armed services' European Exchange System, found himself in the happy position of having more stuff on hand than his customers could buy. The EES is, of course, purveyor to our troops in Europe of a vast variety of things from chewing gum to automobiles—including, for service men and women and their families who do not eat in GI mess halls, food. On this occasion it was food that Mr. Sokolow had too much of—food like sugar and coffee. He had too much of it, in fact, to the extent of some $1,500,000, wholesale.

Now, to any ordinary merchant an overstock of this magnitude would be cause for concern, if not for alarm. But Mr. Sokolow is no ordinary merchant. Besides being merchandising director for EES he was its chief legal officer, widely regarded as having one of the brightest

legal minds in the System, and he had been largely instrumental in establishing the European PX setup. The EES is no ordinary business, either. It enjoys virtually a captive clientele in the hundreds of thousands of American service personnel stationed in Europe. In Germany, where most of its establishments are, it also enjoys the presence of a citizenry around its stores eager to take off its hands any overstocked items that can be had at a reasonable price, particularly such items as sugar and coffee. Nobody knew better than Mr. Sokolow that any time he had too much food in stock, plenty of local businessmen stood ready to help him get rid of it.

Shortly after the existence of this surplus became apparent, therefore, according to testimony later given before the U. S. High Commissioner's Court, Mr. Henry deVarinay, a former employe of the Army's Criminal Investigation Division, conferred with a wealthy businessman named Friedrich Bohne about disposing of it. DeVarinay, according to the Court record, told Herr Bohne that he could have the stuff, all right, provided he would pay to Mr. Sokolow and Nelson Bretts, Sokolow's assistant, a fee equal to ten per cent of the sales price. They settled on the amount of $140,000. Herr Bohne, however, was a very correct German man of business. He had no objections to paying a bribe, but he was unhappy at the thought that if he tried to deduct this considerable sum on his tax statements as a business expense, the tax authorities would disallow it. To protect himelf against this distressing eventuality, therefore, he called a meeting at his home of a select group of German officials, including a tax commissioner.

At this meeting it was agreed that bribe is an ugly word, and further, that a bribe is not a deductible item under German tax law. By common consent it was decided, therefore, that Bohne's fee to Sokolow and Bretts and company should be written off as "damages." So Herr Bohne bought $1,500,000 worth of foodstuffs, paid Sokolow and Bretts their $140,000 and wrote it off as "damages," and everybody was happy.

Everybody, that is, except the German tax authorities, who must have been at least a little uneasy about the whole deal, for they eventually reneged on it. This, in turn, caused Mr. Bohne to yell to high heaven, and then to tell his story in the U. S. High Commissioner's Court. In doing so he described probably the biggest single hunk of graft that has so far come to light out of the devious doings of our armed services' European Exchange System, but by no means the only one. The Bohne deal is just one of the more conspicuous rotten apples to come out of a barrel that's loaded with them.

Rackets? Consider liquor. The best way to find out about the whiskey business, I decided, was to talk to Floyd Oliphant, an ex-Army colonel who heads the U.S. Army in Europe's Class VI (liquor) supplies. I knew that the price structure left ample room in which grafters could maneuver. The Army's procurement officers were paying, roughly, a dollar a bottle for whiskey—the price was low because it was tax free—but were selling it to the boys at $3.25 a bottle. Now a markup of 225 per cent didn't seem quite fair, even if the profits did go to a worthy organization known as the Welfare Fund. I knew also that certain commission merchants were drawing as much as a dollar a bottle for commission and warehousing on sales of 35,000 cases a month. I wanted to find out how much such commissions raised the retail price.

Oliphant's office is on a railroad siding about one mile from the headquarters building in Heidelberg. A dapper, brisk man of about fifty, he greeted me with an effusiveness that would have done credit to a cemetery-plot salesman. "What can I do for you?" he beamed, as though nothing would give him greater pleasure than to fulfill my every desire.

I told him that I would like to have some information about his liquor business. I wanted to know, for example, the European Command's dollar volume of business, the prices paid for the various brands, how much was written off for expenses, how much for commissions, who the commission men were, and how much was turned over to the Welfare Fund.

Oliphant's cheerful face dropped like a mask. "Hold on a minute, friend," he said severely. "You'll get no information from me."

"And why not?"

"Because all information regarding liquor sales in the Army is classified." (*Continued on page 18*)

At left: Nelson Bretts, on leaving the PX system, got a medal. Right, David Sokolow, ex-PX legal eagle.

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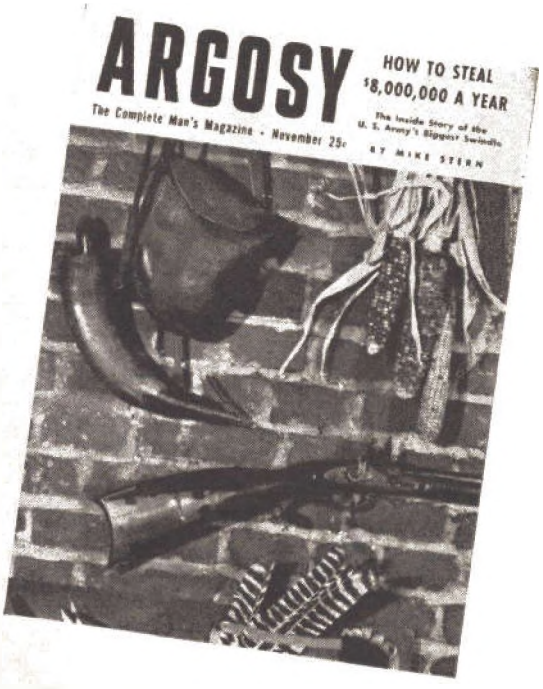

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I pointed out that as an accredited correspondent I was cleared by the Department of Defense to receive such classified information. Well, now it seemed it wasn't exactly because the information was classified that he refused to talk; really, it was more because he did not want people back home to know that liquor was made available to the troops.

"You mean," I said with some astonishment, "that if I were to write about soldiers drinking whiskey it would come as a surprise to the people back home?"

This was exactly what he meant. It might even bring a flood of letters from the Women's Christian Temperance Union and crackpots like them.

He finally decided that if a representative of the Army's public information office and one from the supply section were present, he would be more inclined to talk. The supply section sent a colonel. The public information office was represented by a civilian employe. The simple interview was now a stately conference. My first question was, "Where are you from in the states, Mr. Oliphant?"

"Not so fast," he replied. "I'm not required to give you any more than my name, rank and serial number."

The two Army representatives looked pained. The press officer said that his office had no objection to Mr. Oliphant being interviewed; in fact, they stood ready to assist the press in gathering facts, whether these facts were complimentary or not. They had no authority, however, to order Mr. Oliphant to proceed with the interview.

"I'm not afraid of being interviewed by you," Mr. Oliphant said boldly. "I don't mind telling the whole world that I run the most honest operation in this man's Army."

As I made notes I read aloud for Mr. Oliphant's benefit: "He claims to run the most honest operation in the Army, but he's afraid to let the public look at it."

"I never said that," he fairly screamed.

"I was merely noting down your actions as well as your words."

THAT ended the interview. I do not know whether the information I later uncovered from a source in the Criminal Investigation Division of the Army had anything to do with Mr. Oliphant's nervousness. I was informed that the lady who is now Mr. Oliphant's wife had been a highly successful liquor-company representative. She was so, apparently, until about two months before she and Oliphant were married.

But pay-offs on surplus sales and a 225 per cent markup on liquor, although they take a considerable bite each year out of the unsuspecting GI, are only minor facets of the clipping he has been getting from the PX. There is an infinite variety of methods by which the GI is taken to the cleaner's here. For example, take a simple item like milk. The man who holds the monopoly on the sale of this product to the European PX system is a personable young ex-GI from Maynard, Massachusetts, named Robert T. McLane. By his own admission he has made an awful lot of money in this business—enough to keep a stable of race horses running at the leading European tracks. His major account is Sterovita, largest dairy in Holland. Although he has a glib tongue and pleasing personality, I would hazard a guess that it was the $200,000 he slipped to just one of the purchasing agents for the PX—a sum representing five per cent of the volume of business—that really clinched the deal for him.

MCLANE'S business background is about average for the PX crowd. Shortly after the war he noted with interest that diamonds could be bought cheap in Belgium and sold dear in the United States and his attempt to cash in on this economic phenomenon finally brought him a conviction in the United States Federal Court in Massachusetts for smuggling.

While delivering milk to the PX he used specially designed vacuum-tank trucks. The milk compartment, however, was small because all the space around it was stuffed with black-market coffee that he bought in Belgium at sixty cents a pound and that sold on the black market in Germany for eleven dollars a pound. A single truck could carry, in addition to its load of milk, 5,000 pounds of coffee bean. He got these loads across the border by using form EC69, an Allied export-import certificate that the PX gave him stacks of in blank.

While the profits in this enterprise were enormous, there were also some risks involved. The German customs police finally caught up with him. But the head of the legal department of the American High Commissioner's staff was so moved by the plight of this fellow American, who also happened to be a poker-playing pal of his, that he wrote a letter to the German D.A. demanding McLane's release. (This legal bleeding heart is a C.I.A. agent in Germany now.) The Germans convicted McLane anyway and sentenced him to seven months imprisonment. Whereupon the master salesman slipped across the border.

One of the cute deals pulled by McLane was his sale of chocolate milk to the PX snack bars at 21.5 cents per quart. The cartons in which the milk was supplied were labeled: "Seven times tested—pasteurized chocolate milk—minimum butter-fat content 2.6 per cent." The sale of this chocolate milk was at the rate of 250,000 quarts a month. After the milk had been on sale for several months, independent tests of it were made in several German laboratories. The tests showed that the butter-fat content in the chocolate milk was actually 0.4 per cent—it was skim milk, obtainable in the market at the time for 6 cents a quart. It cost Sterovita an additional 4 cents for chocolate flavoring, packaging and handling. It doesn't take an arithmetic giant to figure that Sterovita was making 11.5 cents a quart profit—before, that is, subtracting the cut for McLane's friends in the PX.

When the results of the laboratory tests were made public, the embarrassed PX authorities made a new agreement with Sterovita, through McLane, so that they paid 7 cents less a quart on future orders (the PX price to the GI dropped 5 cents a quart). No effort was made by the PX to recover the overcharges already paid. As this is written McLane is still one of the PX's leading salesmen, with a standing order for 900,000 quarts of milk a month; and Sterovita, a company that freely admits the payment of bribes to PX executives, is still the leading dairy supplier.

McLane's payoffs were handled in the finest international tradition. He had a number account in the Bank Für Anlager Werte of Zurich. For the benefit of the uninitiated this is the system used by international crooks, spies, Communist agents and the like, to cloak their transactions. The bank does not know the name of the depositor; it has only a number. The person holding the account writes out the number in his own distinctive way, thus furnishing a handwriting sample as easy to compare as a signature. McLane's number was 198426. His funds funneled through this account and from there through a Basel, Switzerland, agency called Popularis Tours, to the eventual receiver. As a tourist agency, Popularis ranks as one of the wonders of Swiss banking. McLane, for example, might telephone them to deliver 10,000 English pounds to a given person at a given address in England. At the proper time, at the proper place, a doorbell would ring and a man would hand an envelope to the proper person. It would contain the money. There would be no conversation, no receipts signed. This exceptional tourist agency furnishes this service in all countries on the face of the globe and, what is more, enjoys and deserves an excellent reputation for prompt and honest delivery. If any ordinary tourist ever tried to use this part of Popularis' service, he would probably be thrown out on his ear.

The sample racket is used by the directors of the Post Exchange for what is known as honest graft. Suppose the wife of one of the directors wants a Persian lamb coat—as the wife of one of them did, recently. The PX ordered six $800 coats as samples to see whether the line would sell. This was so expensive an item that it didn't move, so after two weeks the price was cut sharply and the coats were sold at a heavy loss. The wife of the director picked up her bargain at the cut rate. The loss was just some more money that didn't go to the Welfare Fund.

THE Bohne case put an end to the PX racketeering of Sokolow and Bretts, but it didn't do much more than that. When Herr Bohne felt the painful bite of the tax authorities and began singing, Sokolow took off across the border, out of the jurisdiction of U.S. courts in Germany. Bretts was already in Switzerland,

and stayed there. DeVarinay stuck around too long and was tried, convicted and sentenced to a year and a half in jail. Said the prosecutor, at the conclusion of the trial: "I have only one regret and that is that the corrupt Americans, Sokolow and Bretts, are not in the defendant's dock with deVarinay. Permit me to assure the court and the community that these men, wherever they are, will be diligently pursued and brought to justice."

These are brave words, but it's doubtful if they put any fear into Sokolow and Bretts, who know that bribery is not an extraditable offense and that the Justice Department takes the view that criminal malversation of public funds, which *is* an extraditable offense, does not cover PX cases.

In the palmy days of Sokolow and Bretts the "take," or *vigorish*, as the New York gangster calls it, was a daily affair. Instead of hit-and-run means of snagging the illicit dollar, the top civilian heads of the European Exchange System set up a smoothly functioning business organization, called by themselves, in fact, the Combination. Sokolow was the brains. As the system developed, Bretts left—he was, incidentally, given a medal for his good work in the PX—to become the outside man, setting up the Progressive Marketing Association of Vaduz, Liechtenstein, and the Nura Corporation of Zürich, Switzerland, so that he could do business with his pals from the other side of the fence. Bribes were put in a central pot, divided and syphoned off into number accounts in Switzerland. Ten of these have already been traced, but the Swiss banks refuse to certify them so they can be used in criminal trials.

An ex-official in the PX setup told me, "I was making my own graft and was pretty happy at it when one of the big operators came to me and asked if I cared to join the combination. He said I would have to kick in to the common pot what I was making but that they would open a number account for me in Switzerland. My starting cut was to be two hundred and fifty a week. The reason I didn't accept was because I was doing better than that on my own. Besides, I always felt that this particular guy was something of a weak sister and if the shoe ever pinched him he would squawk."

The combine's take has been estimated as ten per cent of the total value of the goods they handled, making their income roughly $8,000,000 a year. This was confirmed by their mode of living: penthouse suites at the George V in Paris, yachts on the Riviera, and racing stables.

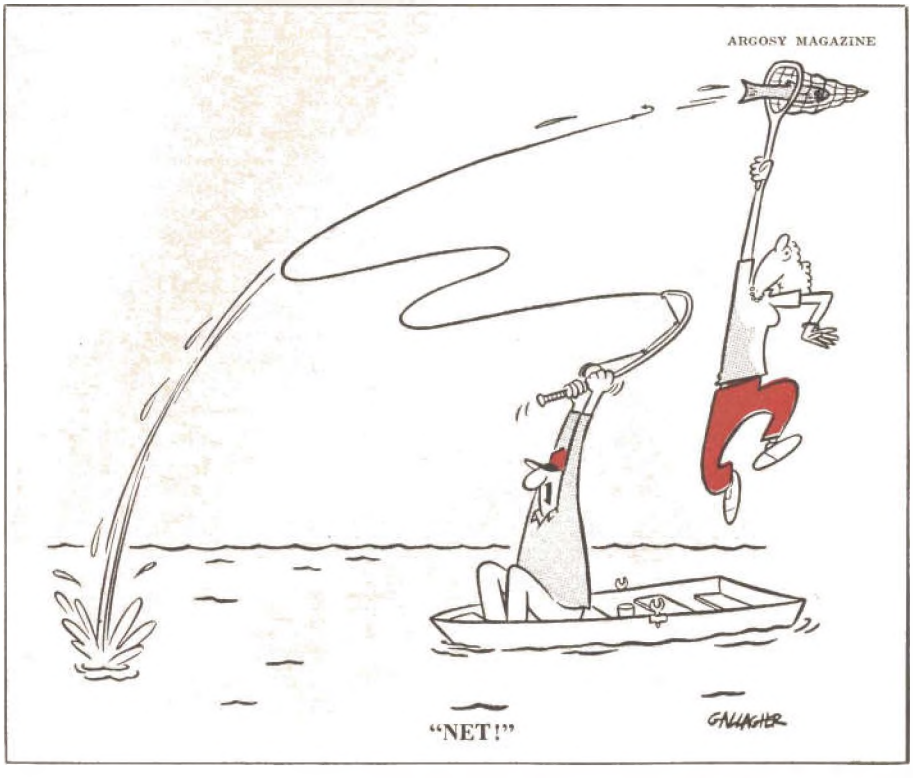
The combination operated with the smooth efficiency of big business. They had three companies going so that when one experienced difficulties in snagging a big deal, or happened to be in a particularly bad odor at the moment, another was substituted to grab off the contract. The companies were Nura Limited, Ocean Export Limited, and Progressive Marketing Company. Nura Limited, located at 10 Usteristrasse, Zürich, was an inactive company when it was picked up by Bretts. Bretts became its managing director and he sold mountains of foodstuffs, radios, spitfire lighters and other products to the PX. These sales accounted for 99.9 per cent of Nura's business. A single meat sale was for $640,000. Nura has made so much money that its proceeds have built the first two skyscrapers in Switzerland.

I drove down to Zürich to speak with one of Nura's sales representatives who has broken with the company. An ingratiating Swiss who was eager to give me all possible information, he was also a nervous informant. Swiss law holds that if anyone discloses details about these crooked transactions to a newspaper man, he can be sent to a jail for having violated the Commercial Intelligence Law, a statute that has made Switzerland a haven for spies, black marketeers and shady operators. This man said that, as Nura's agent, he made his first visit to PX Headquarters in Nurenberg where he was personally received with great honor. Buyers were called and placed at his disposition. Orders were signed without any fuss. He was amazed at this fine reception and attributed it to the force of his own personality. Only later did he learn that his personality was a consideration distinctly secondary to Nura's peculiarly effective setup. Almost every week end a director of the Frankfurt Post Exchange, biggest in Europe, would come to Zürich and stay at Bretts' apartment. The salesman overheard them making many deals in the cozy comfort of the living room. This director later left his post to become a sales representative of Bretts' Progressive Marketing. The combine didn't only profit on direct PX business, my man said. One of the members augmented his income by smuggling 4,000,000 packs of American cigarettes a month into Germany through the use of PX import certificates, much in the manner in which McLane was able to run his coffee smuggling business. This highly profitable racket lasted for several years.

That the PX is a breeding ground for crooks is not surprising. A recent check of its German civilian employes disclosed that fifty per cent of them had police records, mainly for prostitution and black marketeering. Aside from the loose loot lying around practically begging people with light-fingered tendencies to help themselves, the entire PX operates under a minimum of control from outside agencies. It is not an individual, nor is it a partnership nor is it a corporation. It is sometimes described as an instrumentality of the Army, but this is not quite so. PX executives regularly ignore the rules which bind government agencies in buying and selling. They are not bound by government regulations, they say, because the PX receives no money appropriated by Congress and therefore is not subject to the laws which Congress has set up to safeguard public funds.

Can the looting that is now going on in the PX be stopped? My answer, based on dozens of interviews over a four-week stretch with PX thieves who are now on the outside and with some still on the inside, as well as with honest members of the PX, is that it cannot. Even with the top members of the Combination out of their jobs, it will not be hard for the little grafter of today to become the big one of tomorrow. All it takes is a little brains, a little larceny and poor control. And there's no shortage of those in the PX.

And then there's insurance. The companies selling life insurance to GIs in Europe operate within the law, but may well be found hiding behind some technicality when pay-off day comes around. What makes the GIs' deal worse is that the Army authorities themselves have set him up as a pigeon.



In order to make clear what the GI is up against, it is necessary to set forth a short lesson in insurance. Texas has the most lax insurance laws in the United States; companies there spring up like weeds in a garbage dump. Some of them are capitalized for as little as $25,000. Others, which list more imposing assets, may have taken a $10,000 piece of real estate and arbitrarily given it a value on their books of $500,000. These things are not uncommon in Texas. The weakness of many companies in that state is such that any disaster, or even a little bad luck, kills them off like flies in a cold snap. There are more failures of life-insurance companies in Texas than in all the rest of the forty-eight states combined.

HERE'S a sample of the way some of these outfits do business. The National Educators Life Insurance Company, of Fort Worth, sold Robert L. Jeffrey, then a 17-year-old recruit in Camp Stoneman, California, a $5,000 policy. The young soldier paid his premiums regularly. He went off to war in Korea. There he was killed in action. The insurance company, notified of his death by the Defense Department, immediately issued a disclaimer of responsibility on the ground that the application for the policy had not been received by its home office, even though the company had been regularly cashing in the premiums. To show how really fair it was, the company sent Jeffrey's premiums back to Army authorities. Jeffrey's father, a farmer of Hamilton, Texas, refused to accept this as proper settlement, whereupon a vice president of the company visited him and offered him $1,000 to settle his claim in full, after which the elder Jeffrey brought suit in the 17th District Court in Texas. A jury handed down a verdict in his favor. That was one claim the National Educators Life Insurance Company paid. But it is interesting to note that if the senior Jeffrey had been a farmer in Maine his case might never even have come to trial. You can sue these companies only in Texas.

The name of Texas figures very largely in GI insurance in Europe. USAREUR Headquarters has permitted an organization of Texas companies known as the European Association of Life Underwriters to become the virtual arbiters of the soldier-life-insurance business. The president of the organization is Bill T. Turner, military agent for—believe it or not—the National Educators Life Insurance Company, of Fort Worth, Texas. The real power behind the organization is Walter T. O'Haire, an attorney from Pittston, Pennsylvania, who is its founder and executive secretary, and who is hired on a monthly retainer basis by the very same National Educators Life Insurance Company and four other Texas concerns. Texas companies sell ninety per cent of all life insurance sold to soldiers in Europe. The soldiers are herded into classrooms in their "Information and Education" lectures, to make it easier for the so-called salesmen from Texas to make their pitch at them. The so-called is used advisedly. Just about the only qualification anybody needs to be licensed as a Texas insurance salesman is to have a certificate of residence in that state. And if you think "certificate of residence" means what it says, think again. So long a line of salesmen for Texas companies were showing up at the US Consulate in Frankfurt, asking for certificates of residence in Texas, that the vice-consul became suspicious. The accents of some of them weren't even as close to Texas as Brooklyn. When the vice-consul asked one "salesman" whether he had ever resided in the United States, let alone in Texas, the man answered frankly, no. Shortly afterward Mr. O'Haire telephoned the consulate and protested that this was not sufficient reason to deny the applicant a certificate of Texas residence; the State of Texas, he said, holds that for licensing purposes the mere intent to become a resident of the State of Texas is enough. The statements made by some of these characters under Army auspices to soldiers of very limited insurance experience could get them jailed under the laws of New York or California, where insurance laws are strict. Texas law lets them say almost anything they like.

ASIDE interest of this same Mr. O'Haire, incidentally, is slot machines. The firm he represents, Automata GMBH, 155 Hanauer Landstrasse, Frankfurt, owned by another American, has cornered the slot-machine market. They were able to do this by convincing a group commander at the Rhein-Main Airport that it was in the military interest for him to issue them a U.S. transportation form 69 to permit them to import 116 machines into Germany without a license or payment of customs duty. The Rhein-Main requirements did not come to more than forty, leaving these modern evangelists about seventy instruments with which to spread joy among the heathen Germans. Colonel Miles W. Brewster, the Wiesbaden armchair eagle by whose orders the slot machines were allowed into airmen's clubs, says he permitted this because it is a painless way of producing revenue. That is true, as Frank Costello and Joe Adonis discovered long ago.

How much does the ninety per cent that the Texas companies sell to the GIs amount to? The Army professes to keep no records of such sales, but a conservative guess is that they hold at least $50,000,000 worth of policies. What bothered me was not only the shaky nature of some of these investments, but the disturbing report that other companies could not get Army approval to operate in the area at all unless they joined the Texas-dominated Association.

So I went to the office of Lieutenant Colonel Lewis V. Smith, the officer in charge of insurance, and had an interview with him. He was very glad, he said, to tell me all he could about the business. I asked if he was aware of the insecure nature of many of the Texas life-insurance firms. He said that was no concern of his because these companies had been cleared by the Pentagon. Did he know that some of the companies selling millions of dollars worth of policies to GIs had assets of no more than $25,000? He wasn't aware of this, he replied, but even if they were small companies, they in turn re-insured with large firms.

Now the word "re-insure" has a solid ring to it and I asked whether or not it was true that the re-insured policy sometimes was not a complete coverage of the original one. For example, if a small company wanted to be able to advertise that all its policies were re-insured yet also wanted to keep the major portion of the premiums for itself, it could conditionally re-insure the original policy holder so that the re-insurance firm would be liable only if the insured were standing on his left foot, facing the rising sun and was trod on by a stampeding herd of elephants on an odd day of the week. Under these special conditions the re-insurance fee would be a few pennies a year.

"I don't know that much about insurance," Colonel Smith said frankly. "I'm an Army officer."

"Have you ever seen a re-insurance contract?"

"I never saw a re-insurance policy in my life," he said. "That's not part of my job."

"Is it true that the European Association of Life Underwriters is the dictator of GI life insurance in Europe?"

"That's not true at all. I am the final authority."

"I am told that it is impossible for an agent to do business in Europe unless he joins this Association."

"That is not correct. Only I have the authority to license an agent."

I asked if there were any agents licensed to operate who were not members of the Association. Colonel Smith confessed that there weren't. It so happened that an agent from a large American company incorporated in the states of Washington and California who did not want to be tarred by association with the Texas group had told me he could not get accredited by the Army because Colonel Smith was putting all sorts of difficulties in his path in an effort to force him into joining. The colonel didn't think this was quite accurate, but on closer questioning he admitted that if anyone brought in a letter from the Association giving him clearance as an agent, the man would get his license to sell to the troops by return mail. If an agent tried to get the colonel's clearance without joining the Association, however, the colonel would have to make an independent investigation of him.

"And how would you investigate him?" I asked.

"Why, I'd write a letter to the Association and ask them to make an investigation."

"How do you police the insurance business in Europe?"

"Only through the Association."

That seemed to take care of that. God have mercy on the poor GI. • • •

ARGONOTES

about argosy authors

THADDEUS V. TULEJA, whose dramatic account of one of the greatest sea stories of WW II "The Kill of the Graf Spee" appears on page 28, has had practically a lifetime interest in ocean-going vessels. "It all started," he tells us, "when I was six years old. My mother took me to see the fleet anchored in the Hudson River, but she got in the wrong line and soon we were churning out to a gray battleship in a motor launch." The experience evidently influenced Mr. Tuleja more than he thought because in 1942 he enlisted in the Naval Reserve, and in 1943 found himself putting out to sea aboard a 110-foot sub chaser.

"That first sea experience will always live with me in grim horror," he says. "For three solid months I was seasick and I lost thirty pounds in the bargain." Fortunately by the time he'd served as liaison officer and navigator on sub chasers, PCs, DEs and troop ships from the Pacific to the Mediterranean, the mal de mer had gone.

WE'VE GOT a fiction author this month who is also somewhat sea-struck, but he gets his kicks thirty feet or so under the surface where there's less danger of becoming seasick. His name is Arthur C Clarke and his hobby is taking underwater pictures. In addition to having published more than a hundred articles and short stories, six novels and two non-fiction books, he can always get by with his swim-fins, snorkel and 35-mm. camera.

Clarke started his prolific writing career fairly quietly. During WW II, when he was an RAF radar specialist, he published a number of technical papers on electronics. Writing on radar experimentation appears to have been just a proton away from writing science fiction, for in no time at all he'd hit on the formula which has kept him at his typewriter ever since. See page 34 to discover why *i* (imagination) plus BS (Kings College, physics and mathmatics) equal one helluva story.

WE HAVEN'T met a photographer yet who started out as a photographer. Mike Ehrenberg, for instance, who took the Tracerlab pictures on pages 32 and 33, used to be a newspaper writer. Then one year in his wanderings around Europe he picked up a Leica and that was it.

THE OTHER for instance who bears out our findings is Joe Coudert ("Pheasant Where You Want Them," page 50), one-time private eye. Joe did Intelligence work during the war, and when he got out of service a friend in Connecticut started him on the way to becoming a shamus. Then Joe sort of drifted into legal photography and from there it was more or less inevitable that he'd eventually focus his lens on more than a corpse or a set of prints. How he got to be a racing-car driver is something we can't explain as logically. All that we know about that phase of Mr. Coudert's career is that he drove half-mile-sprint cars, copped himself a New England championship in 1948, and after several stays in the hospital, decided it was safer to take pictures.

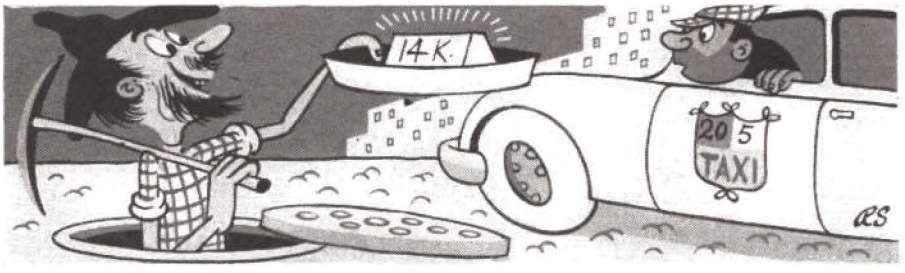
We're not so sure he's right, though, because some of the Nilo set were taken from a pheasant's-eye view—within bull's-eye distance of the gunners. We pointed this out to him but he refused to see anything much to get excited about. "Just a normal occupational hazard," he countered. With his occupations, who could argue? • • •

The tools of the trade, for Tuleja, are sea legs, a sextant, a typewriter.

Sprint cars and a shoulder holster brought Coudert, camera together.

man with the ANSWERS

BY HOMER CROY



ARGOSY has asked me to take over this department and try to answer the questions. I'll do the best I can. If I don't know the answer, I'll get on my scooter and go to somebody who does. (I get traveling expenses.)

Where can I sell live rattlesnakes? John E. Cooke, Dunbar, Pa.

Our snake editor is in the hospital from snakebite (he tried to sell a live rattler), so I will undertake to answer you. Write to the nearest zoo. Ask the reptile man if he's got all the rattlesnakes he yearns for and if he will give you the name of a drug-manufacturing company that buys rattlesnake venom. Also write to Ross Allen, Silver Springs, Florida, who has a snake show. Don't bring any of your samples to our office. We know that your snakes are just what the market wants.

Where can I go prospecting for uranium in Canada? E.F.D.

Write to A. C. DuFresne, deputy minister, mining department, Quebec City, Quebec, Canada. He knows more about where to find uranium than a Geiger counter.

When I go camping, I have a great deal of trouble keeping ants out of my sleeping bag. How can I keep them out? George P. Foster, Jr., La Grange, Ill.

A sleeping bag sprayed with DDT will keep out ants.

To C. Richardson, Baltimore, Md.:

So you are planning a foldboat trip down the Inland Waterway! You will be encouraged to know that about twenty-five years ago a German sea captain got fed up with big ships, built himself a foldboat, and sailed the darn thing clear across the Atlantic Ocean. Not only that, but as much as fifty years ago one character in a paper kayak (yes, *paper kayak*) made the trip from New York to Florida by paddling all the way. And only a couple of years ago, a pair of boat-shop operators set some kind of speed record by making the trip in about a week when you use an outboard-powered runabout.

In reply to your question about where to obtain navigation information, I would suggest you write to the following: *Yachting*, 205 East 42nd Street, N. Y. 17, N. Y.; *Motor Boating*, 572 Madison Avenue, N. Y. 22, N. Y. and *The Rudder*, 9 Murray Street, New York 7, N. Y., and ask for their catalogues of boating books. I am quite sure that they have guide books to the Inland Waterway especially prepared for the use of small-boat owners making the trip. You might, at the same time, ask them if during recent years they have published articles on this cruise—I'm pretty sure they have. You will no doubt gain much valuable information from such articles even though the trips they describe might have been made in motor boats. I would also suggest that you write to the Folbot Corporation, Stark Industrial Park, Charleston, South Carolina, and ask them if they still have a copy of a book called "Foldboat Holidays."

You say you expect to hug the shore all the way down. That is a long way to hug anything, especially along an unknown waterway.

Has a fair ball ever been knocked out of your Yankee Stadium? Richard Baker, Fort Collins, Colo.

No. The Stadium has been open thirty-one years and the boys have been trying all this time, but no one has clouted one out. Some day some player will and he'll become a Baseball Immortal. TV producers will fight for his signature; lovely girls will call up and say they are lonesome and ask him to come and talk to them. There's not a baseball player in the land who won't know what to do—that is, about the TV producers.

Where can I pan for gold in New York state? When I get on a man's land, is there any danger of legal complications? Walter O. Mosher, Binghamton, N. Y.

ARGOSY ran an article called "How to Pan for Gold." The piece showed that gold can be panned out in about thirty-five states. New York included. You don't get much, but you get a few flakes and this seems to excite people. California, Arizona, Nevada are best places in the United States, and many people who know what they are doing can actually earn themselves their vacation by panning out a few ounces in a week or two. Yes, there is danger of legal complications. Beware of anybody carrying a shotgun. He has not come out there to salt a mine. He intends to salt something else, unless you take it away fast.

When did Carry Nation die? Albert Highton, Gainesville, Fla.

Thank goodness, you spelled her first name right. When she was born, her father—who wasn't too well educated—wrote it in the family Bible as Carry. She used that spelling all her life. She died in 1911 and is buried, not in Kansas, as you might think, but at Belton, Missouri. It was just seventeen years from the time she chopped up her first saloon with her hatchet that prohibition was enacted in the United States.

Who was Baby Doe Tabor? Paul Wing, West Southport, Me.

Don't ever ask that question in Colorado, or they'll throw you into the Royal Gorge. She was the wife of the tremendously rich H. A. W. Tabor and was the most glamorous woman Colorado ever produced. They had a daughter named Mary Rose Echo Silver Dollar Tabor. A

motion picture was made of the life of the girl and was called "Silver Dollar." Baby Doe herself died dramatically in 1935—as any native of Colorado will tell you at length.

Where can we get information about night-crawlers? Danny Allen and Bruce Mendini, Iron Mountain, Mich.

Write to the Department of Agriculture, Washington, D. C. Go to see your County Agenty. Write to the Zoology Department of your state university, at Ann Arbor. They crawl with information, both night and day.

My bird dog bites her front legs until they are red. I have tried changing her diet from one dog food to another, but she still keeps it up. What is the cause and what is a good remedy? E. D. Sweeney, Seattle, Wash.

It may be a nervous disorder which will pass. A temporary remedy is to smear her forelegs with tar, then bring her into the house and see if she continues to bite her legs. If she does, it will be nothing to what your wife will do.

Instead of a question, here's a letter with information. I don't have to look up a thing. Bless her heart. It's from Mrs. Peter Vroknen, Westridge, N. J.

I want to tell you a story about my wonderful dog Chuck, a mongrel terrier. It's how he pitted his brains against a woodchuck, with the woodchuck winning. Once Chuck worked out something the woodchuck never thought of. Chuck watched until one of our cows lay down near the woodchuck's hole, then Chuck slipped up and lay down behind her. Out came Mr. Woodchuck for a stroll. Chuck peeked around from behind the cow—I'll swear he did—and when the woodchuck was far enough away from the hole, our dog came out from behind the cow and nabbed the amazed and astonished woodchuck.

If I had a dog that smart I'd be afraid to let him in the house.

The other day, in an argument with my friend, he said that Ziegfeld did *not* die a rich man. What is the truth? Arthur R. Pastore, Jr., Brooklyn, N. Y.

The truth is that you lost. Ziegfeld died a pauper. He did not leave enough money for his own burial. Will Rogers paid his funeral expenses.

PERSONAL: *Each month I'm going to give a prize for what I consider The Question of the Month. It will be an autographed copy of my book, "Jesse James Was My Neighbor." This month it goes to B. C. S. Richardson, who will get the book about the time he does his magazine. I hope he likes both.* H. C. •

HOW TO CATCH A SALMON

RECENTLY I was standing around a tackle shop in New York telling Alex Rogan, the fly-tyer, about some tough luck I'd had on a fishing trip, when a stranger who'd been listening in interrupted to invite me across the street for a cup of coffee. Since he seemed to have something on his mind, I went with him, and when we were seated he said:

"This last Fourth of July was a three-day week end at the office where I work, and so when Charley, an old salmon-fishing sidekick of mine, telephoned to suggest that we drive to New Brunswick and have a whack at the Northwest Miramichi—a distance of roughly seven hundred and fifty miles from New York, or fifteen hundred miles round trip—I naturally told him to go soak his head. It would have meant driving like crazy for eighteen or twenty hours, fishing about ten or twelve hours, then driving another eighteen or twenty hours to get back home. He said okay, it was just an idea and he was willing to forget it.

"When I got home that evening I told my wife about Charley's call, and she said I was quite right to turn him down. That kind of goofy stunt is all right when you're young, she said, but not for anybody *your* age. I said, 'That's right, dear,' but the more I thought about the unnecessary inflection she'd put on that '*your*' the madder I got, and finally I picked up the phone and called Charley and told him I'd go to the Miramichi with him over the Fourth. Charley said he'd call a guide he knew up there and make the reservations, and although my wife howled like a banshee and predicted forty-seven kinds of disaster, we left late Friday night to avoid the traffic and drove straight through to Newcastle, then up the river to the guide's place, which was right on the riverfront. The traffic had been so heavy that it was too late to set up rods when we got settled, especially since our combination host and guide said there were no fish in this stretch of the river at this time of year. So we turned in and got a good night's sleep.

"In the morning the guide said he'd been thinking it over, and since we'd come such a long way for a single day of fishing he'd decided to show us something special. He said there was a tributary river that was mostly owned by a club, but that one part of the river, with some exceptionally good pools, was so inaccessible that it wasn't fished more than one or two days a season. However, he said, last year he'd discovered a way to drive in on an old logging road to within a mile or so of the river, and had blazed a fairly easy trail through the woods to the pools, and had been sort of saving this water for a special occasion. The pools should be absolutely crawling with salmon and grilse, he said, since the stream always got a good early-July run, and he had the truck all ready to go.

"We finished breakfast, piled our gear in the truck and took off—down the main road for six or eight miles, then off on a back road and finally down a barely passable trail through the bush. After a while the guide stopped the truck and we took off on foot through the woods. I have trouble with my arches and was wearing a pair of specially made shoes that had set me back a cool sixty dollars, but the guide had assured me it was an easy, dry trail and couldn't damage the shoes.

"It was about eight o'clock when we started walking on what the guide said would be an easy twenty-minute stroll to the river. We went down along a low ridge, and I kept feeling we were on the wrong side of it, but you don't question a professional guide and woodsman who's lived sixty years in the country and who couldn't possibly get lost in what is almost literally his own back yard. Except that this bird not only could but did.

"Six hours and maybe ten or twelve miles later we were slogging through a muskeg in swamp water up to our knees, and it had long since become apparent that my shoes, if not actually water-soluble, were at best never meant for skin-diving. Our clothing was almost as tattered as our tempers, and when we rested on a hummock and got into a fairly bitter discussion as to which way was north I vaguely remembered a Boy Scout trick in which you use a watch and a matchstick for a compass. So I took off the wrist watch my wife had given me for our tenth anniversary and fiddled with it for a while but couldn't recall how the stunt worked, and it wasn't until several miles of muskeg and an hour later that I discovered I'd lost the watch. I was also minus a Hardy St. George reel and a brand-new HDF line and a hundred yards of silk backing that must have fallen out of the pack-basket I was toting, and I can't say I was disappointed when we stumbled out onto the same road we'd come in on late that afternoon, because I'd sprained my wrist in falling off a beaver dam and couldn't have held a rod anyway.

"When we got to the guide's house, his wife told us that a man had been fishing right in front of the house while we were gone, and had killed four grilse and two salmon and had had a couple of really huge salmon on, but had lost them, being a rank novice.

"We staggered into bed and the next morning we got up, paid the guide and drove seven hundred and fifty miles back to New York, arriving in time to get to work on Tuesday morning. If you hear of anyone who's anxious to buy a pair of waterlogged, custom-made, sixty-dollar arch-preserver shoes, or who has a good wrist watch for sale cheap, I wish you'd let me know."

I said I would and he said he was late for an appointment and went, leaving me stuck with the check for the coffee. I suppose that's what comes of talking to strangers. •

it's news to men

HERE'S still another use for vitamins. A summary of 74 recent studies showed that vitamin deficiency is among the causes of at least 11 nervous or mental disorders. The paper was written by Dr. Robert A. Peterman of J. B. Roerig and Company, and Dr. Robert S. Goodhart of the National Vitamin Foundation to aid practicing physicians in recognizing the signs and symptoms of such nervous or mental disorders so that the needed vitamins may be supplied.

FOR OFFICE workers who want to brush their teeth after lunch, or before heading for an appointment after work, there's a toothbrush available now which resembles a pen and contains its own supply of paste. All you do is take off the cap, exposing the brush, then twist and push the handle, and paste appears between the bristles. It costs a buck, and is sold by The Williams Company, P.O. Box 614, Oakland 23, California.

THE FIRST report on cost comparisons using the new "piggy-back" railway cars, which carry loaded trucks, reveals that handling costs between Chicago and Green Bay, Wisconsin, are $7 a ton less. An unexpected additional saving: in the first three months of the truck-on-a-train operation, not a single claim for damages was filed.

DISCOVERIES of uranium in Canada during the last year were so numerous that it may pass the Union of South Africa and the Belgium Congo as the chief producer of atomic ore in the world.

A MAN applying for a job as a riveter, or any other noisy occupation, can now take a test which will tell whether his ears are susceptible to damage as the result of loud noises. Developed by two University of Michigan researchers, the test determines the point at which the subject's ears become "overloaded," without using sound intense enough to result in damage.

IF YOU want color prints of game birds which are suitable for framing, you can get a dozen 12 by 14 paintings by Louis Agassiz Fuertes for $2 from The Stackpole Company, Telegraph Press Building, Harrisburg, Pennsylvania.

INCIDENTAL ITEMS OF LITTLE USE TO ANYONE: American men will spend one billion dollars in barber shops this year; the incisor teeth of the pocket gopher grow at the rate of 46 inches a year, but his constant gnawing keeps them worn down; the world's first regular passenger helicopter service was introduced between Cardiff, Wales, and Liverpool, England, in June of 1950.

A FIND for do-it-yourself repairs, is an interesting new wallpaper that has just been put on the market. It is called Squares by Wall-Dec. Instead of having to work with those cumbersome rolls, you get boxes of fourteen-inch squares of the pattern you pick, you have a choice of fifty-four, plus glue. All you do is apply the paste to the back of a square and carefully place it in position. If your local dealer doesn't carry them, or if you want more information, write to M. J. Galloway, Peter Kolean Associates, 42 W. 57th St., New York 19, N.Y.

A NEW hand cream, first developed in England during the last war to combat labor absenteeism, has now been released in the United States. Called Kerodex, it forms a strong, invisible film which protects the hands—and face—from hundreds of hazards to the skin, even including poison ivy.

IF YOU'RE planning some fall painting around the house, we have a booklet that will give you all the information about paints, brushes, methods, etc., that you will ever need. Just drop a line, enclosing your address, to ARGOSY Home Workshop, Dept. 4, 205 E. 42nd St., New York 17, N.Y., and ask for your free copy of the ARGOSY Home Paint Chart. • • •

ON THE FIRE

Cooking With Charcoal Indoors

BY JIM BEARD

MOST people seem to think of charcoal cookery as something to be done outdoors. So it is. But the texture of meat cooked over coals and flavored with smoke is so superior that the present trend is to devise ways to cook indoors by outdoor methods.

Many newly designed houses have space for built-in charcoal units. Then, too, there are outdoor charcoal units that can easily be moved to the living-room fireplace during the winter. It's also possible to rig up grills and motor-driven spits in most fireplaces. For those who have neither built-in charcoal units nor fireplaces, the electric rotisserie is a near approximation of outdoor methods.

Not long ago in the modern home of the Grant Dahlstroms in Pasadena, I saw a built-in charcoal unit that impressed me as ideal for the man who is interested in cookery. This unit was installed waist-high in an alcove off the kitchen. It had its own chimney, adjustable firebox, and electrically driven spit. On the wall was a niche to hold spits, grills and other cooking gear. Underneath was a bin to hold charcoal or briquets, and nearby a carving table. This unit was specially designed by an architect to bring outdoor cooking indoors, but it could probably be duplicated by a man who has a well-equipped home workshop.

Less ambitious men can readily adapt fireplaces to the outdoor cooking techniques. It's important, of course, that the fireplace be large enough to accommodate a motor-driven spit. The setup requires a dripping pan to catch juices and fat. Fireplace cooking can be done successfully with coals from a wood fire, provided the wood is not resinous. The more satisfactory method is to build a fire of charcoal or briquets. Some types of outdoor grills, such as the fine ones designed and made by General Harold Bartron of Riverside, California, can easily be moved inside for winter cookery. The legs of the Bartron grill can be unscrewed, and the firebox can be lifted into a fireplace along with the motor-driven spits.

With one of these indoor grilling arrangements you can have a really old-fashioned Thanksgiving dinner—turkey-on-the-spit in true early American style. Our forefathers simply hung the turkey from the spit in front of a good bed of coals, put a dripping pan under the bird and let it cook, turning it slowly, until it was golden crisp. Some of the spits were turned by hand and others, more elaborate, were mechanically turned by clockworks.

Whether you use some primitive device similar to this, or move your entire grill into the fireplace, or have a rotisserie, the method of preparing and cooking the turkey is the same. Clean the bird and truss it well so it will stay firmly in place on the spit. Do not stuff it. (If you like stuffing, cook it separately in a casserole and flavor it with the chopped giblets, a little of the turkey fat and some of the pan drippings.) Sprinkle the outside of the turkey with salt and pepper. Some people feel you shouldn't season a bird until it is cooked, but I find that the salt roasted right into the skin gives it a good crunchy flavor. Rub the turkey all over with some soft, herbed butter (butter mixed with rosemary, tarragon or thyme, whichever you prefer) and spit it so that it balances evenly. Stick a meat thermometer into the thickest part of the breast and be certain that it doesn't touch the bone. Start turning near a medium hot fire and baste during the cooking process with herbed butter mixed with a little dry white wine. This will give it a beautiful glaze and make the skin tastier than ever.

Ignore the advice of most commercial thermometers or you will have overdone turkey. When the internal heat of the bird reaches 175 to 180 degrees, it is done. Remove the turkey from the spit and let it stand on a hot platter or cutting board for fifteen to twenty minutes before you carve it. This makes it even juicier and more flavorful.

Meanwhile, take some of the drippings from the dripping pan and skim off most of the fat. You will want about a cupful of liquid. Combine this with a cup of heavy cream and a half cup of toasted crumbs. Let this heat together and thicken. Taste for seasoning and add salt and pepper if necessary. Just before you serve, add a dash or two of cognac to the sauce.

Serve this spitted turkey with potatoes mashed up with plenty of cream and butter and topped with chopped parsley and paprika. Add some baked or boiled onions dressed with butter and good grated cheese and pass some cranberry sauce, if you like.

Some people are anti-turkey types, and insist on having a big hunk of beef for Thanksgiving. This, too, is superb spitted and roasted to a rare juicy pinkness in the center and a crisp brown outside. There is nothing like charcoal for enhancing the unique flavor of good aged beef. If you have a large spit, buy five or six ribs of beef and have the butcher cut them short. (Save the short ribs for barbecuing or braising later.) Then have the chine bone and the excess fat removed. No sense in having more drippings than necessary. Rub the beef well with salt, pepper, rosemary.

Now for spitting the beef. This is not an easy job as it must balance evenly. Hold it in your hands first and try to determine the center of its weight. Then spit it right through that area. Balance it in your hands on the spit to see if the weight seems evenly distributed. The better it is balanced, the better the spit will revolve and the more even the roasting.

If you are using an electric rotisserie, most models will not take a large rib roast. In that case have your butcher bone and roll the roast for you so it will fit your model. And don't let him keep the rib bones. Have him leave a little meat attached to them and cook them separately at another time. Just brush them with a little butter, Worcestershire sauce and mustard and broil like spareribs. They are delicious.

If you use a meat thermometer in cooking your roast beef, let it register about 130 degrees for doneness. This will give you good rare beef. If you like it cooked longer, let it go a little higher.

Yorkshire pudding was the standard dish with spitted roast meats in the old days and it's still the best accompaniment for roast beef, to my way of thinking. It used to be cooked in the dripping pan under the meat, but it is far simpler to do it separately in the oven. To make it, beat four eggs until they are light and lemon-colored. Then add a pint of milk and a half cup of flour and blend these with the beaten eggs until they are thoroughly mixed. Season with a half teaspoon each of salt and pepper and let the mixture stand for about a half hour. Put some of the beef drippings from the dripping pan under the roast into a flat baking dish and heat the dish with the drippings for a few minutes. Then pour the batter into the pan and bake in a 450-degree oven for about fifteen minutes. Then reduce the heat to 375 degrees and finish cooking until the pudding is brown and puffy. Cut it in squares and serve it with the roast beef, and potatoes which have been fried in the beef drippings until they are brown and crisp.

Once you get your indoor spitting arrangement rigged up you'll find yourself doing all your roasting this way. Boned, rolled leg of lamb or mutton makes a delicious morsel done over hot coals, and of course any kind of poultry is better spitted than cooked any other way. • • •

OPEN A NEW WORLD OF WHISKEY ENJOYMENT...

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THE KILL OF

Captain Langsdorff was a cautious commander, but he couldn't resist trying to smash the convoy he thought the three small British ships were guarding. It was the biggest mistake he ever made—and one of the last

ON THE twenty-first of August, 1939, more than a week before Hitler's armies spearheaded across Poland, a German pocket battleship, bearing the name *Admiral Graf Spee*, quietly pulled away from her berth in Wilhelmshaven. Her taut bow nudged through the oily waters of the harbor, pushed down the buoyed channel and then burrowed defiantly into the broad gray swells rolling in from the North Sea.

She was under the command of Captain Hans Langsdorff, a forty-five-year-old career officer, with a trim mustache and wisp of beard, who stood, hands clasped behind him on the *Spee's* bridge, which jutted out from the ship's massive control tower.

To the fishermen who watched her cut through the sea from their boats bobbing offshore, the *Graf Spee* might have been outbound for a peacetime training cruise. But Langsdorff's secret orders from the German Naval High Command told a different story. He was to set his courses and speeds so that he could enter the South Atlantic unobserved just as war was declared. At that moment the *Admiral Graf Spee* was to become a raider, roving across the southern trade routes like a killer shark, ready to pounce on British merchantmen and strangle enemy shipping.

The *Spee* was well cut out for the job of a raider. Her six eleven-inch guns could fire more than 4,000 pounds of singing steel across the wide sea at a target fifteen miles away. And her eight sets of diesel engines, generating 54,000 horsepower, gave her a speed of twenty-six knots, enough to outrun most heavier-gunned British men-of-war. Moreover, Langsdorff's fuel tanks were to be replenished at prearranged times and positions at sea by a German tanker, the *Altmark*, which had sailed two days earlier from Port Arthur, Texas, with more than 9,000 tons of oil, and was headed for the South Atlantic with her well decks awash.

If Langsdorff turned south immediately and passed through the English Channel, his movements would have been spotted long before he could clear Bishop Rock off the southwest tip of England. So he turned instead to the north, and, two days later, to the west. Then he set the *Spee* on a southerly course which headed her steadily for the warm waters of the south.

By the twenty-ninth of August he had his ship some 400 miles due west of the Azores. On the navigational chart spread out before him he pinpricked a position 1,000 miles further to the south, his first meeting place with the *Altmark*.

Three days passed. Then, on the first of September, the buzzing staccato of the ship's radio brought news that sent a wave of excitement through the

THE GRAF SPEE

BY LT. COMDR. THADDEUS V. TULEJA, USNR

ship. The war had started. At the same time the chunky, black-hulled, oil-laden *Altmark* hove into view on the southern horizon. The ships approached each other, then steered parallel courses. Cradled fuel hoses were swung from the German tanker and connected up. Diesel oil gurgled into the *Spee's* tanks. After topping off, all lines were returned rapidly to the *Altmark*.

Although at fifteen knots the *Spee's* cruising range was 10,000 miles, Langsdorff wanted to keep his tanks filled to capacity as long as it was possible to do so. The sudden appearance of a British warship might force him to race away at full speed. And at full speed the *Spee's* fuel consumption was quadrupled. So the *Altmark*, after dropping below the horizon, followed the raider southward.

On the twentieth of September, after the *Spee* was refueled for the fourth time, Langsdorff looked over his charts. He was now well in the South Atlantic, 2,000 miles due east of Rio de Janeiro. Since the war began almost three weeks before, the German battleship had steamed 3,500 sea miles without sighting an enemy merchantman. Langsdorff reasoned that the cargo ships, fearful of German submarines and raiders, were hugging the coasts before pushing into the open sea off Pernambuco. Convinced that this was the case, he put the *Spee* on a westerly course and headed for the coast of South America in the vicinity of Recife.

The days were warm and the skies remained clear. Visibility was unlimited. A telltale trace of stack smoke would not be missed by the lookouts. Yet day followed day without the appearance of king posts or masts. The month of September was running out and Langsdorff began to wonder if British trade had ceased altogether.

When he approached the Brazilian coast to within a hundred miles he got impatient. "Prepare to launch aircraft," he shouted. In a few minutes the pilot climbed into the seaplane, which rested on its catapult abaft the stack. He gunned the motor a few times and then signaled that he was ready. The catapult snapped and the plane shot out, and winged toward the west.

A cluster of gray clouds lay transfixed against the morning sky. The forenoon watch was set. Langsdorff waited. Then the plane returned with an electrifying message. There was a freighter moving along the coast of Brazil about fifty miles off Bahia.

The plane skimmed along the water and taxied close to the *Spee*. While it was being recovered, Langsdorff went to the chart house. He picked up a set of dividers and measured the distance between the *Spee's* position and the freighter, which he estimated to be about fifty miles. By increasing

The *Spee* sent a last barrage of heavy shells, unleashed a swirling screen of smoke, and turned her bow south.

his speed and adjusting the raider's course a few degrees, he would intercept the target in two hours.

At eleven o'clock a lookout spotted a vague column of smoke in the distance. Instantly Langsdorff gave a crisp order to sound general quarters. All routine work stopped. Cooks and stewards scrambled out from the galley to take up their battle stations in the sick bay. Others stood by as stretcher bearers. The ammunition hoists were made ready for action and the damage control parties connected sections of fire hose in case of an unexpected emergency. Officers and men climbed into the *Spee's* turrets. Doors and hatches were closed tight. In a few minutes the ship was ready for her first engagement with the enemy.

The *Graf Spee*, opening the sea before her with a foaming bow wave, rolled toward the enemy ship. Through his powerful glasses Langsdorff studied the lines of his target. She was a tramp steamer, about 5,000 tons, flying the British flag.

Turning to his signalman, Langsdorff said, "Tell them to stop their engines and do not use their wireless or we will open fire."

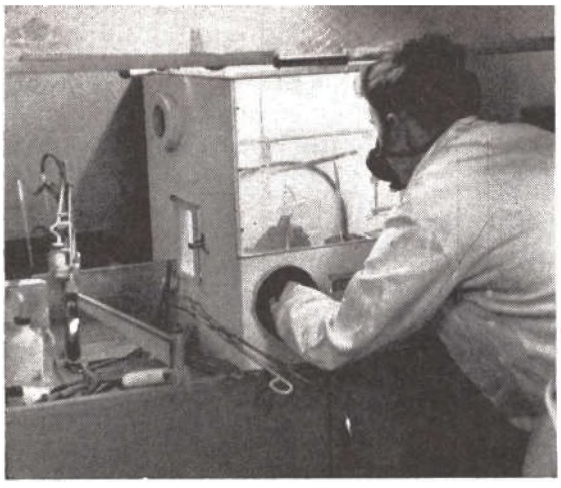
Illustrated by Charles Evers

The message was promptly flashed to the British steamer, and just as promptly her speed slackened. When she was dead in the water the *Graf Spee* swung about and pointed her guns menacingly. Langsdorff read her name, *S.S. Clement*, on the stern. Then he called another order: "Boarding party away."

As lines squealed through the blocks, the boat was lowered. It bucked its way to the side of the captured ship, and the boarding party, an officer and several sailors, clambered on board.

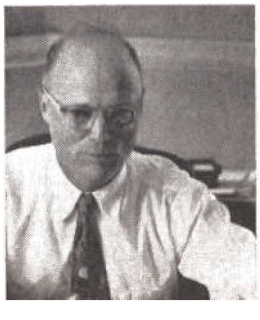
A hasty search was made for confidential papers, but these had long since been thrown over the side in a weighted bag. Then the German boarding officer told the British master that his ship was to be sunk. The crew was put in two lifeboats and given directions to the nearest point of land along the Brazilian coast. The captain and his chief engineer were ordered to return to the German battleship.

The British master was brought to Langsdorff who stood erect on his bridge, neatly dressed in a white uniform. The German captain saluted smartly and said in a disarming tone, "I am sorry, *(Continued on page 74)*



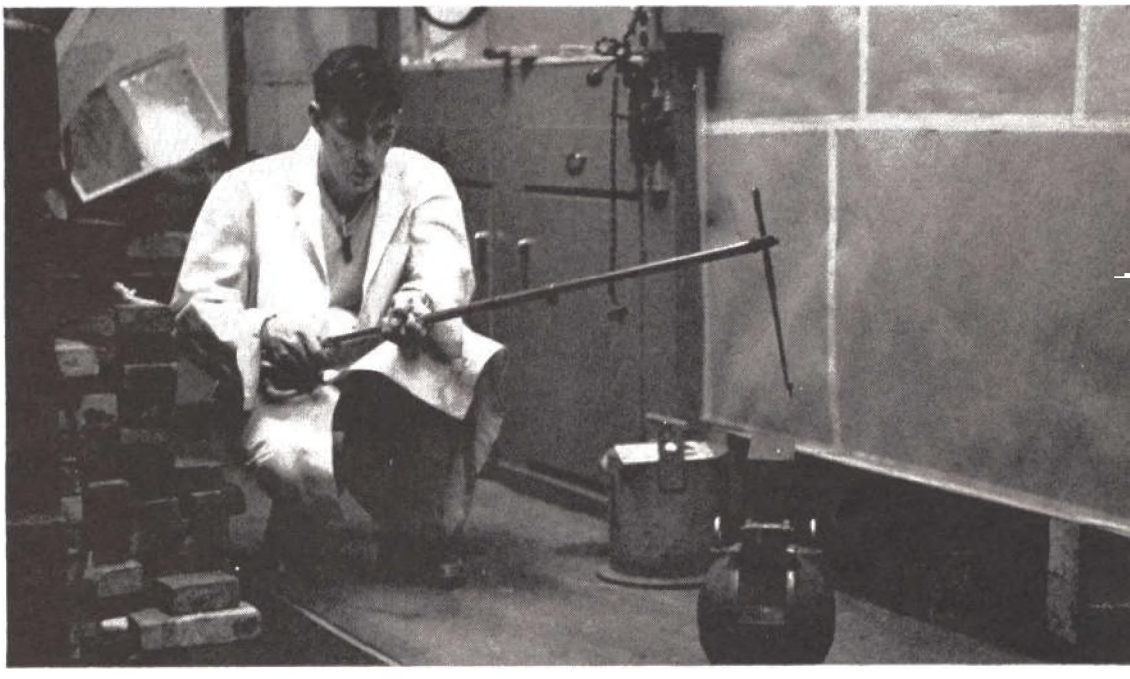
Tracerlab technician, behind shield, handles hot stuff by remote-control device.

Tracerlab glass blower fashions highly intricate tube combination which will be used in Carbon-14 work.



Top man Bill Barbour, 42, was old man of group. Key men *(far right)* are Brinkerhoff, Hadley and Peacock.

Photographs for Argosy by Myron Ehrenberg



Radioactive waste is stuffed in lead bottles, embedded in cement and sunk at sea.

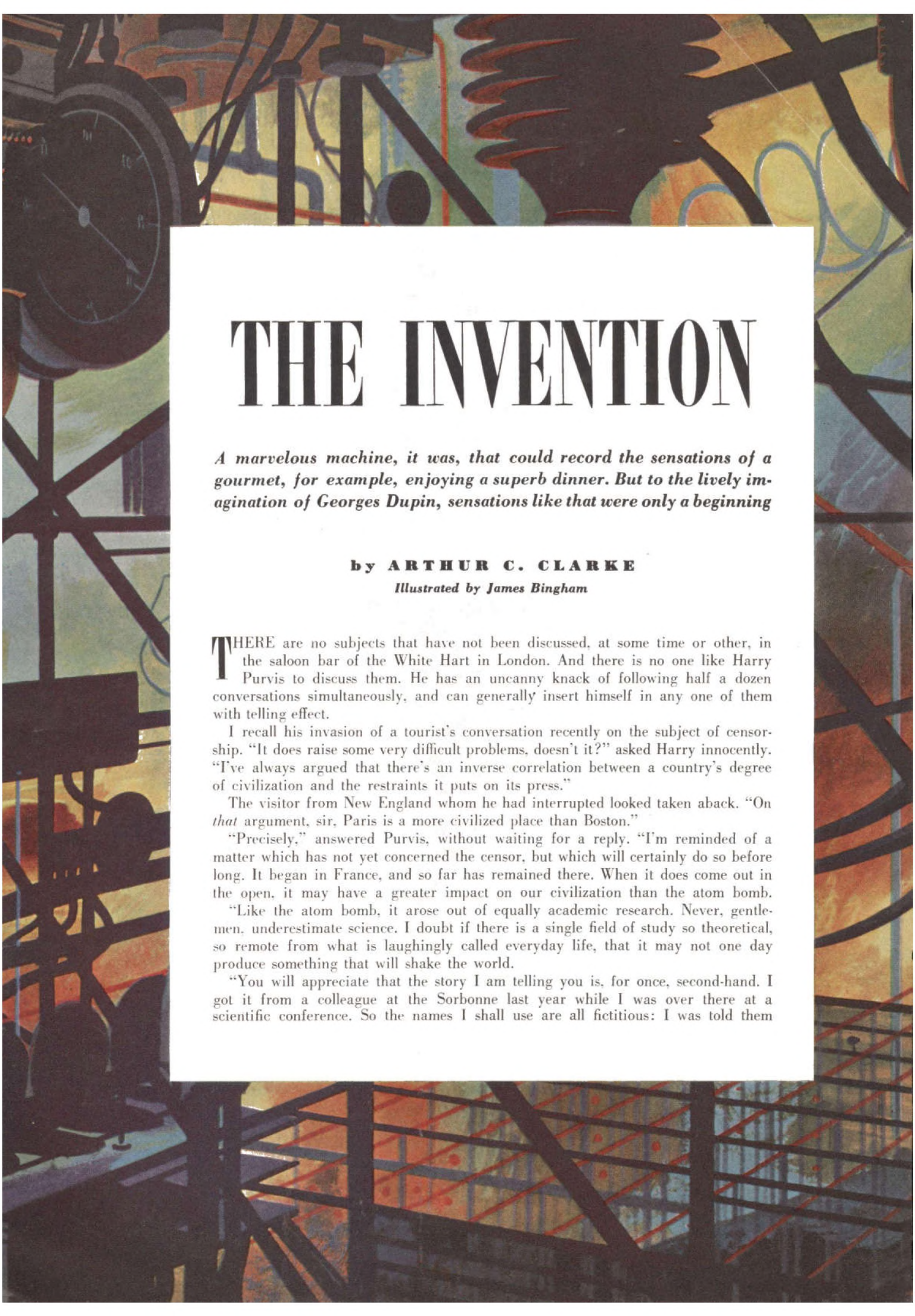
HOW TO MAKE HAY WITH AN ATOM

Eight years ago a couple of young Bostonians thought it would be a good idea to put split atoms to work, and six months later they were flat broke. But today they run a $14 million business selling radioactivity for everything from treating cancer to tagging mosquitoes

BY ANDREW HECHT

THE DUST of the A-bombs had barely settled over Japan when a group of young scientists gathered in a Howard Johnson restaurant in Cambridge, Massachusetts, to find some way to capitalize on this new and highly startling source of energy.

Most of them were young and most of them had spent the war years working in nuclear research or radar development for the government. All of them were graduates of nearby Massachusetts Institute of Technology. As a group they were long on experience but dreadfully short on prospects. The war was over and, as far as they could see at the moment, the world had singularly little use for boys who knew how to make a big bomb or assemble a complicated antisubmarine device. Their most exciting option seemed to be to get a job in some commercial or college laboratory and work at finding a method of waterproofing children's mittens, adding a new gimmick to soap, or some equally exhilarating project. (*Continued on page* 68)



THE INVENTION

A marvelous machine, it was, that could record the sensations of a gourmet, for example, enjoying a superb dinner. But to the lively imagination of Georges Dupin, sensations like that were only a beginning

by ARTHUR C. CLARKE

Illustrated by James Bingham

THERE are no subjects that have not been discussed, at some time or other, in the saloon bar of the White Hart in London. And there is no one like Harry Purvis to discuss them. He has an uncanny knack of following half a dozen conversations simultaneously, and can generally insert himself in any one of them with telling effect.

I recall his invasion of a tourist's conversation recently on the subject of censorship. "It does raise some very difficult problems, doesn't it?" asked Harry innocently. "I've always argued that there's an inverse correlation between a country's degree of civilization and the restraints it puts on its press."

The visitor from New England whom he had interrupted looked taken aback. "On *that* argument, sir, Paris is a more civilized place than Boston."

"Precisely," answered Purvis, without waiting for a reply. "I'm reminded of a matter which has not yet concerned the censor, but which will certainly do so before long. It began in France, and so far has remained there. When it does come out in the open, it may have a greater impact on our civilization than the atom bomb.

"Like the atom bomb, it arose out of equally academic research. Never, gentlemen, underestimate science. I doubt if there is a single field of study so theoretical, so remote from what is laughingly called everyday life, that it may not one day produce something that will shake the world.

"You will appreciate that the story I am telling you is, for once, second-hand. I got it from a colleague at the Sorbonne last year while I was over there at a scientific conference. So the names I shall use are all fictitious: I was told them

at the time, but I can't remember any of them now.

"Professor—ah—Julian was an experimental physiologist at one of the smaller, but less impecunious, French universities. Some of you may remember that rather unlikely tale we heard here the other week from that fellow Hinckelberg, about his colleague who'd learned how to control the behavior of animals through feeding the correct currents into their nervous systems. Well, if there *was* any truth in that story—and frankly I doubt it—the whole project was probably inspired by Julian's papers in 'Comptes Rendus.'

"Professor Julian, however, never published his most remarkable results. When you stumble on something which is really terrific, you don't rush it into print. You wait until you have overwhelming evidence, unless you're afraid that someone else is hot on the track. Then you may issue an ambiguous report that will establish your priority at a later date, without giving too much away at the moment, like the famous cryptogram that Huygens put out when he detected the rings of Saturn.

YOU may well wonder what Julian's discovery was, so I won't keep you in suspense. It was simply the natural extension of what man has been doing for the last hundred years. First, the camera gave us the power to capture scenes. Then Edison invented the phonograph, and sound was mastered. Today, in the talking film, we have a kind of mechanical memory which would be inconceivable to our forefathers. But surely the matter cannot rest there. Eventually science must be able to catch and store thoughts and sensations themselves, and feed them back into the mind so that, whenever it wishes, it can repeat any experience in life."

"That's an old idea!" someone snorted. "See the 'feelies' in 'Brave New World.'"

"All good ideas have been thought of by somebody before they are realized," said Purvis severely. "The point is that what Huxley and others had talked about, Julian actually did. My goodness, there's a pun there! Aldous—Julian. Oh, let it pass!

"It was done electronically, of course. You all know how the encephalograph can record the minute electrical impulses in the living brain, the so-called 'brain waves,' as the popular press calls them. Julian's device was a much subtler elaborating of this well-known instrument. And, having recorded cerebral impulses, he could play them back again. It sounds simple, doesn't it? So was the phonograph, but it took the genius of Edison to think of it.

"And, now, enter the villain. Well, perhaps that's too strong a word for Professor Julian's assistant, Georges—Georges Dupin—is really quite a sympathetic character. It was just that, being a Frenchman of a more practical turn of mind than the Professor, he saw at once that there were some milliards of francs involved in this laboratory toy.

"The first thing was to get it out of the laboratory. The French have an undoubted flair for elegant engineering, and after some weeks of work, with the full co-operation of the Professor, Georges had managed to pack the 'playback' side of the apparatus into a cabinet no larger than a television set.

"Then Georges was ready to make his first experiment. It would involve considerable expense, but as someone so rightly remarked, you cannot make omelets without breaking eggs. And the analogy is exceedingly apt.

"For Georges went to see the foremost gourmet in France, and made an interesting proposition. It was one that the great man could not refuse, because it was so unique a tribute to his eminence. Georges explained patiently that he had invented a device for registering (he said nothing about storing) sensations. In the cause of science, and for the honor of the French cuisine, could he be privileged to analyze the emotions, the subtle nuances of gustatory discrimination that took place in Monsieur le Baron's mind when he employed his unsurpassed talents? Monsieur could name the restaurant, the chef and the menu. Everything would be arranged for his convenience. Of course, if he was too busy, no doubt that well-known epicure, Le Compte de—

"The Baron, who was in some respects a surprisingly coarse man, uttered a word not to be found in most French dictionaries. 'That *cretin!*' he exploded. 'He would be happy on English cooking! No, *I* shall do it.' And forthwith he sat down to compose the menu, while Georges anxiously estimated the cost of the items and wondered if his bank balance could stand the strain.

"It would be interesting to know what the chef and the waiters thought about the whole business. There was the Baron, seated at his favorite table and doing full justice to his favorite dishes, not in the least inconvenienced by the tangle of wires that trailed from his head to that diabolical-looking machine in the corner. The restaurant was empty of all other occupants, for the last thing Georges wanted was premature publicity. This had added very considerably to the already distressing cost of the experiment. He could only hope that the results would be worth it.

"They were. The only way of *proving* that, of course, would be to play back Georges' 'recording.' We have to take his word for it, since the utter inadequacy of words in such matters is all too well-known. The Baron *was* a genuine connoisseur, not one of those who merely pretend to powers of discrimination they do not possess. You know Thurber's 'Only a naïve domestic Burgundy, but I think you'll admire its presumption.' The Baron would have known at the first sniff whether it was domestic or not, and if it had been presumptuous he'd have smacked it down.

I GATHER that Georges had his money's worth out of that recording, even though he had not intended it merely for personal use. It opened up new worlds to him and clarified the ideas that had been forming in his ingenious brain. There was no doubt about it: all the exquisite sensations that had passed through the Baron's mind during the consumption of that Lucullan repast had been captured, so that anyone else, however untrained they might be in such matters, could savor them to the full. For, you see, the recording dealt purely with emotions; intelligence did not come into the picture at all. The Baron needed a lifetime of knowledge and training before he could *experience* these sensations. But once they were down on tape, anyone, even if in real life they had no sense of taste at all, could take over from there.

"Think of the glowing vistas that opened up before

Georges' eyes! There were other meals, other gourmets. There were the collected impressions of all the vintages of Europe. What would connoisseurs not pay for them? When the last bottle of a rare wine had been broached, its incorporeal essence could be preserved, as the voice of Melba can travel down the centuries. For, after all, it was not the wine itself that mattered, but the sensations it evoked.

"So mused Georges. But this, he knew, was only a beginning. The French claim to logic I have often disputed, but in Georges' case it cannot be denied. He thought the matter over for a few days. Then he went to see his *petite amie*.

"'Yvonne, *ma cherie*,' he said, 'I have a somewhat unusual request to make of you. . . .'"

HARRY PURVIS knew when to break off in a story. He turned to the bar and called, "Another Scotch, Drew." No one said a word while it was provided.

"To continue," said Purvis at length. "The experiment, unusual though it was, even in France, was successfully carried out. As both discretion and custom demanded, all was arranged in the lonely hours of the night. You will have gathered already that Georges was a persuasive person, though I doubt if mam'selle needed much persuading.

"Stifling her curiosity with a sincere but hasty kiss, Georges saw Yvonne out of the lab and rushed back to his apparatus. Breathlessly, he ran through the playback. It worked—not that he had ever had any real doubts. Moreover—do please remember I have only my informant's word for this—it was indistinguishable from the real thing. At that moment something approaching religious awe overcame Georges. This was, without a doubt, the greatest invention in history. He would be immortal as well as wealthy, for he had achieved something of which all men had dreamed, and had robbed old age of one of its terrors.

"He also realized that he could now dispense with Yvonne, if he so wished. This raised implications that would require further thought. *Much* further thought.

"You will, of course, appreciate that I am giving you a highly condensed account of events. While all this was going on, Georges was still working as a loyal employe of the Professor, who suspected nothing. As yet, indeed, Georges had done little more than any research worker might have in similar circumstances. His performances had been somewhat beyond the call of duty, but could all be explained away if need be.

"The next step would involve some very delicate negotiations and the expenditure of further hard-won francs. Georges now had all the material he needed to prove, beyond a shadow of doubt, that he was handling a very valuable commercial property. There were shrewd businessmen in Paris who would jump at the opportunity. Yet a certain delicacy, for which we must give him full credit, restrained Georges from using his second—er—recording as a sample of the wares his machine could purvey. There was no way of disguising the personalities involved, and Georges was a modest man. 'Besides,' he argued, again with great good sense, 'when the gramophone company wishes to make a *disque*, it does not enlist the performance of some amateur musician. *That* is a matter for professionals. And so, *ma foi*, is *this*.' Whereupon, after a further call at his bank, he set forth again for Paris.

"He did not go anywhere near the Place Pigalle, because that was full of Americans and prices were accordingly exorbitant. Instead, a few discreet inquiries and some understanding cab drivers took him to an almost oppressively respectable suburb, where he presently found himself in a pleasant waiting room.

"And there, somewhat embarrassed, Georges explained his mission to a formidable lady whose age one could no more have guessed than her profession. Used as she was to unorthodox requests, *this* was something she had never encountered in all her considerable experience. But the customer was always right, as long as he had the cash, and so in due course everything was arranged. One of the young ladies and her boy friend, an *apache* of somewhat overwhelming masculinity, traveled back with Georges to the provinces. At first they were, naturally, somewhat suspicious, but as Georges had already found, no expert can ever resist flattery. Soon they were all on excellent terms, and Hercule and Suzette promised Georges that they would give him every cause for satisfaction.

"No doubt some of you would be glad to have further details, but you can scarcely expect me to supply them. All I can say is that Georges—or rather his instrument—was kept very busy, and that by morning little of the recording material was unused.

"When this piquant episode was finished, Georges had very little money left, but he did possess two recordings that were quite beyond price. Once more he set off to Paris where, with practically no trouble, he came to terms with some businessmen who were so astonished that they gave him a very generous contract before coming to their senses. I am pleased to report this, because so often the scientist emerges second best in his dealings with the world of finance. I am equally pleased to report that Georges had made provision for Professor Julian in the contract. You may say cynically that it was, after all, the (*Continued on page* 85)

"All right, Buster, hang your hat where it belongs."

Photographs for Argosy by Hy Peskin

Competition to determine accuracy of the Kentucky rifle (front) as opposed to standard modern job.

daniel Boone's favorite shooting iron

BY PETE KUHLHOFF

Loading operation: Powder charge measured, poured into barrel before ball and patch go into muzzle. . . .

The Kentucky rifle was born of necessity and ruled the American frontier for a hundred years. Good as it was, there have been more lies told about it than about any other weapon ever made

THE chances are good that when Daniel Boone and his comrades-in-arms were forging into the wilderness west of the Cumberland Mountains they might not have been quite so successful if it hadn't been for a slender, graceful, delicately carved weapon popularly known as the Kentucky rifle. The Kentucky rifle was the American pioneer's meat getter, his protector and fire lighter. It was the most famous gun of its time. We have heard it praised in history, in story, in fable and in downright falsehood.

Over the years I have read reams about this fabulous rifle. I have traveled everywhere just to examine fine samples. I have saved money to buy stray specimens. I have also fired many a round through them. That is why it pains me to read fantastic tales about this sweet weapon. The thing is, the Kentucky rifle didn't need any embroidery. It stood on its own merits as a sturdy companion to America's early frontiersmen.

Yet the lies keep coming. Several years ago while poring over some old manuscripts in the New York Public Library, I ran into an account, supposedly a diary, of daily life among the early settlers. On one of the pages there was a statement of how one, Zachariah Nigele, spotting an Indian lurking around a tree at 300 paces, picked up Ole Betsy and shot the redskin cleanly through the head. I certainly won't say that no such shot was ever made. Once I watched a friend open a window of his gun room and shoot a crow with an inexpensive .22 rifle at 502 measured yards. A shot like the one described in the diary could happen perhaps once in a lifetime. But at 300 yards the drop of the .45-caliber round ball is more than six feet, making accurate shooting with normal sights highly problematical, to say the least. However, an animal the size of a horse could sometimes be hit, and hell could be raised with a large body of troops in close formation.

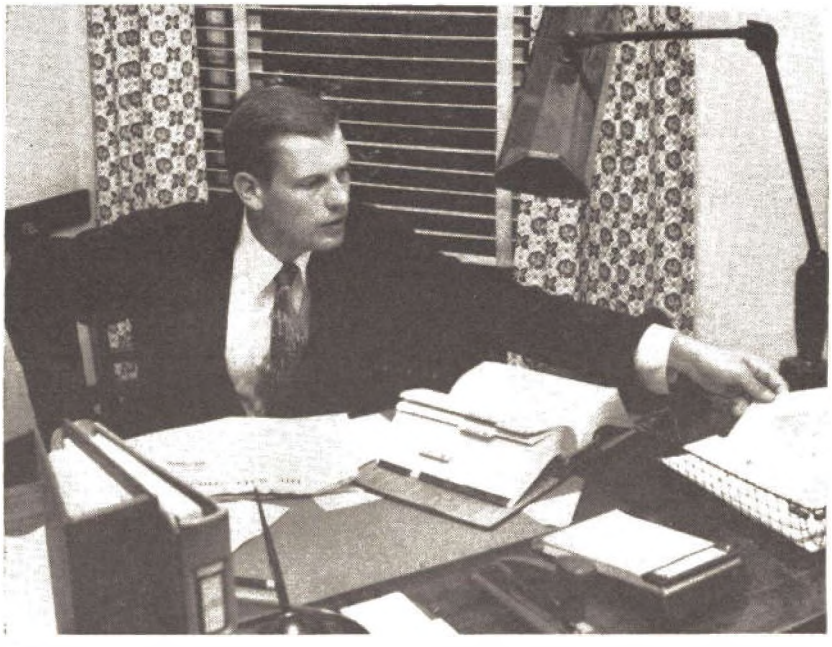
The Kentucky rifle gave its most impressive military demonstration during the last battle of the War of 1812, the fight for New Orleans, on January 8, 1815. General Andrew Jackson had an army of about 4,000 men. Approximately 1,000 were armed with smoothbore muskets, 600 were Jean LaFitte's pirates, armed with cutlasses and pistols, 300 were without firearms but would be used in hand-to-hand fighting if the enemy made the breastworks. The remaining 2,100 were militiamen from Kentucky, Tennessee and Louisiana—practically all seasoned frontiersmen—and all carrying Kentucky rifles.

Against this force, the British numbered 10,000 veterans, led by competent officers under the command of General Packenham, an able and experienced leader.

General Packenham did the attacking, but General Jackson's riflemen did the shooting that counted. The battle lasted three hours. Jackson reported that he had lost six men killed and seven wounded. The British losses were approximately 2,100 killed and wounded. The Americans opened fire (*Continued on page 88*)

Excess patching removed, patched ball seated on powder charge, priming with fine powder—rifle is ready.

PHOTOGRAPHS FOR ARGOSY BY JOE MUNROE



Off the football field, Ratterman runs a prospering investment firm.

football's richest faker

Nobody can make magic with a football like George Ratterman of the Cleveland Browns, who sometimes gets so deceptive that he even fools his own teammates. But that's only one reason why he gets $15,000 a season for sitting on the bench

by Bob Deindorfer

NOBODY in professional football today makes the money that a solid T-formation quarterback can earn in a season's play. Nobody, it might be added, has an easier job. And nobody, *but* nobody, does as well as George Ratterman, a *second-string* T-formation quarterback.

Ratterman plays a warm Number Two fiddle to Otto Graham, the Cleveland Browns' peerless and indestructible T-man. It is an indignity the cocky, eccentric and highly articulate twenty-eight-year-old moneybags bears with unusual equanimity—at $15,000 a year.

The reason the Browns pay Ratterman fifteen grand for his superfluous role is that they want insurance against the day the thirty-three-year-old Graham retires—and Ratterman is about the best insurance they could have.

"Paul Brown [Cleveland coach] knows Ratterman is the best ball-handling quarterback in the business," says Red Strader, ex-coach of the San Francisco Forty-Niners. "Even with Graham, Brownie didn't want to let Ratterman go some place else and beat Cleveland's brains out once or twice a year."

One reason Graham still dominates the quarterback play is because the name Graham means big

"I won't call him the best," Ratterman says modestly of himself, "but then, do you know anyone better?"

business. When Cleveland comes to town the attraction is usually billed as Otto Graham and company. It is hard to write off nine years of publicity build up. As long as he can toddle, Graham will continue to draw fans to the ball park. But sitting on the sidelines drawing a healthy salary will also be Ratterman.

"The Rat" looks like almost anything but a professional athlete. Sway-backed and round-shouldered, with long, gentle hands and blond, curly hair, he has most of the features of a prettyboy. What keeps the 178-pound quarterback in business are the sly skills of the finest pair of hands in the game. Ratterman is an enormously effective passer, but he also does one thing no one else can do. Handling the ball from quarterback, he can fake his own teammates right off their feet, even when they know what to expect.

Ratterman's tricks with the ball have a way of setting up a momentum all their own. What he does is demoralize the opposition. At first they feel fooled, then stung, and finally completely humiliated. When that stage is reached the score begins to mount out of all proportion to the football being played.

That his wizardry can move the ball and win games is shown by one example from last season, Ratterman's second with the Browns. With Graham playing all the way, Cleveland managed to squeeze out a 7—0 decision over the tough New York Giants. Later in the season, with Ratterman running the squad, Cleveland creamed the same Giants, 62—14.

"Ratterman is the sweetest faker football has ever seen," one professional coach told me. "We all know he's the best, too. But if you print that, I'll send two of my biggest tackles over to get you. We have to sell the public the idea that *our* quarterback is the best in the business."

Among numerous other observers who regard Ratterman as the slickest operator since Willie Sutton is, characteristically, Ratterman himself.

"Look at it this way," Ratterman says. "Finks, Graham, Conerly, Van Brocklin, Thomason, Layne, Ratterman—they all throw with roughly the same accuracy. Then look at ball handling. A lot of quarterbacks hand it off without fumbling but they don't even fool the popcorn man. Now Ratterman . . ." He paused with a pious look on his features.

"Ratterman has been known to fool himself. I won't call him the best. But then, do you know anyone better?"

It was, as they say, a good question. It took Red Grange less than three-quarters of play to come to the same conclusion. In August, 1947, playing with a pick-up team of college all-stars, Ratterman bamboozled the Chicago Bears to a 16—0 defeat. Grange reached for the nearest microphone. "This kid," the famous Galloping Ghost declared, "is the best I ever saw."

Ratterman was not awed by his success. After the game he reacted in typical fashion. As admirers trooped into the dressing room to congratulate him, he accepted the outstretched hands gracefully. His own was covered with itching powder.

Three days later Ratterman turned professional, and football hasn't been quite the same since. Along with two bunco hands and an active imagination that never stops working, Ratterman has brought freshness into a sport that sometimes is inclined toward stodginess.

Almost immediately he was typed as the biggest screwball to hit the big leagues since Frank Sinkwich bent in huddles yodeling hillbilly songs. Before Ratterman's first pro season had ended, one of the most frequent comments about him was simply: "Where the hell does *this* guy come from?"

No one, it seemed, had ever heard of him before. It was obvious to everyone, however, that anyone who handled the ball as he did must have been one hell of a ballplayer *some place*.

That some place was Notre Dame, and Ratterman matriculated there simply because the seat of All-American Angelo Bertelli's pants happened to look clean one Saturday afternoon in 1943. What might seem like an odd lurch of logic for anyone else made sense for Ratterman. At the time, he was playing quarterback for Xavier High in Cincinnati and playing well enough to get propositioned by both Michigan and Notre Dame.

To choose between the two, Ratterman drove up to South Bend for the Notre Dame-Michigan game. At the end of sixty minutes of black-and-blue football, he carefully focused his field glasses and surveyed the backsides of three vital participants. Bertelli's satin pants still looked bright gold, while the two Michigan quarterbacks' britches matched the dull green Stadium turf. Quarterback Ratterman, a reflective young fellow, had seen the advantage of a Notre Dame education.

In his freshman year George broke a collarbone over the padded skull of a varsity lineman during a friendly intersquad scrimmage. In his sophomore year, although he became one of Notre Dame's three four-lettermen, he did little to distinguish himself from other blank-faced scrubs riding the bench most of the fall.

"I completed four passes that season," he recalls now. "Two for us and two for the opposition."

Currently, Ratterman is overshadowed by brilliant quarterback Otto Graham. But Otto is 33, George, 28.

Even in his junior year, 1946, when he had learned to feed the ball to backfield mates with the agility of a fry-cook, Ratterman still started every game from the sidelines. Peace was wonderful, all right, but it cost George a starting position on one of history's greatest varsities.

Among three tons of rough, prewar talent shipped back to Notre Dame by the military was Johnny Lujack, an excellent quarterback. Playing only a few minutes a game, Ratterman nevertheless managed to engineer twelve of the last sixteen touchdowns the Irish scored and suffer only one pass interception all season.

Pass interceptions never bothered George much. In the final game of the 1946 season, after driving the Irish to all four touchdowns against Southern California, Ratterman decided to try for one last score. A USC defensive back leaped high in the air, speared the ball and raced up the sidelines for fifteen yards. Out came Ratterman.

"Why in heavens name did you throw the ball away to that SC back?" asked Moose Krause, who was handling the team during Frank Leahy's illness.

Ratterman pulled off his helmet and brushed a hand through his long blond hair. "Why?" he said dryly. "Hell, coach, he was the only man open."

Toward the middle of his junior year, it looked as if the eternal substitute would finally graduate to the starting team after all. Frank Leahy decided that Ratterman would open the 1947 season at quarterback, and Lujack, who could run, would move over to halfback. The arrangement might have been an ideal one except that Ratterman never gave it a chance.

Every few weeks George and a few other scholars took it upon themselves to visit a local pleasure dome known as Sweeny's Bar and Grill. The first time Ratterman missed his nightly dormitory check, his penalty was a polite warning. Two weeks later he again made damp circles on Sweeny's mahogany. For every minute after midnight a student returned to the dorm he was kept on the campus for one full week. It was then almost twelve-thirty, which meant six straight weeks of confinement. Ratterman decided to stay out the rest of the night and hope nobody missed him. But he was caught coming in for breakfast and banished from ND for one semester.

By that time Notre Dame authorities might have known their nineteen-year-old star could pull his chestnuts out of the fire at a considerable advantage. Years before, Knute Rockne had described a similar talent on the part of the legendary George Gipp. "Any time Gipp sits between two students who score forty and fifty on an examination," Rock said, "you can bet he will come out with a ninety."

At the time of his suspension, all Ratterman needed to marry a beautiful home-town girl named Anne Hengelbrok was cash—and he knew where to find it. Professional football teams had all sorts of money. George signed with Buffalo of the old All-America Conference. A newspaperman later asked Ratterman what he got out of that first contract. "Two children," replied George.

Since that first contract signing, Ratterman has piled up the experience necessary to stay in business for a long time to come. Twice in his first three years of pro ball his slick play carried a shabby squad of used-up old gaffers and rawboned rookies to the championships of the old All-America Conference. In 1950 he pushed the last-place Yanks to third. About 1951, the year he jumped to Canada, he would rather forget; but in the last two years with Cleveland, the Browns won two additional division titles.

Now in his eighth season of commercial football, Ratterman has been known coolly to veto any instructions passed down from on high. In one whopping showdown, when he was with Buffalo, the second guessing on Ratterman's part got so bad that the Buffalo management had to decide between George and the coach. The coach was fired.

"The owners giveth," Ratterman told newspapermen at the time, "and the owners taketh away."

Ever since that purge business, associates have given Ratterman a wide berth. Even the front office has learned to tolerate George's eccentricities.

One day late in August 1950, a secretary sat in the New York Yank home office nervously waiting for the late mail. All day long an angry job printer had been telephoning to ask for the last of the player information sheets, long autobiographical surveys calculated to bring out the best in a hired hand's background.

Two hours before the printing deadline the only one of more than sixty questionnaires still outstanding belonged to the new club quarterback, name of Ratterman. In his only other transaction with the team, Ratterman had behaved according to form, by filling in a player contract for $20,000.

At three-thirty the late mail arrived. A moment later the secretary hurried in toward the executive's office. The manager's face soured as he read Ratterman's questionnaire.

"QUESTION: What World War II battles did you take part in?"

(*Continued on page 79*)

Fellow pro Ed Sharkey says of George, "Only a sport like Ratterman can afford four children today."


GRAIN & FEED

TRAIL'S END

He had traveled a thousand miles to kill, and he meant to do the job alone. But there were people who didn't want to see him die trying

BY MORGAN LEWIS

Illustrated by John McDermott

ALL morning he rode north with a strong wind pushing him along, fanning the bay's tail into a cascade of black silk. Other than cloud shadows and wind stirrings in the brush there was no movement in this flat, gray stretch of sage and grass that ran to the far edge of the world.

At noontime he stopped beside a puddle in a stream bed, loosened the cinch and removed the bit so the horse could graze. There was drift stuff for a fire and he made coffee in the lee of the bank, settled it with a shot of cold water and drank it from the pot while he had his smoke. A half-hour later he was in the saddle drifting steadily north. Dusk was seeping over this gray land when the spot in the distance began to rise out of the earth and take the shape of a town.

He rode down the main street of Ordway, the weary bay kicking up dust puffs in pools of lamplight, and turned in at the livery-stable runway where a lantern hung on a post flared (*Continued on page* 80)

Out here there was no shelter, no way to escape the cross fire that would come.

WHAT'S COMING UP FOR YOUR WORKSHOP?

Now that Do-It-Yourself is big business, manufacturers are really out to make things easy for you, with all sorts of things from a carport-patio kit to wood that comes in rolls

BY ROBERT SCHARFF

Illustrated by Ralph Stein

LAST year I did a column on all the new materials, tools and gadgets manufacturers were planning to put on the market this year and which I thought would prove to be good bets for home workshop fanatics to investigate. Since I got only a handful of letters telling me that I was a crackpot and a lout in my advice [Editor's Note: At last count, Scharff has received only four vituperative letters, three from one woman who claims that Scharff has ruined her life since her husband is now married to a sanding machine.] I decided it might be a good idea to give the whole thing a fresh try. I traveled 6,000 miles and peered into enough bustling machine shops and factories to get bleary-eyed, which I did. In the course of all this I came up with some fascinating new devices and two general observations.

The first is that the "do-it-yourself" business has decidedly left its squeaky adolescence behind and is blossoming into a man-sized operation. Last year I found many manufacturers who were still faintly afraid that the delightful bubble they had latched onto was in imminent danger of bursting in their faces. The prospect of leaving several thousand Handee Home Buzz Saws rusting on the shelves left them nervous, indeed. This year, however, almost everyone has finally come to realize that the do-it-yourself is no passing fad or craze; it is a way of life. Once men are bitten by the idea that they can both fix and build things themselves better and cheaper than they often can buy them, they seem to stay bitten for good.

The other observation is that buyers are becoming sophisticated. Manufacturers have been quick to learn they no longer can get by, producing large, elaborate pieces of chromed-up tooling that have all the driving power of a squirrel racing on a treadmill. The buyer has become aware. As far as I could find out in my wanderings the trend is decidedly for cheaper machines with greater versatility.

If this seems like a sweeping generalization let's take


CARPORT
PLANS
IN
CIRCUIT
DIAGRAM

Carport-patio kit can be set up by two men in just four hours.

a look at a few of the better new items that will be on the market shortly.

While in Minneapolis I had a chance to operate Shopmaster's new floor model, eight-inch, tilting arbor circular saw. The heart of this tool is the built-in ¾-horsepower torque motor which needs no V belt and no pulleys.

The advantages of the built-in motor are numerous. For one thing, the motor arrangement means more safety; for another, it means greater speed of operation. Lastly, because of the cheapness of materials and engineering, it means less cost to the buyer. It's hard to beat an arrangement like that. Complete with stand, table extension, built-in motor, cord, stop, rip fence, saw blade and guard, the saw retails for under a hundred dollars. The next time you are in the market for a good saw it would be a wise thing to take a hard look at the eight-inch Shopmaster model.

Two other saws I had tested were the Dremel jigsaw and the Burgess bandsaw. The Dremel has a built-in motor which drives the blade directly through a rocker-arm mechanism. Without getting technical, the so-called "rocker action" will put an end to excessive blade wear and helps to eliminate blade buckle and whip. One feature I particularly liked was the four-way blade holder which allowed me to set the blade to cut in any direction without interference from the frame when sawing long stock. The saw cut 1½-inch softwoods without difficulty but balked when it was used on hardwood stock over an inch.

The advantage the light-weight Burgess handsaw has over similar types is its portability. It can be easily carried anywhere and simply plugged in for on-the-job cutting. This feature is especially important for you apartment-house woodworking enthusiasts. The saw's built-in motor has a three-wheel blade drive arrangement, that gives the small units the power to cut wood up to 3⅝ inches thick. The jigsaw sells for under $25 while the bandsaw can be had for $34.50.

In Pittsburgh, I had a sneak preview of the new Delta scroll saw. This tool is actually an attachment for an eight-inch tilting arbor circular saw. With it, in addition to straight-line sawing, you can perform curved cutting operations. Since a tilting arbor circular can saw up to forty-five degrees, the scroll saw attachment also lets you cut angle curves. To my surprise, I found it would do everything else a standard scroll saw would do—saw, file and sand wood, metal or plastic—yet it costs less than half the price. The complete attachment will retail for $14.95.

To add to the versatility of their tools, several manufacturers have designed special attachments that provide all the advantages of portable power equipment plus the added value of a stationary setup. Skil Tools and Porter Cable, for instance, have a rig in which a portable saw can be easily converted into a precision tilting arbor model.

To complete your portable-stationary workshop, they have a drill press utilizing a portable drill, a mounting bracket that converts a portable sander into a bench type, and a horizontal stand which makes a portable router into an excellent shaper.

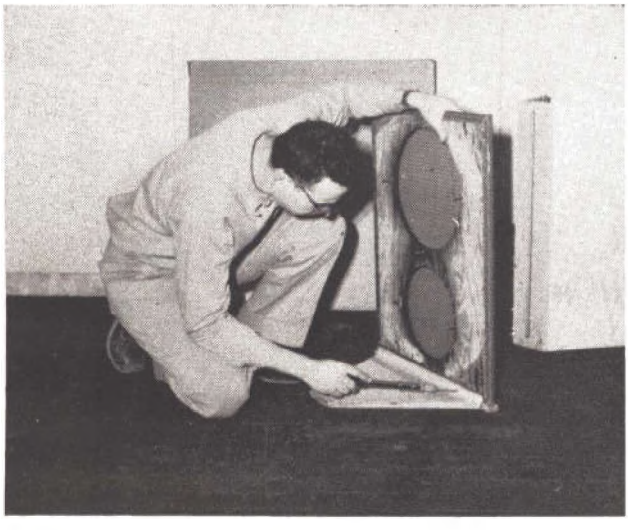
Black and Decker have added a couple of new attachments to their drill line. With their new screw-driving attachment, you can drive #5 to #9 slotted or Phillips Head wood screws with ease. The other attachment is a hole cutter that cuts holes up to 1⅛ inches in diameter with a ¼-inch drill, 2½ inches in diameter with a ½-inch drill, in any material a hacksaw will cut. The screw-driver attachment sells for around $10. The hole cutter starts at seventy-five cents, and price increases with size.

Of all manufacturers, the Mall Tool Company of Chicago has the greatest number of attachments for your ¼-inch electric drill—twenty-one in all. Among the newer ones are a belt sander, an angle head, a slitting saw, a hedge trimmer, speed-control clutch and a reciprocating or portable jigsaw.

Duro Metal Products Company has introduced a new, unique motorizing workshop principle. The heart of this idea is a new patented "quick-change" motor-mount attachment which permits one (*Continued on page* 86)

Sandpaper takes a new form. Residue won't clog mesh, which has an abrasive coating on both sides.

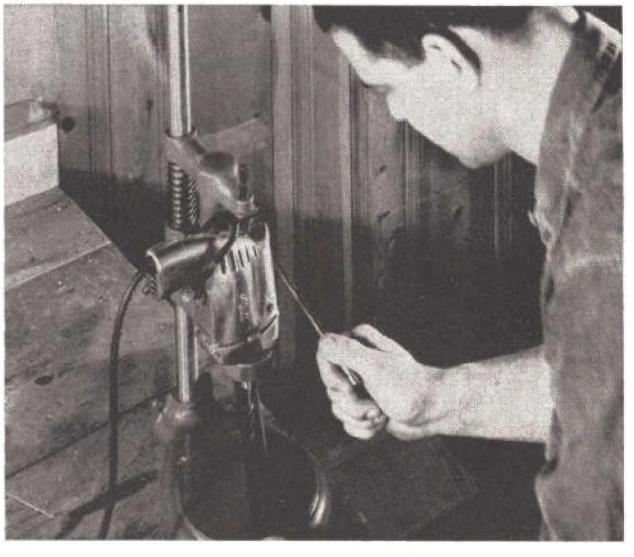
Scroll saw here fits tilting arbor circular saw, cuts angle curves; also saws, files, sands metal, plastic.



Hi-fi fans now have their pick of pre-fab units that house latest sound equipment. Kit here is for baffle.

Specialized shop operations are made easy with low-priced power-tool attachments like this angle head.

Most attachments fit all standard makes and models. Orbit sander adapts to any ¼-inch electric drill.



Drill stand mounts on wall or bench, converts ¼-inch drill to home drill press; assembles for southpaws.

Gun expert Kuhlhoff and the author flush a springy pheasant from the protective cover offered at Nilo Farms.

pheasant where you want them

Hunting pressure is so great these days that it often takes a man longer to find out where pheasant are than it does to go and get them. That's the very problem Nilo Game Farm was set up to lick

BY LARRY KOLLER

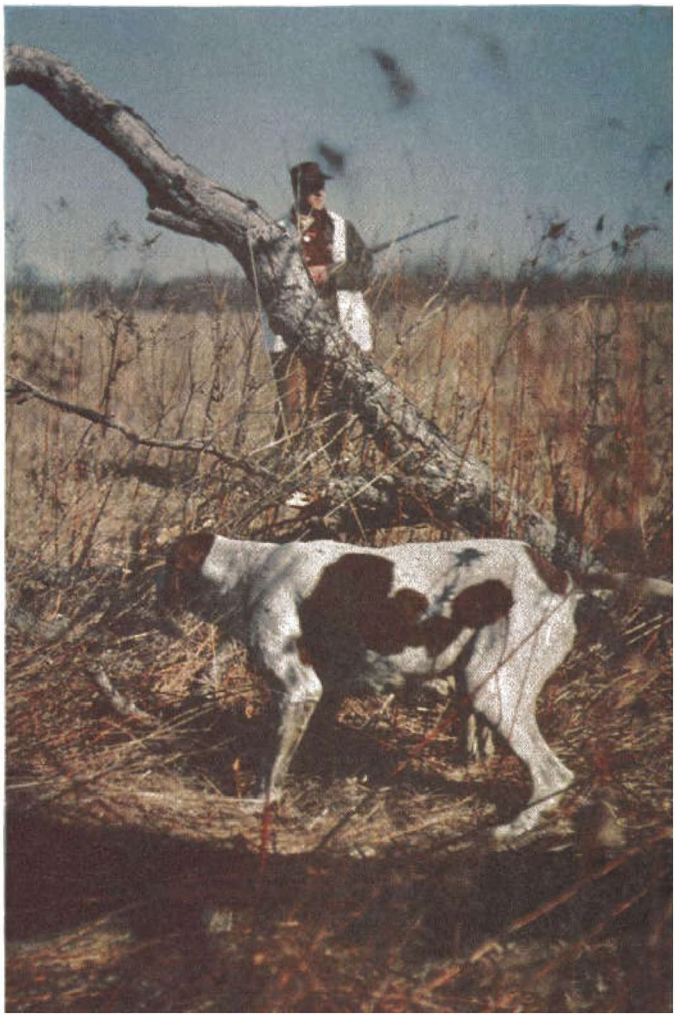
Photographs for Argosy by Joe Coudert

A GOOD part of the upland gunner's year is spent not in shooting game birds. It's spent first in looking for birds to shoot and then in finding an area where unsympathetic landowners won't run him out before he gets a chance to load his scattergun. In the past few years, there just haven't been enough birds to go around, and the amount of available land has shrunk almost as fast. As a result, public shooting is rapidly becoming passé in many areas of the country.

But the picture is not all black, thanks to a couple of promising innovations. One is the private shooting preserve, where for some $5 a bird (the price varies according to locality) a hunter can spend a day in excellent cover without competition, and (*Turn page*)

Above, left: Old multicolored John Pheasant himself. *Above, right:* Keeper rounds up birds for the day's hunt.

Below, left: Nilo Farms sprawls over some 500 acres. *Below, right:* A Nilo hunting dog stalks his quarry.



Kuhlhoff and Koller pick out guns for day's shoot.

Tractor-trailer hustles hunters to place of business.

with the assurance that he will get his money's worth. For shooters who can afford the comparative luxury of such preserves, there is nothing better. But for less privileged ducks like you and me, the problem is tougher.

However, a less costly and thoroughly attractive alternative was discovered by Gun Editor Pete Kuhlhoff and myself, thanks to John Olin, president of Olin Industries. One day last February he loaded us into the huge Olin DC-4 and whisked us to his new experimental farm near East Alton, Illinois. There, we had our eyes opened.

When we arrived we found a lovely sight, a farm of normal size, a bit over 500 acres, in the flat heart of typical Illinois corn and bean country. But Nilo Farms (Nilo spelled backward is Olin) is as untypical as any you will find in the entire midwest. It is a farm, true; but it is also a haven for birds—meaning old John Pheasant—to live, feed, hide and do whatever these foreigners like best to do.

The primary function of the Nilo experiment is to show fellow farmers how to improve their finances by adding this new crop to their land—a crop that will not interfere with regular production and one that can be harvested during the normal off-season. The Nilo people have undertaken the project with the hope that their experience may show the way to a new concept of hunting, beneficial to farmer and hunter alike.

For two days Pete and I walked the covers of Nilo Farm. We tramped waist deep in standing kaffir corn, millet and other farm grains that pheasants love both for food and for their protective value. And even though we were hunting at the tail end of the season there was enough cover to make the birds difficult finding for the pointers. We worked hard to fill our two-day limit.

The well-trained dogs were a pleasure to observe. Like all pheasants, these Nilo Farm birds soon learned the safety of staying on the ground, skulking and running through the tight cover, making the dogs really sweat to pick up and hold scent. But the cover was cleverly "strip-cropped" so that it alternated with open ground at about 100-foot intervals; thus the birds were unable to get too far before hitting an opening which forced them to fly.

From the viewpoint of the shooter who values good dog work as much as wing-shooting, this was an ideal setup, presenting a vivid contrast to the methods used in the corn country of the Dakotas and other western states where a dog never has a chance to corner or pin his bird in a tight point. Cornfield shooting means driving—taking half of your big group of hunters and posting them at one end of a big strip of corn, then sending the other half to the far end and driving the birds back. The pheasant, wise ground-hugger that he is, will run down the rows for the full length of the field before he is forced into the air at the end of the long strip. Naturally, the shooters stationed at the end get some fast action for a few minutes and usually net plenty of birds. But upland gunners are pretty much in agreement that pheasant hunting under conditions which permit skillful dog work gives much more kick to the day's gunning.

The emphasis at Nilo is on the use of dogs in all gunning. I doubt if any shooter will disagree that having a good retriever along is an important conservation measure in tracking down and recovering cripples. The sportsman is obliged to recover every bird that's hit, but without the sensitive nose of an able retriever, pheasant losses can often be as high as fifty per cent.

We did plenty of hunting, but we also did a bit of listening, and we learned how the Nilo Farm experiment worked and how it can be carried on by other farmers. The Nilo people, in fact, have prepared a Nilo Bulletin, sort of a blueprint of their operation, for the use of any farmer interested in stocking his own preserve. Here basically, is the system.

Two farmers with adjoining property will agree to devote some part of their joint acreage to establishing pheasant cover. Under Illinois law the minimum requirement for controlled shooting areas is 230 acres; so in some instances an individual landowner won't have enough property to meet this minimum.

To begin their joint operation, the partners must first decide how they want to obtain their stock of birds. It can be done in three ways: (1) by rearing day-old chicks, (2) by starting with half-grown birds, (3) by the purchase of adult birds. Using adult birds is questionable policy. The cost is high and there is no opportunity for the farmers to utilize their own labor and facilities for profit. Some farmers, without the experience of raising chicks, decide to purchase half-grown birds, but the best plan is to start with chicks, following the details listed in Nilo's bulletin. Then, when harvest time is over, the shooting season begins and the farmers can devote a large part of their time to such things as guiding parties, planting birds, and handling dogs—all at a profit and under amicable terms with hunters.

The pheasants may be raised by one of two methods. One is by putting them in a wire enclosure open at the

"The General," a rare domesticated bird, eats lunch.

Identifying tag is removed from dead pheasant's leg.

top. Here, the birds are brought up carefully, like chickens. When the hunting season arrives, the farmer will take the birds into the woods. They will, of course, have the instincts of wild birds, but they will be unable to fly well because of fragile wing muscles.

The other method, used widely in the East and really the preferable one, is to enclose the pheasants in the pen with wire over the top. The farmer then brings dogs into the enclosure every now and then. The birds, frightened by the dogs' presence, flap around trying to fly, and develop their wings. Thus, when these birds are set loose, they will give the hunter a better time.

Figures show that a two-man team of farmers can earn $3,150 by turning over part of their land and time during the slack season on the farm. Charges consist of a unit price per bird or a daily fee, with a guarantee of shooting at a minimum number of birds. In Illinois, as in most states, the shooting period in controlled areas is fairly long, usually from October through February. This gives a farmer ample opportunity for success.

First concern of the farmer is how to hold the birds in his land without having to build a costly bird-tight fence. Present experience shows that planting the kind of cover that offers food and protection at the same time is a proper safeguard. However, for added insurance a strip hedge called *Sericea Lespedeza*, planted around the boundaries, makes an effective barrier and at the same time affords additional cover.

The basic idea in "strip-cropping" the cover throughout the farm is, of course, to provide exactly the right type of cover to take advantage of the pheasant's natural instincts to skulk and hide from his natural enemies—say, the fox, coyote or just plain outlaw housecat. If the birds find any great area of unbroken cover—tall grass, weeds or domestic crops—it takes the services of a mighty good dog to nail one tightly enough for a staunch point. In a 100-acre field of unbroken cover it isn't unusual for a bird to keep ahead of a pointing dog for an hour or more before finally taking wing—if ever!

"Stripping" makes practical hunting grounds out of cover that normally would be wasted time for a hunter. Millet, kaffir corn or some other heavy-stalked crop, planted in a 100-foot wide strip, will give the birds food and protection. The strips are then alternated with a short grass crop such as alfalfa or clover, which the farmer normally keeps closely cropped—forming relatively open areas that the birds are reluctant to cross with a dog on their heels. These open areas then become "stopping strips" which will hold John Pheasant in check at the edge until the dog makes a firm find and the gunner comes up to flush.

Another problem—present to some degree on Nilo Farms—is the tendency of the pen-reared birds to pick at each other until there is a noticeable loss of plumage, particularly the tail feathers. None of this helps to make strong-flying birds, or an attractive bag. Eastern farmers combat these cannibalistic tendencies in two ways. One is to nip off a bit of the upper mandible of the beak, just enough to permit the bird to eat, yet impair his nipping habits. Another method is to "ring" the bird by passing a U-shaped staple between the two halves of the beak, then forcing the open ends into the nostrils. This doesn't interfere with feeding but does prevent the bird from defeathering his penmates.

A day at Nilo starts easy-like with the release of pheasants just after sun-up. Charley Hopkins, chief of conservation for the Olin outfit, explains over a cup of coffee how the ground is to be worked. You put on the white vests, supplied as a safety measure, and load your gear into the station wagon. By the time you arrive at the shooting area the birds are well dispersed and you turn the pointers loose to pick up scent. Then your day's hunt is the same as if you had stepped into an eastern corn lot to find your birds.

The pointer swings downward and charges smartly through a heavy strand of kaffir corn. Midway he checks, changes course into the wind and bounces through the cover, following the wind-drifting scent of the bird. He hesitates a bit, head high, tail gently swinging. The bird has moved on—but only a few yards—to the edge of the strip of cover. Your dog breaks downwind, circles into it in a short arc and stops suddenly and rigidly a couple of yards from the ragged edges of corn. He has the bird nailed now and you move in to flush. Almost under your feet a flurry of wings bursts through the dead grass and stalks as the brilliant Chink climbs into the air. You let him straighten out a bit, then you swing the little twenty ahead of him and touch off a load of 7½'s. Feathers puff out of the long-tailed target and your bird drops. It wasn't a tough shot, you reflect, reloading the gun, but it might have been if you hadn't known where the birds would be.

This Nilo Farm operation is not only a pleasure for a day's shooting. It could be the forerunner of the upland gunner's Utopia—enough birds for everyone, and plenty of good land to hunt them. • • •

NOVELETTE

STEP DOWN TO TERROR

The girl and the young man were uneasy at the door of the cheap little night club, and for a moment they felt just an edge of fear. Then, like the coils of a snake, the jungle closed around them

by John McPartland

Illustrated by George Hughes

ERIKA LONDON and Arthur Johnstone Mitchell walked into the Cirque Room of the Fairmont Hotel about eleven on this warm spring evening. People turned to watch the couple as they passed down the broad, plush-marble-and-tradition corridor. Their glances were long at the girl because she was lovely, and brief at him because he was with this lovely girl. Her hair was short, with a kind of sunset glow of red and gold. She wore a white gown that began simple and straight above her breasts and swirled wide and frothy around her long legs.

Erika London, a senior at Berkeley, very lovely and very happy with life. The boy with her looked as if he belonged beside her, and in the easy pattern of their lives he did. The Mitchell family had bought land cheap eighty years ago and had held most of it. What they had sold was now covered with apartments and stores, and it had brought comfortable trust funds. As a man, Arthur Mitchell was better than ordinary—tall, straight, the tennis player and the oarsman rather than the football kind of college man. He handled himself well. Since he had been a small boy he had been taught that handling one's self well was next in importance to having been born to money, and possessing a strong, handsome body.

A minute or two after eleven, Erika swung the long legs over a bar stool at the Cirque, lifting the frothy (*Turn page*)

Erika stood, and Kuppfen watched her. "Get 'em off, chick," he told the frightened girl. "I'll give you a little strip music."

skirt with long, slender fingers. Arthur ordered old-fashioneds and turned to look at her. He was wondering, maybe a little too carefully, like one of the trust-fund attorneys ticking off points on his fingers, whether he loved Erika enough for marriage now rather than in another year or two.

He was twenty-three and she was a few months over twenty-one. Around them now was the pleasant carelessness of the Cirque, and around it was the careful pleasantness of the Fairmont, high on Nob Hill above the glory of the night over San Francisco. They were young and fine in the white marble cocoon of the Fairmont; the trust funds were rows of figures and contracts and solidly-filled safety deposit boxes at the Anglo-Californian. The society editors at the *Examiner* and the *Chronicle* had penciled the index cards that big-city society editors keep on the new, young, and some day important people. On Erika's neatly typed cards they had each written: "maybe Art Mitchell—Russian Hill Mitchells."

The barman smiled and bowed slightly as he set their old-fashioneds before them.

And Arthur Johnstone Mitchell was thinking that, the year before, Erika's hair had been long and he'd had a crew-cut. They seemed to walk together through these first full-grown years, through the change of the right things to do and the right places to be. Maybe it would be better not to wait another year. He didn't see how he could wait. Erika was lovely beyond words.

DOWN the steepness of Mason Street from Nob Hill, over on O'Farrell a few blocks is a ratty small bar called the Bada. Last year it was the Desert Club and it has had other names through the years back to the night madness that was San Francisco when the streets belonged to the sailors and soldiers.

There were three young men and a girl in a booth in back. The girl was mostly called Honey, and the two young men, who didn't much matter, usually liked to be called Kicks and Gage. The other young man was called Big Tom.

Honey had perfect skin, creamy as if it had not quite lost last summer's tan, and short, glossy black hair with a heart-shaped brow line.

"Go! Go! Go!" Honey was chanting, her small fists pounding the booth table. Almost whispered, a low, breathless frantic chant that beat into the juke-box frenzy. Kicks was watching her, his mouth hanging open and his lips wet.

"That's it, Honey chick, that's it—" he said.

"Go! Go! Go!"

Big Tom stretched his body. He liked the feel of his muscles flexing.

"We got to make some money tonight, Kicks. I'm tapped. Got to go out on the streets tonight."

"Like you say, Big Tom. When the joints close, huh? About two?" Kicks was a nervous type, with a grinning-dog smile that came and went between words as he talked. Lean and bony, with dank hair in a duck-tail cut.

"The hell about two. Right quick. I need some fun money because this is going to be a fun night."

"The streets are too damn hot this early, Big Tom. It's only eleven—" He froze, the grinning-dog smile hesitating on his white, thin face. Big Tom's fist was against Kicks' cheek, turning slowly, and the brazil-nut knuckles pulled and twisted the white skin.

"Don't trouble me, man," said Big Tom. "I can get my fun listening to you making hurt music. Don't trouble me none, man."

THE boy called Gage watched, smiling. Almost anything was fun. Seeing Big Tom smash up on Kicks would be fun. Anything was fun when somebody else was being hurt.

"Go! Go! Go!" The frantic, whispered chant ended with the click of the juke box. Honey turned great shining eyes toward the boys. Her small tongue crept out between the almost perfect arched-bow lips.

"Put another round into the beat box, boy, before some apple gets to it and plays something out of nausea," said Honey, her voice soft and clear. She looked like somebody important's very beautiful and highly competent secretary in her trim, simple suit and white shirt with a narrow black bow tie. Honey was nineteen, and the big-faced prostitutes of the human-sewer hotels off Howard Street were innocents compared to Honey.

Big Tom rubbed the heel of his hand across Kicks' mouth, chuckled, and dropped it to the table.

"I'm restless, man. We're going out and make us some money. Then we'll go to the fine places until they close and then we'll pad out with plenty of the stuff. Plenty, man, and we'll pad for a couple of lights and darks. The long, sweet dive into the green water for those many hours, man." Big Tom was smiling.

"Going to wait for Gopher?" asked Gage. "He might raise up something on his prowl."

"Yeah, that boy is the cool one. He'll find somebody to work on," said Kicks.

The police records of San Francisco and the Peninsula cities listed Big Tom, Kicks, Gage and the Gopher. They had no record of Honey. Not yet.

Big Tom. Twenty-two now. Arrested at nineteen for selling marijuana cigarettes at the high school in the Twin Peaks neighborhood where he'd been a football star the year before. Came from a good upper-middle-class family, and his father was an assistant cashier of an outlying branch bank. Probation for the boy. The students, boys and girls, who had known him at high school could have added more to the record. Big Tom was a brutal bully, a sadist who had raped at least seven of the high school girls who had gone on dates with him. Possibly thirty more had submitted willingly. Big Tom Kuppfen.

Kicks. Twenty-three. His real name was Harold Johnson and at times he worked as a nonunion piano player. His arrests had been for petty theft, bad checks and assault. He'd served four months in the county jail.

Gage. He was twenty-two and his real name was Duane Freeposter, the son of a divorcée who held an executive job in a social service agency of the State of California. She took him to a psychiatrist when he was sixteen, and in the six years since then he had been in analysis much of the time. His two arrests were both for contributing to the delinquency of minors; each of the girls had been sixteen. Both charges had been dismissed.

The Gopher. In some ways he was the most interesting boy of the four. His troubles with the police of San Francisco, San Mateo and Burlingame covered drunk-driving, three arrests; possession of marijuana, two arrests; assault, two arrests; contributing to the delinquency of a minor, three arrests. At the moment he had more than twenty worthless checks out, cashed in bars, hotels, night clubs and stores. The Gopher—Frank Worth Williams—was twenty years old, but he looked at least twenty-six, and he had the casual, certain charm of a young man who had spent his adolescence traveling with wealthy parents rather than in Juvenile Hall at San Francisco.

Frank Worth Williams wore a soft, charcoal-gray hat with a high crown, a light vicuna topcoat, a tab-collared shirt, a well-draped, blue-gray suit. His face showed a friendly boyishness and his manners were careful copies of those of motion picture actors. He spent almost every afternoon in a picture theater. Less than middle height, soft-spoken, quick to laugh, casual but determined—this was the Gopher, Frank Worth Williams.

At twenty minutes past eleven he was speaking to Erika London at the bar of the Cirque Room.

"You dropped your gloves, girl," he said, smiling. She liked the way he used the word "girl."

"Thanks." And she smiled. Their eyes met for a few seconds and she looked away first. Arthur Johnstone Mitchell glanced across Erika at the stranger. He looked all right and he didn't look like an intruder.

HAVE you noticed the drummer in this little band here?" asked the Gopher, directing the question to Mitchell.

"Not especially. Is he supposed to be good?"

"Got a bit of style. I like him."

"Are you interested in music?" asked Erika. The young man had an odd quality of charm.

"Very much," said Frank Worth Williams. "Progressive stuff mostly. Some Chicago Dixie for variations."

"Whom do you like?"

"Oh, Brubeck, of course. Shearing's new stuff. The Norvo trio is fine."

Mitchell ordered drinks and included the stranger in the round. By the time the drinks were finished and the Gopher had bought another round it was mid-

night and introductions had been made. The slight, well-dressed young man was Derek Fielding, he said, and he was up to visit friends in Mill Valley. He was a graduate student at Cal Tech, majoring in aeronautic design. Plausible, friendly, charming.

At five minutes after midnight Erika and Arthur agreed to join the Gopher at a "pleasant little place just off an alley, where some kids are doing some really important adventures in music. Astonishing kids."

To Erika it sounded interesting and a little exciting. There were dozens of little combos in San Francisco places, and some of them were worth discovering. It was the kind of adventure that was fun.

"We'd take you in my car," apologized Arthur, "but it's an XK—"

"Oh, a Jag. Wonderful car. But only two seats. I understand." The Gopher smiled. "Tell you what. I promised to meet some friends at a dreary place on O'Farrell. We can all meet there and go over to hear these new sounds. A spot called the Bada."

Erika and Arthur looked at each other in brief questioning. A stranger, a strange place, a strange crowd. But then this Derek Fielding was a Cal Tech graduate student, he dressed the right way, talked the right way, and he had charm.

"Fine," said Arthur Johnstone Mitchell as his Erika whirled smoothly from the stool. "Just tell us how to find it. We'll meet these friends of yours and go on to this music cellar from there. Right?"

"Right," said the young man, his soft, bright eyes holding the smile of his soft, amused mouth.

Mitchell and Erika stopped for a moment before they slid into the smooth compactness of the Jaguar open two-seater and looked at the lights of the town below them, at the lights of the Bay Bridge beyond.

"Lovely," said Erika. A spring night, and the top of Nob Hill never becomes common nor ordinary: the enchantment of the city spreads before you like a sparkling, magic valley.

"Seems like a good man," said Arthur Mitchell.

"He has a sort of charm," Erika said, still looking toward the sparkle of the town. "Funny, there's an eagerness to this Derek that's strange. A cat—why a cat? Oh, I know—like a cat walking neatly through the flowers—"

"Toward a bird?"

She laughed. "Let's go down and meet these people. May be some Berkeley people we might know."

They got into the low, deep seats of the car.

CHAPTER TWO

AT A phone booth in a corridor of the hotel Frank Worth Williams was calling the Bada.

"Hey, somebody's calling for Big Tom?" yelled the bartender, holding the phone away from his body.

The sleepy-lidded eyes widened, and the six-foot-four body moved lazily.

"I'm the man," he said, and he walked to the end of the bar, taking the phone.

"Hi, Tom?"

"Gopher?"

"Yeah, I found me a couple of pigeons. The doll's fabulous, with a real strong touch of class. The guy's a kid loaded with gold. Both apples, just stumbling through the dark, not knowing. Are you with me?"

"I'm with."

"They bought me on a fancy tale. I'm Derek Fielding, up from Cal Tech. Got that Derek beat?"

"Got."

"Derek Fielding. They're meeting us at this crumb-joint you're at, right now."

"So?"

THEN we go somewhere. Some joint where we've never been made. We make our play on out from there."

"I was figuring on knocking off a couple of guys around the town tonight. What's with these pigeons?"

"The doll is worth a caper all by herself. The guy is maybe carrying a bill or two. We'll see if they go for sticks. If they do, it's great. If not—"

Big Tom smiled. "If not—"

Frank Williams, the Gopher, walked to the entrance and the doorman waved a cab over. Williams was fingering the three dollars he had left.

"If I had a few bucks more I'd never have brought that muscle-buster in," he thought, his soft mouth curled in bitterness. "Just a few lousy bucks and I'd have figured out some play all by myself. Now Big Tom will go crazy when he sees this Erika. Like a mean, mad bull."

He gave the driver the O'Farrell address and lay back against the seat, his palms rubbing against the softness of the vicuna.

"Maybe this better be the last night in San Francisco," he whispered to himself. "Too damn many bum checks out. They're looking for me, and I got a feeling tonight's going to be too rough to cool. Too damn rough to ever cool."

Below Nob Hill the Jaguar was nosing into a parking space a hundred feet from the blue and green neon sign of the Bada.

"Doesn't look like much of a place," said Mitchell.

"We'll take a quick peek, and if we don't like it we can go on to the Hungry Eye or some place," Erika pulled the stole over her shoulders. "I don't know this part of town at all."

"I don't want to know it," said Mitchell, turning his wheels into the curb.

The cab double-parked in front of the Bada entrance just as they reached it.

"Nice to hit at the same time. Wait and I'll go in and get my friends," said the Gopher as he gave the driver a dollar and waved him away.

Arthur and Erika stood for a moment looking at the faded advertisements for beers behind the gummy windows of the Bada. Erika's fine eyebrows went up.

"Not so good, Arthur, not so good. Maybe we'd just better move on."

"Here you are," said the Gopher, swinging open the door and smiling. "Now we're all together. Let's hear some real great music now."

Behind Arthur was the rangy bulk of Big Tom, the heavy lids of his eyes pulling up as he saw Erika. Honey was behind him. Gage and Kicks came out last.

"I'm sorry, but—" Erika began.

"Henry! He put mustard on my frankfurter!"

The big, sleepy-eyed man moved smoothly and quickly, one hand on Erika's arm. "I'm Tom—Big Tom, the kids call me mostly. We'll just drop by this place for a couple of minutes so you can get the feel of the music. The most, girl, the very most."

Arthur was looking at the neat, smoldering beauty of Honey. She stood alone, somehow, as if there was no one else on the street. The great eyes were looking away, and there was a dreamer's smile on her lips.

Erika turned to Arthur and saw him looking at the girl.

"Maybe, for a couple of minutes," she said. She could feel the hard big fingers on her arm, touching her softly but with the sense of strength behind the softness.

SURE, a couple of minutes," said Big Tom. "You know Derek, and these are a couple of Stanford boys, Duane and Harry."

"Stanford?" said Erika, amusement almost hidden in the tiny smile.

Big Tom laughed. "A couple of musicians. I think they got through the third grade. Anyway, Duane and Harry."

Arthur was still looking at the girl. It wasn't her dark beauty, but the quality of strangeness to her that seemed suddenly fascinating.

This is Honey Hamilton, one of our better singers," said Big Tom. The girl glanced at him and for a moment, in the street lights, she looked alive, her bow lips parted, her eyes almost luminous."

"I'm Arthur Mitchell and this is Erika London."

"Let's move, the beat's wasting," said Big Tom.

"We've got our car."

"We can get seven into ours. Come on."

The big man had a force, a compulsion that made the issue too naked and too violent for what it was.

Mitchell didn't want to go in the other car. He knew better. But now he began to walk with the others, his hand at Erika's arm, toward the street and away from the neon splatter of the Bada.

He felt a thin edge of fear of the big, sleepy-eyed man. A sense that here, now, for no particular reason, there could be a fight. A bad fight.

That alone would have made going into the other car rash foolishness, but the edge of fear angered him. He wanted to stay with the big man until the fear was ridiculous and gone. Arthur Johnstone Mitchell was not going to show fear of a stranger; a few minutes more and their positions would be established.

And there was the curiosity suddenly strong in him about the dark, beautiful, faraway girl. Not exactly sexual curiosity. Not exactly. But there was something about this girl called Honey.

"The Buick right across the street," said Big Tom. Five men and two girls walked together across O'Farrell toward the '47 sedan. Big Tom turned his head once and looked at the Gopher. There was no sign of expression on his square, high-boned face. "How right, man," he said.

The Gopher thought once more that if he'd only had another ten he would never have brought Big Tom into this. As they crowded into the car he had a quick picture of a Greyhound bus rolling south on 101 early tomorrow morning. "Long gone," he said, moving his lips silently. "Long gone tomorrow."

Big Tom slipped behind the wheel with Erika next to him and Mitchell on the outside. In back, Honey sat on the Gopher's lap. He fondled her without interest and she felt his hands on her without response. There had been too many parties, too many three- and four-day racks with only the sweet-hay smell of marijuana as reality.

"Where is this spot?" asked Erika, her hand in Mitchell's.

"Over toward North Beach. A small spot with big, new music," said Kuppfen.

For Erika, too, there were edges now of fear, of curiosity, of an odd excitement. She was a woman, and as a woman she sensed the cruel, brutal force of this man, Tom. If it had only been cruelty, brutality, strength, maybe it would not have been exciting. But she sensed also the amusement, the laughter within him.

The other men, except maybe this charming, maybe somehow not-right Derek, were unimportant. She accepted Big Tom's description of them—part-time musicians living between the jam and the furnished room.

But the girl Honey—Erika wondered about her. Like this boy, Derek, there was something not quite right about the girl. She had felt it when she first saw her. And yet the girl's smart, simple suit, her fine face and fine eyes, all fitted together to a carefully groomed beauty.

Erika turned to say something to the girl and turned her head quickly back. She was shocked—but not by the physical obscenity of the situation behind her. The street lamp had highlighted Honey's face, and that fine face had shown only amused disinterest.

"What have we got ourselves into?" There was sudden, quick panic for Erika, and her hand tightened on Arthur's. She wanted to push open the car door, jump out, run away.

"This spot nobody ever heard of," said Big Tom, one hand twirling the wheel into a tire-screaming curve. "But you're going to like it the best."

WHAT'S the name of the place?" asked Arthur.

"Matter of fact, it doesn't have much name."

Erika bent her head toward Arthur. "As soon as this car stops we get into a cab and away. Right away." Her words were whispered.

The car swung around another corner into a narrow street of ancient buildings. Over a cellar stairway, toward the center of the block, was a single yellow bulb. Two windows in old buildings showed glows of light; otherwise the street was dark.

A few cars were parked along the curb but there was plenty of space near the yellow bulb over the cellar stairs for the Buick. Kuppfen rasped the tires as he swung in.

"Away we go," he said, and his voice had a curious tired, easy quality. Erika could not see his face.

Arthur opened the car door and they got out. Erika looked once at Honey—the abrupt searching look a woman will give another—and looked away. She moved to Arthur's side.

"Let's get our cab, Arthur," she said, speaking loud and clear.

He looked at the old, dark empty street and shook his head. "I'll call one from inside."

As they walked down the rounded, hollowed stone steps they could smell the place. There was a clatter of music, and the tired smell of old saloons in the morning. Erika turned to look back. The boy she knew as Derek Fielding was at their side, still smiling. Behind them were Honey and one of the other men. At the top of the stairs was Big Tom, and he was looking at her.

Something much like what Arthur had felt came to her now. The panic was gone. These might be the wrong kind of people, but there was nothing to be afraid of in them. Nothing for Erika London and Arthur Johnstone Mitchell to fear. Tags of textbook paragraph in Sociology 201 and Psychology 218 came to her mind:

"In modern urban society there are the 'wild dogs,' unable or unwilling to fit into a normal pattern of living, and unable and unwilling to leave other people alone. . . ."

CHAPTER THREE

THE place that didn't have much name was almost dark. Erika could see a few tables and some booths. Three couples were dancing in a space no more than eight feet square. Most of the light came from the corner where a trio was making frantic, chattering music.

A balloon of a man walked toward them, a man with a short, grossly rounded, balloon body, and a balloon head sitting on his shoulders. He had no neck.

"How many?"

"Seven of us—and double shots of bourbon over ice all around."

The balloon man's head bobbed toward Big Tom. "Okay. Seven doubles over ice."

Erika started to say something, but stopped as Big Tom towered over her, taking her in his arms for a dance. She would have broken away except that his hands were gentle on her, and she felt the rhythmic grace of the giant. In seconds she realized that he could dance superbly. She loved to dance.

There was no fear nor sense of something not right here. Only the frantic chatter of the trio, the great, gentle hands, the rhythm and the beat. Somewhere behind her the others were at a table, and for the moment she was dancing.

Big Tom, strong, gentle, dancing, looked down at her. A big, square face, with the bones high, a curve of cruelty and a curve of amusement in his mouth.

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The music ended like an animal dying suddenly and they stood there in the dimness with the people around beginning to talk a little to cut through the silence and the loneliness of the place when there was no music. She could see that there were people there, quite a few, but she could sense the loneliness of this place without much name.

She turned away from Big Tom, but before his hands left her he let her know the strength and cruelty, one pressure of the hard, strong fingers. Again they looked at each other and there was a knowing between them, a knowing she rejected with hate.

They walked to the table and she saw that Arthur was talking to Honey. The other three men were looking at her. Before they reached the table the music began again and Big Tom spun her to him.

This time he was not gentle. She felt the muscle ridges of his body against her softer body, and felt the animal strength of his hands.

If the music hadn't a basic frenzy to it, if she hadn't had the four drinks at the Cirque, if Big Tom Kuppfen hadn't had laughter within him in addition to the strength and the cruelty, if maybe Arthur wasn't talking to the strange, terrible girl . . . .

But these things were all true, and she wanted to hurt the big man who held her, she wanted to laugh at him, and she wanted to dance with him.

Make love in a red-black room with the frantic music beyond the door, make love in a forest with animal eyes watching from the darkness, make love on a windy hill with the storm clouds piling up beyond the sun.

Crazy. She caught herself and she was remembering girl talk now. The wondering talk about how much there was to the simple man-woman animal attraction. For a moment she realized the subtle skill this big man was using on her body. There was nothing casual or accidental about the pressures and the contacts; he knew women, this big man, and he knew the bodies of women.

The music ended in stark, unwanted silence again and she felt tired, defeated. This time they went to the table and sat down. As she walked over she saw the three pairs of eyes of the men at the table looking at her, eyes moving slowly as she moved, unblinking, staring.

"Arthur," she said.

"Yes, Erika?" He turned from the lovely, lost girl.

"Please call a cab. We have to leave," she said urgently.

There was a little stack of bills and silver in front of him, and his double bourbon glass was empty.

Honey looked at her without interest. The big eyes of the girl had warmth and light and yet they were strange.

"I asked Honey what she did, Erika, and she told me that she lived a very happy, very complete life," said Arthur.

"We live fine," said Honey. "Not long, but high and big and fine."

"How do you like this music, Erika?" asked the young man in the vicuna topcoat, thrown back from his shoulders now.

"It's a very ordinary trio," said Erika evenly. "They pick their numbers, they play a strong beat, and loud. It's effective, but it's not good music."

The Gopher looked at her with the smile breaking away slowly from his face.

"Catch the chick," said Gage. "She don't even see the music and she talks it down."

"From you I hear the long silence," said Big Tom. "Do I hear it?"

Gage nodded quickly, his lips tight.

"We go now," said Big Tom. "We go now because I don't want this."

Again Erika felt shock. The three men and the girl were standing.

"They're completely afraid of this brute," she thought, and trying not to, she looked at him.

"Will you drive us back to our car or shall I call a cab?" asked Mitchell.

"He doesn't know what we're into; he doesn't even guess," she said, the low words audible.

THE Gopher heard her and he was grinning now. "I knew you were cool. Even up at the Cirque I said this is a cool chick," said the Gopher.

"I don't want you around," Big Tom's voice was lazy, almost a whisper.

"I'm tapped. I've got to ease out and I need the paper to get to L.A." Frank Worth Williams' essential quality of desperation, of daylong, nightlong desperation was suddenly bare and horrible on his face.

"The streets aren't empty. Men waiting for buses, drunks walking along. You lazy?"

The Gopher's face was strained as if he had run too far. "I'd have to be up there. Gimme a stick and maybe I can make it. With a stick to smoke, maybe I could make it."

Arthur Johnstone Mitchell understood the conversation. The man who called himself Derek Fielding had been told to go away. He had asked for money to go to Los Angeles. The giant had told him to get it by holding up someone, and the boy had said he didn't have the courage for a robbery unless he had marijuana first. Arthur Mitchell understood this and now he understood quite well the people he and Erika were with.

He pushed back his chair and walked to the balloon-shaped man.

"Where's your phone?"

"Phone? Who has phones?" said the balloon head.

Mitchell swung around. Erika was standing and he pushed by Honey to her.

"We're leaving, Erika."

They walked out of the noise and the sweet-sour smell, up the stairs and out on the black, ancient street.

"I want you nice people to come over to our pad and listen to some records." Big Tom was right behind them.

Neither Arthur nor Erika turned. They kept walking until Mitchell felt Kuppfen's hand on his arm. He stopped and faced Big Tom.

"We're walking."

"I want you to look over our pad. It's a good place in a quiet neighborhood."

Erika sensed the other two men behind her and turned to them. She knew that if she screamed they would be on her before her mouth was fully open.

This was the naked moment.

She knew what could happen. Mitchell could be on the sidewalk in seconds, with

"Always hunt by helicopter . . . great sport!"

Big Tom stomping on his face, kicking him, tearing his body. She could be pulled into the car and left hours later on some empty road.

This was the naked moment.

San Francisco newspapers carried such stories every day. Men beaten up and robbed by prowling gangs, girls pulled into cars. On this dark, empty street there was no chance for help. They couldn't even try for the chance of running back to the cellar place.

She heard the soft laugh. Big Tom was laughing.

Arthur had courage. He was a good man; she could see that. He was carrying himself ready to move, arms raised a little, a quick glance at Big Tom, at the two men behind her. Arthur was ready to try a fight and she had to stop him before he did. Big Tom wouldn't fight, she knew. He would smash, tear, maim, cripple.

"Let's go over and listen to the records, Arthur," she said. Her voice was cool and easy. Any place would be better than this empty, ancient street. Any moment in the future would be better than this naked moment only a breath away from the smashing fists, the terrible hands on her.

Mitchell's hands rose a little, a reflex from his readiness, and then he turned to look at her. She couldn't see his face well but she could guess at the surprise it must be showing.

"You want to go?" There was more than surprise in his voice; there was the rasp of anger.

"Sure, why not? It's early, probably only a little after one."

"I want to get back to my car."

The other three men and Honey were quiet, waiting.

"Come on, Arthur, let's go." She stepped toward Big Tom. Mitchell's hands dropped to his sides.

"Okay, chick. A ball. A ball for us." Big Tom was a shadow giant, tall, slow-moving. As she bent to slide into the front seat of the old Buick she felt his hands stroke her back.

In the car, with Big Tom behind the wheel and Arthur on the other side, Erika London felt the sudden tightening of her body—knees and thighs pressed together, hands balled into fists, her breasts now seeming too large—and knew that this was fear, real fear, panic. But no one spoke. In back were Honey, Duane, Harry. The only sound was the kick of the starter and the burr of the tires as Kuppfen gunned the car.

CHAPTER FOUR

AT THE cellar place Frank Worth Williams sat at the table, holding his empty glass, hearing the high, slurring beat of the band as if it were echoes in an enormous room.

"I set them up for him. A kid with maybe a hundred or two, and a doll chick like you never see to touch. I bring them to him," he thought, and his mouth was twisting with hate and self-pity. "I bring them to him and he kicks me off. Why Kicks and Gage and not me?"

He banged the glass on the table and the balloon-shaped man looked at him, readying his soft, powerful body for trouble. The balloon man knew boys like Frank Worth Williams and he knew the quick cure for trouble they might start—the blackjack, smooth, hard and fast. The balloon man didn't believe there was any other practical cure. But he waited, his breath sounding like little snores.

"I have a piece of any money he gets from that kid. Level. I should get half. A double saw at the worst, and a double saw would get me to L.A." Williams was talking to himself now. He waved to the fat man, pointed to his empty glass. The balloon man shook his head. Frank Worth Williams stood up.

"A couple lousy bucks and the whole damn town heating up for me so that any second a cop might knock me off. He owes it to me and I'll get it from him if I have to cut him. I can cut a big man down. Cut him down, and cold, man."

BUT Frank Worth Williams knew that it wasn't fear of the police, nor a right to a twenty-dollar cut of the money in Mitchell's wallet that ate through him like acid. It was that the fine woman, the lovely, untouchable woman, Erika London—and he had tormented himself through his terrible nights with waking dreams of women like her—would be taken tonight by Big Tom. He knew that; it was a set thing from the second the two square kids had gone into Kuppfen's car. Big Tom might take the girl with the red-gold hair in quick violence, as he had done other girls, smashing her lips against her broken teeth with the heel of his hand so that she couldn't scream through the blood in her mouth. He might take her hours from now with the weed smoke thick in her head as she laughed. But he would take her. The Gopher knew that.

And all he wanted was to be there afterwards, even for a minute or two. That was all he wanted.

Twenty dollars and whatever was left of the tall, fine girl. That was all he wanted, and he'd set them up.

Big Tom could have been decent, Frank Worth Williams thought in the scarlet rush of hate. But not that bull-brute with his cruelty and his laugh.

He could be cut down. Williams' wet hand fondled the flick knife in his trouser pocket. There were pictures in his mind: a thin boy, Frankie Williams, thirteen, slashing Georgie the Greek's face with a knife in the yard of Juvenile Hall, watching the blood come out like straight, red lines across the screaming, frightened face; Gopher Williams, seventeen, taking the money from a sobbing boy on Fillmore and then digging his knife into the boy's upraised arm as he tried to shield his face from the point.

Go to the apartment. Talk easy and friendly until Big Tom Kuppfen wasn't looking and then put the blade up under his ribs and watch him fall with a funny look and no laughter on his face.

Frank Worth Williams walked up the steps and into the other darkness outside, fingers tight around the smooth plastic of the knife handle, and the taste of hate bitter-hot in his mouth. . . .

In the back seat of the Buick the girl they called Honey saw the golden edge of Erika's hair as the car passed under a street lamp.

"Blonde girl," thought Honey. "I used to know blonde girls in school. That was a long time ago before I knew anything. I didn't know anything about cool music, or the stuff, or men. Just boys, and they didn't know anything, either. Long time ago. . . .

"It'll be a ball again tonight. We better stop and get some stuff, maybe. With everybody pulling on sticks we won't have enough for more than a couple days, maybe. Doesn't matter. Somebody'll find some, or somebody'll come by. Somebody'll hit the in-wood and shout out 'What's doin', man?' and somebody'll swing the in-wood wide and say 'Roll in, roller, 'cause we're gettin' thin, man.'

"Big Tom'll beat the girl apple up and if I'm the right high maybe I'll watch. Maybe the boy apple will want to pad out and I can roll onto his watch.

"Got to get me a little heap of loot, 'cause I want to get me a pad all my own. I keep balling with Big Tom and these boys, I might get me into some trouble. Best I get me a little pad of my own.

"High up on a hill with everything shiny and bright. Maybe three rooms with my own fine hi-fi and a mile-high stack of the best, and I'll play 'em and listen snug in my own little pad. . . ."

THE girl called Honey rolled her thoughts across the soft fog of her mind, slowly. Nothing much mattered to Honey any more. She still dressed and groomed herself carefully, maybe because some not-yet-lost part of her still tried to reach out to reality, or tried to reach back a year to the time when she was the prettiest junior in the high school across the Bay.

Erika wanted to lean over to Arthur and tell him that she was going to scream the first time they passed a police car. Scream and switch off the ignition. She knew that Kuppfen would hit her, but calmly she had decided that the risk of a broken nose was worth it, if they could escape.

She wanted to tell Arthur, but she was afraid to whisper. Kuppfen was wheeling the old car along the side streets, avoiding the main one-way routes. They passed other cars, and sometimes taxies, but the risk of a scream would be too great with anything less than a police car and its two-way radio.

Big Tom's great hands held the wheel loosely and he was holding to a steady thirty-five. Erika knew that he would be a skillful, reckless, high-speed driver, and that if she couldn't stop the car when she had found her chance to scream he would try some crazy ninety-mile-an-hour getaway that might end in shattered metal and shattered bodies against a building or another car.

She thought of these things almost as

if she was planning a morning's shopping, or scheduling her classes at Berkeley. This is the way it is, and these are the things to be considered. But her knees and thighs were still pressed tightly, compulsively, together and her hands were tight balls

At twenty-three, and as a man, the thoughts in Arthur Mitchell's mind were different. He was no longer afraid, and he was angry. Angry with Erika, angry and jealous. For a moment back there on the sidewalk he had expected trouble with the big ape and his two friends. It might have been a nasty little fight. Then Erika said she wanted to go to the big ape's place and listen to records. After dancing with him in that rat hole.

YOUNG Mitchell was seething with jealousy. A big, good-looking sleepy-eyed ape comes along and dances with the girl and she gets hot to go. The hell with her.

Good to find these things out. And this evening he'd been thinking of not waiting another year for marriage. So they would have got married, maybe, and the first big ape with eyes like Robert Mitchum and she'd go all primitive female. The hell with her.

A damn marijuana addict at that. And that suave little character they'd met was a damn phoney. A real lousy crowd to be mixed up with. But Erika has to want to go to the big ape's apartment and listen to records.

Probably that singer, Honey, smoked the stuff. Maybe he ought to make a play for her to set Erika straight. The girl had a strange fascination, at that. She couldn't have any marijuana habit; she looked too clean, too trim, too beautiful. Not like a college girl—maybe a very smooth, high-salaried secretary.

What's she doing in this ratty crowd?

Arthur Johnstone Mitchell had thought things out to that point when Big Tom saw the solitary man.

"Get the setup, Kicks. You and me will make it. Gage, lay the edge on our apple. He might as well learn the facts," said Big Tom in his easy, casual voice. The car braked to a stop almost in front of the solitary man standing by the bus-stop sign, and Kuppfen pulled the hand brake as he swung open the front door of his car.

Mitchell turned and saw the lonely stranger look up in quick, aware fright as the car stopped, and then Mitchell had a problem of his own. He felt the edge of the knife like a sudden line of cold against the side of his throat, under his right ear.

"I'm hurtin' to cut you, you lousy crumb, achin' in my bones to cut your damn throat like a pig," said the high, strained voice behind his head. "Move, move, you bastard, so I can cut you. Just move."

Mitchell heard Erika scream, like something being torn, a pulsating scream, but he did not move his head. He kept it as it had been when Gage put the knife to his throat. His head was turned to the window and so he saw what happened to the solitary man.

The man had turned and started to run when Big Tom grabbed him, spun him, and hit him in the stomach. The other boy held the man as Big Tom went through his coat and trousers pockets and pulled off a wrist watch. Then, as the boy held the man, Big Tom slugged him in the face until the man's head fell back.

They let him drop to the sidewalk and then they both kicked him several times before running back to the car and jumping inside.

Erika was still screaming. Big Tom slammed the door, released the hand brake, and stepped down on the gas pedal. The old Buick roared out toward the street.

Big Tom's voice had an exultant note, but it was still soft as he spoke to Erika. "Make a silence, chick. Make a silence."

Erika's scream ended in a shaking sob.

The knife edge was still against his throat and he could still see in violent memory the crumpled man, the swinging feet, the terrible heels stamping down. Arthur Mitchell felt sick as if someone had kicked him in the stomach.

You read about these things, he thought, like you read about terrible car accidents and planes crashing. You read about them but they can't be real. But this is real.

Now he realized what Erika had realized first, when she had turned around in the car and had seen Honey—Honey with the amused indifference on her lovely, perfect, heart-shaped face.

Mad dogs.

"Man hardly made no noise at all," said Kicks from the back seat. "Like an old-time silent movie. Man just getting hit and then goin' down so polite. Man probably never goin' to look the same again. All new kind of face."

"Sort of beat-up kind of face," said Big Tom. "I got him pretty good. Going to have to wash my shoes off."

"Can't get your kicks without losing a few tricks," said Harold Johnson in a singsong voice. "Was the apple holding much?"

"Couple bucks." Kuppfen had cut across town at sixty, running two stop lights. Now he slowed back to thirty-five. The car was headed south, and they were passing through an area of new homes.

"Figure we'll go south a bit and drop off this apple," said Tom.

Gage had settled back but the knife was ready, and Arthur Mitchell turned his head slowly, knowing that the man behind him was watching. Mitchell was trying to think. Three men, one of them a giant, and one of them with an eager knife. Lonely avenues, well after one o'clock in the morning. Three men, vicious, cruel, deadly. Mad dogs.

The girl, Honey. She had said nothing. Neither the knife nor the brutal robbery had caused any reaction.

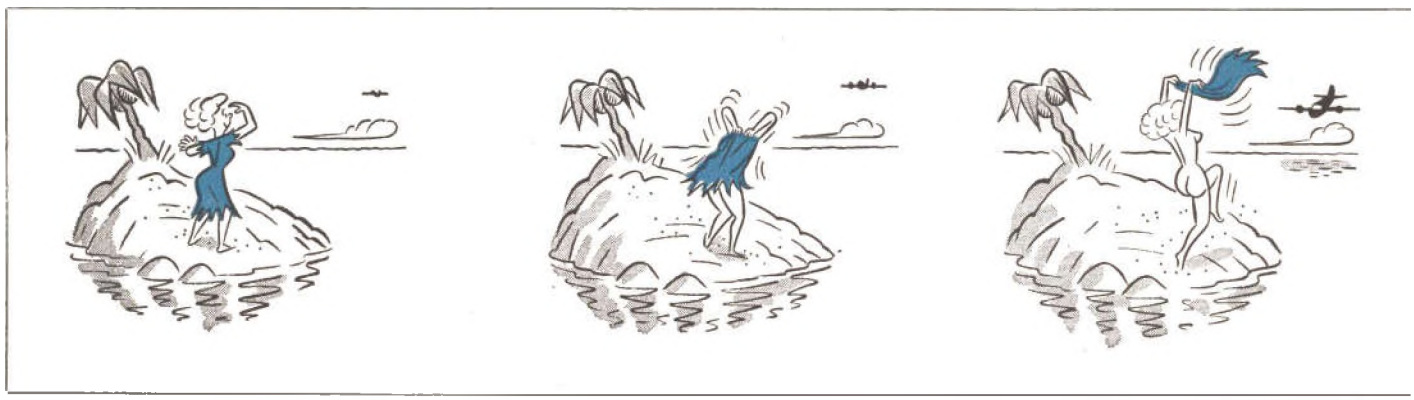
And his girl, Erika. The sobs had stopped and now he felt her hand reaching for his. There was a quick, hard pressure. "We're together, we'll make out, we'll have to fight"—that's what the pressure of hands seemed to mean.

CHAPTER FIVE

ARTHUR MITCHELL spent a few seconds in bitter self-anger. Getting in the strangers' car on O'Farrell Street was stupid; he had known it was stupid when he agreed. But he had wanted to show that he wasn't afraid of Big Tom.

He was afraid of him now.

In the back seat Gage, Duane Freeposter, ran his thumb over the edge of his knife. This was more like it, he thought. This had the real excitement to it. Maybe he would knife this big, good-looking boy tonight. He'd used his knife to frighten girls; he liked to see their eyes widen and their mouths open as they felt his knife bite a little into the soft skin of their throats. A couple of them had told him afterwards that it had been a thrill, being frightened like that. He hadn't really cut any of them, but it was certainly more fun than the usual routine of getting them drunk or getting them to try a stick of marijuana.



The big thing would be to do it to a man, really do it. Feel the knife slide in, and know that the boy was going to die. It sort of frightened him to think about it. If he did it he might have to leave town, or hide out.

Maybe he didn't have the stuff to really do it. Maybe he'd chicken out when it was right there, the man there, the knife there, and his hand on the knife. Maybe he'd chicken. Duane Freeposter thought, as his mind seemed like the paper streamers in front of an electric fan. Well, at least he'd have a chance to find out.

There was a quick picture. He saw this big apple, Mitchell, going down under the big fists of Kuppfen, being kicked the way they always did when they had somebody down, and then he, Gage, was over the man, cutting him. Maybe he'd do it like that.

Why? Because he wanted to do it. There was a hate in him. People didn't know about that hate, not even his mother. A hate like a tiger that lived within him. Feed that tiger.

Harold Johnson wished that they'd finish up so that he could get to a piano. He could riff out now; he always had the live things in his fingers when he was going great like tonight. He'd just made a little score and making a score always set him up high. Get this thing of these two things going and done, and then maybe to that flat up in North Beach where the piano was waiting for the live thing in his fingers.

Man, you'd live thin for weeks, maybe months. Some flea-box of a room on Turk, and with those hunger aches like cold rocks in the belly. You'd get afraid, and nervous. Miserable, man, and down. Nothing great, but low and low. Nothing.

Then you'd run into some fine people, and you could hang around their pad and smoke right up, with the sweet smoke making you big. The fine people would work with you, and you'd go out with them and find some guy alone and you'd chop him down and take his gold and give him the heavy boot.

Honey'd be around and nobody had a tag on her any more, least of all Honey; so if you wanted to zoo around you could zoo.

Fine, man, and up. Real great, and up.

Erika London had needed the hand pressure. She had screamed into the night and nothing happened. Maybe back there, miles back there where the man lay on the sidewalk, someone had opened a window and had looked into the dark street to see who had screamed.

But they were miles away now, going south along a quiet avenue between the ghost-gray rows of houses.

There were lonely country roads not too far away now. Back roads where the car could stop and . . . .

SHE couldn't think like that. There must be something they could do now. This was San Francisco, and people like Arthur Mitchell and Erika London weren't abducted by three young thugs, merciless, cruelty-crazed youngsters. There weren't young men who would beat, rape, and even murder just for fun.

There were laws, and police, and prisons, and sociologists.

Not in this Buick moving toward the lonely roads.

She had been alone in cars with overexcited young men. The calm, remote attitude usually worked.

"Tom, Big Tom—" she began.

"You're talking, chick. I'm listening."

"I thought we were going to your place to hear records."

"I forgot I don't have any place, chick. We're going to do everything kind of more direct."

"We don't know you, Big Tom. We couldn't even remember what you looked like. No matter who asked us, we wouldn't be able to remember."

"Cool, chick, cool."

"Why not let us out somewhere?"

Kuppfen laughed. "We're going to have a ball, chick. A real tall ball with fun for all."

He felt tonight as he always did when he was moving. For him there were two kinds of living, moving and not moving. Sometimes, maybe more than half of the time, he thought, he was nonmoving. Like a resting animal, sleepy, slow, not much interested.

And then there were the moving times, like now, and he felt like a truck or maybe a bus rolling down a steep grade; swinging around the curves, always going faster, knocking over other things, smashing through fences, killing people on the road, rolling faster and faster. Maybe more than a truck or a bus, more like a tank, or something armored.

His uncle had been in the armored division that was called "Hell on Wheels." Something like that, that's what he was when he moved. Hell on wheels. He liked that.

Kuppfen knew what he wanted when he was like he was now, in movement. At the end of the long downhill roll the big truck or bus or tank, or whatever would stop and he would get out. Get out wearing a two-hundred dollar suit and one of those thousand dollar wrist watches. Hand-cobbled boots from London. Everything tailored for Tom Kuppfen, the wheel. The great wheel.

Lots of money, and people taking orders, smiling and bowing, and other big wheels waving hi-ya at him in the clubs and the fancy places. A new girl every night, and the girl all excited and happy because she was going to give her first to the great Tom Kuppfen.

He spun the steering wheel in quick anger, and the rubber of the tires burned on the pavement as the car lurched around a corner.

Jerking stuff. Dreaming like he did when he was nonmoving. He knew what the trouble was. The trouble is the world wouldn't give him his chance to knock on the in-wood, the door, the big door. He was big, strong, smart, tough, with plenty of stuff on any ball, and what did the world want him to be? A flunky, a clerk, a salesman knocking his brains out.

He ought to be driving his own Jaguar now, a sweet, long XK-120, working on some big job in television or advertising. Maybe the manager of some rich business. If they gave him six months to prove himself, that's all he asked. Give him the job, and say, "Big Tom, show us if you're a real wheel!" He'd show them.

But the doors, the in-woods in cat jive, were always locked tight. They needed somebody in the shipping department, or peddling brushes or newspaper subscriptions.

Strong back, weak mind.

So he got his the hard way and every time he knocked a man down and robbed him and stamped on his face he was getting even. He was a robber baron, like in the old days that Morse, the history preacher, used to talk about when he was in high school.

He figured on not taking any chances with this Mitchell. It was okay now with Gage and his knife in the back seat and Mitchell knowing his throat had had it the moment he moved wrong. But up

ahead, outside the car, when he gave it to this Mitchell he better take no chances.

This Mitchell was kind of big, and he looked rangy, maybe fast, too. A pretty fair end on a small college team.

Better not give him a chance. If this Mitchell had a chance to work his arms at all he might mark the face up, break a tooth.

And the girl. This cool queen. She was government-stamped Extra Choice, man. He'd hurt her. Sometimes they like that. Sometimes they don't. No way of telling until afterwards. But whether the doll liked it or not, he liked it.

Moving. A big truck, or a bus, or a tank, rolling faster and faster downhill, knocking over fences and houses, rolling.

The car climbed a long, easy curve around the blackness of a hill. They were outside of town. Erika had to try again. She'd been thinking of the best way through the terrible minutes.

"Big Tom—" She guessed that he liked to be called that.

He didn't answer. The chick was going to try and sweet-talk him now. Chicks had tried sweet talk before. Sometimes it made him angry and he gave it to them hard and fast to the face, and they didn't sweet talk any more. Sometimes it made him laugh. He wasn't sure yet which way it was going to be now. He could backhand her with his right, but he didn't want to spoil her face. Not at this time in the fun.

"Big Tom, I'll make a deal."

"You can make a deal?"

"This is an old car. Not your style of car at all."

HE DIDN'T like that much. The anger was beginning to spark in him. So if he smashed her face, so what? He could remember what she looked like before. Talking down this clunker as if he didn't know it was a clunker. Smart, big-mouth chick.

"Your style of car is a Jaguar, something like that."

Maybe not so big-mouth, this chick. Kind of cool, a doll with understanding.

"How right," he said.

"Do you want to be driving your own Jag tonight, Big Tom? An XK, you know? Two-seater, open?"

"Yeah, I know about XKs. You think I didn't know?" The sparking anger again.

"You can have it."

"Talk some more, and I believe you, doll, but thousands wouldn't."

"It's Arthur's car. Then turn around and go back and we'll make the deal. No trouble, and you get the keys."

This was funny. "You think ol' Tom's real stupid, chick? What a stupid deal!"

The headlights cut into blackness. They were in open country on a lonely road. Erika knew that any second now the car would stop.

"How about a bill of sale, Big Tom. Arthur, would you give him a bill of sale?"

Mitchell had been working on the idea of swinging open the front car door and rolling out. They'd stop and maybe he could try them one at a time. But he knew it was no good. It wouldn't work. He felt sick with anger and fear. He listened to what Erika said. Maybe there was a chance here.

"That's nearly four thousand dollars' worth of car," he said. He wanted to sound businesslike, and there was unfunny humor in that. He wanted to bargain, and there was no bargain.

"You got the pink slip?" asked Big Tom.

"I've got it on me," said Mitchell.

Kuppfen could see the car in his mind. Long, low, fast, all sports car. Shake this tired town and roll to Vegas, or maybe Phoenix. Find some wealthy woman. Hang around the swimming pool with the car where it could be seen, and make the big chest, the big arms. Wealthy, beautiful dolls.

"Yeah," he said. "Yeah, I'll go this Jag route. I buy it from you for a couple thousand and you sign over the pink slip."

"A couple of thousand?" asked Mitchell. His mind wasn't working well.

"In the mind, in the mind only," said Big Tom. "You give me a receipt for that much foot, and the pink all signed. No beef. Nobody hurt. You and the chick here back at your pads all well and swell. I have me a nice length of iron. I make the deal. Okay?"

"All right," said Mitchell. The pink slip would be the last move, if it had to be made. He didn't want to think of his car in this big ape's hands even for the time it took to call the police. But on the way back, there would be police cars, lights, chances.

The Buick was slowing down. Kuppfen pulled it across the road into a wide shoulder, backed it, and headed back to San Francisco.

"You know it's for laughs," he said softly. "You're thinking, and I'm thinking, and we're both figuring on a cross, and who do you suppose is going to win?"

Mitchell turned, but in the dim light of the dash he could see only a shadow face.

"Yeah, buster, you're figuring on getting me back in town and getting away. Sure, you are, buster," said Big Tom. "But let's figure on going along on our little deal. You sign over the car, and nothing happens. You blast to the cops—then something happens. They roust me and somebody rousts you."

KUPPFEN was trying to think ahead of the man and the girl. To have a Jaguar was worth a lot of risk, a lot of heat. Cross the state line into Nevada tonight and it was made. The pink slip and the receipt were as good as gold. After he had them he'd play it as it lay.

Erika was sitting slumped and loose. The terrible blackness was behind them, the lights of San Francisco were ahead. She felt lightheaded, as if the whole thing were over.

"Where is this new car of mine?" asked Kuppfen.

"Downtown. I'll show you." Mitchell was building up his anger carefully, like a fighter going into training. Sometime before tonight was over he would make this big ape wish he had never met Arthur Johnstone Mitchell.

CHAPTER SIX

THE headlights picked out the small, snug homes at the edge of the city. Kuppfen kept the gas pedal halfway down, driving as carefully as a lawyer.

Play it as it lay, Kuppfen was thinking. But there was a big joke he'd just figured out. Real terrific. And what a deal it would make! He laughed big and hearty.

"So what's funny?" Asked Kicks.

"Driving," said Honey, in her crisp, delicate voice. "Driving all over the town and nothing happening. No music, no fine times. Driving with a couple of apples. Stinking dull. Awfully stinking dull."

"Don't forget who-all owns the heap when you get it," said Gage. His hands were trembling. Thinking all the way out into that blackness on the empty road about his knife. Wondering if he'd make out when the moment was there in front of him. Wondering if he'd chicken. Getting hot and tight as if he was choking, feeling the light, cool sweat on his hands and face. Working up to it, and then the car turns around and it won't happen like that. He hated Big Tom Kuppfen.

"Yeah, yeah, sure. Everybody cuts in," said Big Tom. The excitement at his big joke made it hard for him to keep from pushing the gas pedal right through the floor and barreling through town like a rocket. What a deal he'd figured! The rest of his life was going to be high and fine, higher and finer than the weed ever sent you. 'Way up there.

Money. Money. Money. Fine cars and beautiful chicks. London and Paris. Big Tom laughed.

"It's a straight deal, isn't it, Big Tom?" asked Erika. The laughter was horrible.

"Straight and great." He laughed again.

Kicks pulled Honey over to him. Nothing much mattered. Another crazy night, and he had a thing for crazy nights. Crazy, man, crazy.

Erika reached for Arthur's hand again. They were in town, there were cars, occasionally people on the sidewalks. Bars getting ready to close, but the lights still on. There must be something to do now, some way of breaking free into the normal, ordered world again.

Once she saw the lights of a police car a block away but Kuppfen had seen them, too. He swung around a corner.

"Don't go wild, chick," he said, almost in a whisper, and the back of his right hand was as fast as a whip, as big as a club. It stopped just before her face, and Arthur Mitchell was swinging around.

Gage had the knife point under his ear before Mitchell could raise his arms.

"Don't go wild, doll," Kuppfen whispered. "We got too much to lose to take a fast fall to the cops. You have been playing cool. Keep it cool. Right now I

don't want a bad thing to happen to either one of you. Not one bad thing."

The knife point hurt, but Mitchell held his head steady. Soon now, soon, and these rats would be squealing in fright. His hand tightened on Erika's.

"Where you headed?" asked Gage, his hand wet and shaking, but the knife steady. "You passing up O'Farrell?"

"We're going to the pad, and close the deal there."

"You've flipped, man. We don't want these apples to know where the pad is."

Big Tom didn't answer. He was in love with himself right now. Like he said, like he said, he thought. Big Tom Kuppfen always said he was smart, that he could figure the play. He'd figured this one. It was going to be real hard waiting for tomorrow's sun. When the chick had talked up the Jaguar deal his mind must have started in top gear. Going to be hard to wait for morning.

The car rattled across the cable slots and pounded as it climbed the hill. Kuppfen cut it into the curb in front of an old building.

"I'll get out and this girl will slide out on my side. You keep the shiv on this character, Gage, until Kicks and Honey are out. Then he gets out after your door has been opened, you keep the shiv close to his kidney, and we all go up to the pad happy. Then we do business."

It was hard for him to keep the excitement out of his voice. He had to say something about the plan he'd worked out. It was bursting inside him. "Man, I've got a dream scheme."

"I don't want schemes, I just want dreams," said Honey, her voice flat. It was an old phrase around the places that had been her life for the past year.

Big Tom put a hand on Erika's arm, opened the door, and half pulled her out of the car on the driver's side. He was surprised to find himself shaking a little.

Erika stood beside the giant in the yellow-streaked darkness. The rear door opened and Harry and Honey slid out.

"Mugg this doll," said Kuppfen, and Erika struggled as Harry stepped behind her and locked his left arm under her chin, pulling her head back. Kuppfen walked in front of the car and opened the door beside Arthur Mitchell.

"Get out, dreamboat," he said. As Mitchell climbed out and straightened up, Kuppfen hit him just below the breastbone with a blow that came almost straight down. As Mitchell doubled over Kuppfen hit him behind the ear, catching the boy before his face smashed into the pavement.

"Put the shiv to the doll, Gage. Walk her to the pad. I'll drag this meat in."

Honey walked down three steps to a basement entrance in the old building, took a key from her purse, and opened the door.

Erika felt the knife point in her side, urging her toward the dark doorway. She walked stiffly. For the first time tonight she prayed, silently. Kuppfen half carried, half dragged the unconscious Arthur down the stairs. When the six people were all inside Honey closed the door and flipped on the light switch.

Erika had one moment before her eyes adjusted to the light, then a moment while she looked without understanding, and then a moment of horrible shame. The walls of the tiny front room of the basement apartment were covered with obscene photographs, many of them enlarged into monstrosities. She covered her face with her hands.

"Art work, chick. Just think of it as art work," said Big Tom, rolling Arthur face down on a sagging, stained couch.

He walked over to Erika, pulled her hands from her face. "If you want to scream some more, chick, I'll tell you how it works. This is a neighborhood where just one scream from a girl isn't big news. And one scream is all you'd ever get out."

"What's the matter with you people? Are you all insane? Aren't you human? ou're like devils, mad, insane, dirty devils!" Erika was close to hysteria.

The other four were looking at her. Harry—Kicks—was amused, his sallow face twisted a little. Duane—Gage—was watching her with a cat's intentness on a bird, his pale tongue caressing his pale lips, his eyes darting away when she looked at him, coming back to her at once.

Honey's eyes were on Erika, but her lovely face had no expression. "This is the pad," she said. "We have lots of fun here, but it isn't much to look at. You get with it, and it'll be heaven. Heaven."

Arthur was trying to push himself up from the couch. Big Tom stepped over, swung a short, heavy right to the small of the boy's back, and a left with the heel of his hand to Mitchell's ear. Then as the young man flopped like a broken doll, face down into the musty couch, Kuppfen walked back to Erika.

WE'LL kid around for a little bit, chick. Then we'll get the apple to sign over those papers on that fine line of metal. That's our deal, isn't it, doll?"

"You agreed not to hurt us. You were going to let us go." Erika fought back the hysteria and won. She needed every bit of strength and sense that she had.

"I haven't hurt you, chick. I'm a big man, I can hurt lots, but I haven't hurt you. I just slapped the boy around like in play. I didn't break anything."

"Let him sign the papers on the car, and then let us go." She was surprised that she could speak so clearly, without her voice breaking again into sobs.

"There's some news for you, chick."

"News?"

"Me and you are eloping to Reno tonight. Your folks may kind of think that you're running off with the apple, so they maybe won't worry too much. Before we get a license, chick, I'll fix it so you'll think marrying me is a great idea."

"What's this?" asked Kicks.

Big Tom smiled. "I worked me out a deal. After a little I want you and Honey to dig out the folks' addresses for these two. You go to the all-night Western Union and you send a wire. The wires say something about love and that it's off to Las Vegas to get married.

"When you come back, the chick and me will be friends already. We pick up the Jag and head for Reno. We rack out for whatever time it takes the chick to see that marrying ol' Big Tom is great, and we get married. Like in pictures."

"Sounds great, except where do we come in for the cut?" asked Gage.

Big Tom pointed to Arthur Mitchell. "This pigeon is yours. After the chick and I take off for the rest of our honeymoon in a couple of hours, you and Honey can work on the college boy. You got a camera, you got weed here, and you got Honey. That ought to be enough to work with for a nice steady take for years to come. This pigeon probably thinks he's respectable."

COULD be. Could work," said Kicks thoughtfully.

"I never believed there could be people like you," said Erika slowly.

"There are, chick. There are. All over this town, all over all towns. Real solid bad people, just like us," said Kuppfen.

He put his big fist against Erika's cheek. She did not flinch. With increasing pressure he turned it, the knuckles grinding into her cheek. It was the same gesture he had used at the Bada.

"The big surprise, Erika, is that you might even get to loving me. You kind of danced a little that way. When I peel off all this outside junk they've taught you, and get down to you, maybe you might even surprise yourself. Hey, doll?"

With his rough hand hurting her cheek, Erika still stood straight, her eyes narrowing as she looked at him.

"Big slob."

There was no sound in the room except a rasp of breath from Mitchell, and her words.

The fist stopped turning, pushed at her in angry violence, and she went over.

Erika put her hands on the dusty rug, rose on one knee. Her face hurt, and she had a bruised shoulder when Kuppfen knocked her to the floor.

Six people in the small room. Arthur Mitchell rolling on his side, one hand to the back of his head, his mouth hanging open in pain. Harold Johnson and Duane Freeposter watching this as they had watched things much like it before—some new girl getting roughed by Big Tom. Honey was standing by a table, picking up records from a toppling stack. There was a small record player on the smeared and cigarette-burned table top. She had been roughed around by Big Tom, and she rather liked it.

Big Tom was standing above Erika, his hands knotted like immense fists. He was trying to look amused, not angry, and so his face had a curious rigidity.

Erika was still on one knee, her stole fallen on the floor, her bare shoulders bright in the light of the ceiling bulb.

Kuppfen took a long look at her, then turned suddenly and walked to Mitchell on the couch. The boy tried to get up swinging, raising his arms, and Kuppfen straight-armed him, knocking Mitchell against the wall, his head bouncing. Again the big fist smashed into the boy's face and Mitchell fell forward, still conscious but hurt. He didn't move.

Erika was on her feet, and she reached for Kuppfen's eyes with her fingernails. He slapped her with an open hand, and she went back across the room, still standing. Gage grabbed her, locking her arms behind her with his left hand, and lacing his right hand into her hair.

Kuppfen reached into the breast pocket of Mitchell's jacket and brought out the boy's wallet. He leafed through the money by running his thumb from one side of the wallet to the other, took out the card folder and tossed the wallet to the seat of a broken easy chair.

"Where's the chick's purse?"

"Maybe still in the car."

"Okay. You go see, Kicks."

Erika stumbled across the room, badly shaken, to Mitchell. The boy had one hand over his bleeding mouth. Erika put her arms around him, her fingers gentle.

"Don't try to fight him, Arthur. Please don't. He's like a tiger, too big, too strong. He's crazy. He wants to kidnap me, and he thinks I'll marry him in Reno if he messes me up enough." There was a keening hurrying to her words, as if by saying them the craziness would be apparent and Kuppfen's scheme would fall apart from its own nonsense.

"They're going to wire our folks, so they'll think we've run away together. Then they're going to do something terrible to you and Honey so that they can blackmail you. Arthur, Arthur, Arthur—we've got to do something!"

COUPLE ATTACKED, BEATEN. Erika could see the headlines, remembering suddenly how often she had seen them in the *Chronicle*. COUPLE ATTACKED, BEATEN. And sometimes a picture on the front page, the girl in a hospital bed, her face covered with bandages. COUPLE ATTACKED, BEATEN. "After being held for several hours by a sadistic gang of young hoodlums, the girl was found wandering . . ."

How many times had she read this?

But as her fingers caressed the swollen face of the boy, the exploding fear within her was that there would be no headlines.

What would she do after two or three days with Kuppfen?

What would she do when she was a different Erika London, something hurt, twisted and changed for the rest of her life, with no more campus at Berkeley, no more serene confidence in herself, no more faith in an ordered, decent world?

Mitchell's head was on her breast and the boy was shaking in a special kind of agony, that of the young man who has not been strong enough and whose girl is being taken from him in violence by a stronger man.

CHAPTER SEVEN

KICKS came back with Erika's purse, and Big Tom went through it.

"Now listen careful, you two. You get these addresses right. It says in here to notify Arthur H. Mitchell in case of something. In this other one the doll's

old man is listed as Duncan London. You send the same wire to both: 'Going to Las Vegas to get married. Love.' Got it? Take my car and go to the all-night Western Union downtown. Just you, Kicks, and you, Honey. I'll give you a couple bucks. Gage, get the guy's keys and find that Jag. It'll be around the Bada somewhere. Bring it back. You on it?"

"Yeah," said Kicks. "How's about a little of the money from that guy we knocked off tonight?"

"Later. Don't heat up, Kicks. Get this done. We're going to score big tonight."

"Yeah," said Kicks. "Sure thing, Tom."

Duane Freeposter was looking at the girl, his eyes on her bare shoulders.

Big Tom noticed and laughed. "Not this one, Gage. I've tossed you plenty of 'em, but not this doll. I keep this exclusive for awhile. You might say this is my fiancée. Crazy, huh?"

Freeposter's eyes turned away from the girl.

"If the apple tries again, you're all right?" asked Harry.

"I've worked him a little. I'll make him a little silly before I do the big job of work I've lined up for tonight." Big Tom's mouth was wet and loose. "Move. Get those wires out and get that beautiful Jag of mine back here."

Freeposter flicked his knife open and walked to the couch. "Give me the keys."

Erika reached into the side pocket of Arthur's jacket and handed the keys to Freeposter. He stepped backwards, the knife pointed upward and ready.

She heard the door close, heard the rumble of the Buick starting. The room was quiet.

"You might as well get your clothes off, doll. Unless you want me to do it for you. . . ."

She didn't want to turn around. She wanted to stay there, frozen, with Arthur's head against her, her hands tight on his shoulders.

"All I can do is to scream, and keep screaming," she thought, and the fear of pain locked her mouth. She knew what would happen with the first sound—the club of the fist on her face. The fear of pain, the sick knowing the scream would not help.

"Get up, doll, and get those clothes off. I want to talk to your ex-boy-friend. He makes me jealous."

There was a chance. It would be a cruel thing, because her chance could only come while Kuppfen was "making Arthur a little silly"—terrible words—with those clubs of fists.

But there was no other chance. She was afraid to scream.

Erika London stood up, and Kuppfen watched her.

"I'd rather take them off than have you tear them off."

"I'll give you a little strip music. The real exciting kind, chick." He hit Mitchell in the face and the boy tried to roll away, to stand up. Kuppfen brought his heel down hard on Mitchell's ankle, then slapped him with the heels of his hands on either side of Mitchell's jaw, in a quick right-left.

Erika's eyes hunted frantically for something to use—something heavy.

Big Tom swung suddenly around, grinning.

"Looking for something to hit me with, chick? Try it. I like to be hurt a little." He reached for her and she stepped backwards.

"Start getting those threads down, chick."

"All right." She reached for the zipper at the side of her gown.

Mitchell was standing up, not steady.

Big Tom was watching her, but she couldn't let Arthur try again. Kuppfen would break his face with those great club fists.

"Don't, Arthur, don't."

Kuppfen spun around, and waited like a giant cat. His right knee was raised a little, ready to come up in a tissue-smashing thrust when Mitchell was close enough. His hands were open, the fingers almost straight. He intended to hurt the boy, pretty much for keeps this time.

Erika ran to the door, tried to pull it open. This was the one chance, the chance she would have gambled Kuppfen's fists on Arthur for, because it was their only chance.

The door was locked, and she opened her mouth to scream, knowing what would happen then.

The door made a little rusty-metal noise—and opened.

Erika was standing almost in front of it. Big Tom Kuppfen was in the center of the room. Arthur Mitchell stopped, three feet from Kuppfen.

The door swung open and Frank Worth Williams followed his knife into the room. He kicked the door closed behind him and the Yale latch clicked. He stood with his back to the closed door.

Big Tom knew a final play when the play was shown in the bright, four-inch blade, shown in the wide-open eyes and clown grin of the Gopher. He had a hurt enemy behind him, a killer in front of him, the girl to watch. The six-foot-four body rested easily, like a thick-wound spring, on the front of his feet, and his hands were up, the fingers bent a little now.

"Yes." The word meant that this night had to have this, too. The final play. There would be no other words.

Frank Worth Williams let his body bend forward, his left hand wide and a little behind him, his right arm out from his chest, the blade forward and upward. He stayed with his back to the door. He wanted Big Tom to come to him.

Kuppfen figured. Like Williams, he was grinning. He was figuring: wait and let the Gopher move? Or rush the smaller man?

His own nerves made the decision. Before he had told his powerful muscles the order, they had moved involuntarily. He was going forward, toward the grinning face and the up-coming point.

Kuppfen half turned as he reached Williams and his left hand closed on the Gopher's right wrist as the knife hand tried to reach around Kuppfen's right arm and side. His shoulder knocked the Gopher against the door, coming up under the Gopher's chin.

Now Big Tom turned, the left hand viced on the Gopher's wrist, pushing it and the knife up against his chin. His right arm was a steel bar across the small of Williams' back, and he lifted the smaller man up from the floor.

The Gopher was shouting sounds that were not words. Big Tom yelled, and his body seemed to grow, to arch, as his left arm straightened and the Gopher's head went back. The last sound from Frank Worth Williams was a high, clear note of utter pain.

Kuppfen dropped him, the knife clattering to the floor. As the body rolled on the dusty rug, the eyes and mouth were open, the head tilted to one side.

A bitter, lonely, empty life was done with. The carefully learned words and manners no longer needed, the well selected clothes bought with worthless checks crumpled and useless. Twenty years of life, and never once in the twenty years and Frank Worth Williams been happy.

Big Tom Kuppfen looked at the body.

"I broke the cat's neck." His foot poked at the body. "Crazy. Real crazy!" The words were slow and heavy.

Then Erika screamed and he was upon her like a great cat leaping, his hands reaching for her.

Arthur Mitchell, his face twisted and his mouth trying to bite air for his lungs, pushed himself toward them.

Big Tom pushed Erika away and turned to meet Mitchell. The giant clubbed the boy toward him with a big fist that hooked around the back of Mitchell's neck. Mitchell looked up into the box-square, thick-boned face: Kuppfen's eyes were bright and he was grinning with his teeth together.

Kuppfen's left arm bent to a tight triangle and he swung it, the point of the elbow coming toward the side of Mitchell's head like a skull-shattering hammer. The boy dug his face against Big Tom's chest.

Erika's eyes were on the knife, the Gopher's slim, bright knife, on the floor. She knew there were only seconds left of life for Mitchell, only seconds left of any real life for her. But a knife . . .

Kuppfen's back was to her, and she could sense the slow pleasure he was taking before he smashed down the man before him. But only seconds left.

She was on his back, her knees tearing at her skirt as she wrapped her legs around his thighs, pulling herself with her left hand on his throat, her right hand in his hair, over his head, her nails hooking into his eyes. The big head bent back and her nails bit into blood and tissue. She felt his hands reaching back, then one hand on her wrist trying to pull the terrible fingers from his eyes.

Arthur Mitchell brought his knee up hard and fast and there was destruction of blood-vessels, of the soft, unprotected flesh and nerves. The giant's hands fell away from Erika, and she dropped from his back, looking first in wonder at her bloody fingernails. Big Tom was bent forward, one hand pulling upward at his groin, the other over his eyes.

There was no mercy left here. Mitchell picked up a chair and clubbed Big Tom to the floor, smashing the chair, beating at the ruined man with the broken pieces.

It was over. Kuppfen lay close to the body of the Gopher. Mitchell put his arm around the girl.

They would have to find the police; there were these two to be taken care of, there were the others to be found and taken downtown. . . . Later, there would be home and a return to life. . . .

He led her out the door. • • •

How to Make Hay with an Atom *Continued from page 33*

"I don't know who it's going to be," Dr. Wendell Peacock said, "but someone, and soon, is going to find a way to make a fortune out of this atomic thing." Peacock, at the tender age of twenty-five, was the group's nuclear specialist.

Every head nodded in agreement. There was, to be sure, a fortune to be made in the atomic business. The first men who could find a practical way to utilize the atom for industrial purposes were going to step into a powerful and lucrative world, like a man taking his first step into an unexplored diamond field. It was Bill Barbour who phrased the question that really bothered them.

"And just how?"

There fell, it is reported, a silence.

"Well," Peacock finally ventured, "there's always isotopes."

The word hung before them, pregnant and ripe, waiting to give birth to a score of ideas and possibilities.

The rest of the men at the table knew about isotopes, as did hundreds of other scientists. But exactly what practical, economically feasible use could be made of them was another question. Most scientists, impressed with the immense long-range possibilities, had not given much thought to the practical, everyday uses isotopes might be put to.

There is nothing very profound about isotopes. They are exactly like any of the other basic chemical elements of matter except that they emit radiations. This is the secret of their value. An isotope can be traced. Wherever the fantastically small isotope might go or finally be lodged, (inside a steel girder or as a particle in a big brick, for instance) its movement or presence is broadcast by the radiations it emits and can be detected by an instrument as simple as a Geiger counter.

An isotope can be made by the simple process of taking some metal—say, gold or cobalt—and inserting it in an atomic pile. Left there for a certain amount of time the element becomes radioactive.

It didn't take the young scientists long to see great possibilities in isotopes.

Someone suggested that by inserting a minute particle of some radioactive element in a pipeline you could trace the flow of oil or gas, and pin-point blockages that often cost oil and gas companies fortunes to locate.

Dr. Peacock already knew that isotopes could be inserted in the human body, and their passage traced and studied. No one could estimate what this might mean to science and medicine.

Certainly hospitals and laboratories all over the country were waiting for some outfit that could supply them dependably with isotopes for experimentation.

This was only a fragment of the beginning thoughts. Before an hour had passed they had come up with a dozen uses for isotopes, uses that conceivably could revolutionize some phases of life and industry.

"Take another item," Peacock said. "There isn't one decent automatic radiation counter on the market. I know. I had to build one myself. We can make those."

"And instruments to handle hot stuff," one of the others said. "No one makes them. You have to devise your own. Hundreds of hospitals and laboratories are crying for just such equipment."

All of these needs were obvious, so obvious that no one, it seemed, had ever stopped to do something about them. Manufacturers didn't know enough about the problems to attempt to answer them, and most scientists were much too preoccupied with theory to consider going into the prosaic production end.

As the evening wore on the young scientists became almost delirious with the immensity of what they were stepping into. By ten o'clock the men, under the direction of William E. Barbour, had formed the first purely atomic business in the world.

"Sometimes when I look back on that meeting," Barbour says today, "I have to shudder. At thirty-five I was the old man of that crowd. All the rest were well below thirty. *I* should have been the one to know better than to rush into such a wild venture. Instead, I was the one who persuaded the others to come in with me, and I was ready to shoot the works."

The "works" consisted of $26,000, the results of Barbour's savings before and during the war and of a well-placed investment in Raytheon stock which had boomed from sixty cents to twelve dollars a share by the time Barbour sold.

The others were to put in $1,500 each, although some of the men were never able to dig up that amount. Working for the Office of Scientific Research and Development had made nobody rich during the war. Over the violent protests of his wife, Dr. Peacock put down the $1,133 he and she had painstakingly scraped together for their first car.

By midnight, their minds exhausted from much far ranging, the group had chosen a name for the company, Tracerlab, Inc. It still bears that name.

The next morning, when the flush of excitement had paled somewhat in the harsh light of realistic day, Barbour and company had good cause to suspect that perhaps they had allowed themselves to get carried away.

For one thing, no such business had ever been tried before. There were no guides to follow and there weren't even the bones of previous failures to warn them of potential traps. They were traveling alone in virgin country.

The other thing was the fact that the Army, which at that time was in sole charge of all atomic activities, had given no indication that it planned to release any isotopes for private use.

Tracerlab, Inc. had problems, but Barbour is a stubborn man. After incorporating Tracerlab, Barbour rented, for $195 a month, three ancient, dilapidated buildings on Oliver Street, near Boston's waterfront. Immediately he sublet the main floors of two for $150, a move typical of his thrifty and shrewd way of running the business.

(Eight years later Bill Barbour repeated the same stunt. He picked me up at Boston airport with his four-seater Cessna to fly me to his house in suburban Concord, and from the air he pointed out the forty-three-acre site bought for a new $1,000,000 Tracerlab plant at Waltham.

"We've just sold eight acres of this plot to another manufacturer at a profit," he told me proudly. "Besides, they're going to share the costs of bringing in utilities, grading, and building roads.")

The youthful stockholders of Tracerlab personally cleaned out the rubble of decades from the dank Oliver Street buildings. Everyone pitched in, wielding pickaxes and pushing wheelbarrows. Barbour himself built all the wooden partitions and workbenches. Dr. Peacock was kept busy sweeping floors. Some nights he would bring down his wife to help cut and strip wires for the first Tracerlab product, the complicated Autoscaler he designed.

This is the device Dr. Peacock brought up at the first memorable meeting in Cambridge. Its purpose is to count the number of atomic disintegrations of an isotope within a given time, and do it automatically, without human supervision. Such information enables a scientist to calculate quickly and simply the strength of a radioactive source. This knowledge, in turn, is all-important in working with radioactive materials, for it tells the user what effect the isotopes he is handling will have on his own health, and also what he can expect of them in their applications.

As even the doorman at Tracerlab knows, the standard unit used in measuring atomic radiation is a "curie." It is thirty-seven billion atomic disintegrations per second—a highly potent amount of atomic energy. But while certain isotopes are pretty stable as to the radiation they give off, others lose their potency in short order. That is why the short-lived ones in particular have to be checked frequently to see how much of their power is left. It is in this operation that the Autoscaler earns its keep.

Dr. Peacock, in designing the Autoscaler, counted on the fact that some isotopes have only a very brief "half life"—meaning the period of time it takes for them to lose half of their potency. Thorium-106 has a half-life of only thirty seconds. Bromine-82 has thirty-five and a half hours, the much-used Iodine-131 has eight days. On the other hand, such isotopes as Carbon-14 with a half life of 5,720 years, or even Nickel-63 with eighty-five years, need little checking.

With all this measuring to do, obviously any place handling fissionable

materials could well use an Autoscaler or its equivalent. That is why Tracerlab's first product was an immediate success. In a matter of a few weeks after they started in business they got orders from universities, hospitals and government installations for fifty-eight units at $750 apiece. (The Soviets ordered two Autoscalers but never got them.)

Despite this success, by the summer of 1946 the new firm was in pretty bad shape. Deliveries were slow, and all of the company's money was tied up in equipment and parts. In consequence, three of the founders had to quit. Homer S. Meyers, with a wife and four children, couldn't get along on $200 a month and pulled out. John R. Niles and W. Raymond Gustafson followed suit. Bill Barbour and Ray Ghelardi were drawing no salaries, but Ghelardi had another job and worked only nights and holidays at Tracerlab.

Then Dr. Peacock was summoned to work at Oak Ridge. One day Barbour found himself the only full-time employe of the company.

The banks would advance no money to a firm dealing in such fantastic, unheard-of commodities as Tracerlab. Two of the post-war organizations formed to finance new industries were interested, but they demanded control of the company, and Barbour would have none of that.

"I never had any intention of giving up," says Barbour, "but I was sure glad to hear about a new venture-capital outfit being formed in Boston under the name of American Research and Development Corporation. I lost no time in getting over there."

Behind A.R. & D. were such financial bigwigs as Senator Ralph Flanders, then President of the Federal Reserve Bank of Boston; Merrill Griswold, Chairman of Massachusetts Investors Trust; and colorful General Georges Doriot, head of the Harvard Business School.

ANYONE in Boston will tell you that General Doriot has two deep-seated convictions: 'Americans don't work enough!' and 'Appreciate the value of a nickel!'" says Ray Ghelardi. "General Doriot chose Thanksgiving Day to descend on us and look over Tracerlab. He was impressed to find us at work on a holiday. He liked the idea that we saved money by building our own furniture and equipment. And he thought our books looked pretty good, except for a lack of working capital."

Still, it took several weeks of negotiations to work out an arrangement, with Barbour and associates chewing their nails.

"If you ever need money and then get a check for a hundred and fifty thousand after business hours, don't worry about what to do with it," says Bill Barbour. "We got ours on December 31, 1946. It was a nasty, stormy New Year's Eve, and it was after seven o'clock, but the State Street Bank stayed open just for our benefit. It was quite an experience depositing that check."

At about the same time Barbour had one more spectacular break. The famous Manhattan Project, which had developed the A-bomb, was disbanded, and its work turned over to the civilian-controlled Atomic Energy Commission. Late in August the Commission began releasing isotopes for commercial use. However, they also set up a stiff priority system. First crack at isotopes would go to hospitals and research laboratories. Barbour, figuring that these institutions would be slow in grasping the significance of the AEC move or to take advantage of it, applied for isotopes at once. Despite glum predictions, he got them.

IT DIDN'T hurt that Barbour's classmate and fraternity brother, Carroll L. Wilson, was appointed the first general manager of the AEC. That is all part of Barbour's "luck." He seems to know, and makes it a point to know, everyone who is important in his field. Early in the game he maanged to attract such people as Karl T. Compton and Admiral Lewis L. Strauss, the present head of the Atomic Energy Commission, to serve on the board of Tracerlab.

With a solid piece of money in the bank and with isotopes becoming available from Oak Ridge, the radioactive midget was ready to start growing. With isotopes, Tracerlab could begin living up to its name.

The business of "tracing" is fascinating and important. The presence of less than a billion-billionth of an ounce of isotope can be detected and traced through a living body or plant and show just how food and fertilizers are utilized, just where they go, and for how long. This same signaling capacity of isotopes is now used in hundreds of ways by industry, and a healthy number of ways were discovered and perfected by Tracerlab.

The Autoscaler, though a success, was not enough to carry a major business. Tracerlab's next venture was the building of the Beta Gauge. Dr. Peacock had envisioned the machine and the idea that famous night in Howard Johnson's. The Beta Gauge is truly a fantastic machine. Large, immensely complicated and expensive (one costs around $20,000) it is like the famous Jack-of-all-trades, with the exception that it is master of many. It has literally thousands of uses. Today it is in use by makers of paper and rubber products, floor coverings, metal foils, adhesive tapes and anything else that comes off a machine in a continuous sheet.

Without touching the material, a Beta Gauge can measure its thickness and then automatically adjust the machine so that the proper flow is obtained. It will measure soft and sticky materials, like rubber on a backing, or adhesive on a tape. It works by shooting beta particles of Strontium-90 or Cesium-137 through the moving sheet of material and then counting the particles on the other side of the sheet to see how many have been absorbed. If the sheet is too thick, a low count will show on the opposite side; if it's too thin, a high count will show. One maker of linoleum saved $150,000 in a single year with his Beta Gauge simply by not using more asphalt than necessary on the felt backing of his product.

There is hardly a day when some engineer in some remote section of the country don't get a new ingenious idea about putting the BG to work for him.

Sales of Tracerlab products went from almost nothing in 1946 to $750,000 in 1947 and by 1949 had more than doubled, to $1,700,000. This was a long jump in four years from the enthusiastic dinner and the resulting drab days that followed. With a solid backlog of work and orders behind them at Boston, the Tracerlab boys had a new freedom to branch out and experiment with some of the more amazing aspects of their business. Much of the sensational work was with "tracers." Startling new uses for them seemed to pop up every day.

Take the job at Herscher, Illinois, where natural gas from Texas is stored in some twenty huge underground caves. The gas gave Herscher's drinking water an unpleasant taste, so Tracerlab dropped some Argon-41 into the caves to find the leak. By scouring the countryside with Geiger counters they soon detected a radioactive hot spot where the Argon-41 was seeping out. They plugged the leak and Herscher was happy once more.

THEY used Cobalt-60 to solve a similar problem with the heating system of a Manchester, New Hampshire, lumber yard where $100,000 worth of plywood was being ruined by a hidden leak. The local plumber declared the entire concrete foundation would have to be ripped up to find it. He stood by leering as a technician from Tracerlab placed a minute pinch of Cobalt-60 in the boiler. That leer was wiped off of his face within an hour when the technician, checking the warehouse floor with a Geiger counter, hit the leak right on the nose. Water seeping from the pipe had created a radioactive hot spot which was easy to find.

The oil industry is perhaps the greatest user of tracing methods employing radioactive isotopes. Tracing the separation between shipments of gasoline, stove oil or diesel oil inside an oil pipeline has become a simple matter by the injection of a few drops of Antimony-124 between the shipments. A Geiger counter is installed a few miles upstream from the end of the pipeline and signals the arrival of a new shipment so that it can be diverted into the proper tanks. This method of "interface tagging" has been made fully automatic in some places so that the radioactive signals themselves open the right valves.

Speaking of pipelines, the longest and toughest radioactive tracer project ever carried out involved the clearing of a new 625-mile line from Sarnia, Ontario, to Superior, Wisconsin, with the aid of radioactive "go-devils" or scrapers. All new pipelines have to be cleared of obstructions to insure an even flow of oil. The scrapers are forced hydraulically

through the line at one mile an hour, but they often get stuck. The problem is to find them inside the enclosed pipe, which itself is several feet under the ground—in the case of this particular line even under the Straits of Mackinac. Tracerlab tagged the go-devils with Cobalt-60, and its engineers followed them on foot, by jeep and boat for three months. The go-devils got stuck several times but were immediately pinpointed with Geiger counters. Reading a news item about this, a woman asked to buy some Cobalt-60 so she could locate an intestinal obstruction she claimed her doctors couldn't find. She didn't get it.

The most bizarre use of tracing occurred, as you might expect, in California. So that the state's health officials could study the migratory habits of mosquitos, Tracerlab was given the painstaking assignment of tagging 300,000 of the rotten little bugs. This was done by tinting the insect's diet with radioactive phosphorous. By dint of heroic work, agents were able to follow the trail of the red-hot bugs with Geiger counters, and at night, when they couldn't be found by their buzzing whine, they glowed in a most telltale manner. Presumably California has found out something about mosquitos and their mysterious ways, and people there, thanks to Tracerlab, can expect to do less slapping and scratching in the future.

About half the new projects Tracerlab is working on are top-secret jobs for the armed services. One such project, which has been recently declassified, is a nuclear battery with a useful life of thirty years. Developed for the Signal Corps, it runs on Tritium worth $100 and can give up to 400 volts at a very low current. Its present uses are military, mainly as a triggering device, but some day it may be possible to use it for such things as automatic weather-station broadcasts, burglar alarms, or to fire photo flashbulbs. It could be made strong enough to run a flashlight, but the Tritium needed would cost $200,000,000.

In a research project for the Army Chemical Corps, Tracerlab is trying to find out, with the aid of Carbon-14, why and how the plant hormone 2, 4-D causes broad-leaved plants to grow so fast that they kill themselves. For a chemical company, they checked a defoliant to make sure that none of the drug got into the fruit. They tested an insecticide for another manufacturer to see whether it affected animals that ate the plants treated with it.

FOR the Air Force they tagged rocket fuel to find out whether the jet blast contaminated the air samples taken at high altitudes, and are now conducting experiments with Tritium to see how radioactive gases spread in the atmosphere over short distances, measuring radioactivity smaller than one part in 100 trillion (1/100,000,000,000,000).

Sometimes work with the new-fangled isotopes leads to union trouble. "By imbedding radioactive pellets in firebricks, we developed a method for a big steel company near Chicago that would allow them to check the linings of their furnaces without having to shut down operations," relates Bill Barbour. "But the bricklayers' union refused to handle the bricks and wouldn't allow our engineers to put them in place, so the project fell through."

The average man's fear of radioactivity is one of the reasons why foods are not being preserved by irradiation. Another reason is a slight change in taste and color, although the isotopes actually keep fruit, milk and meat fresh for weeks without refrigeration.

THE most discussed uses of isotopes are in the medical field, and the most celebrated of these is for cancer treatment. A ten-curie radium source for cancer treatment costs $200,000, while Tracerlab furnishes a ten-curie Cobalt-60 source for $600. It is true, of course, that the half life of Cobalt-60 is only five years, meaning that it loses half of its potency in that time—while the half life of radium is sixteen centuries, but it is still a good buy, one of the things on the credit side for the A-bomb.

What makes the isotopes so important for medical purposes is the odd fact that some elements have a preference for seeking out certain parts of the body. Iodine-131, for instance, concentrates in the thyroid gland and clearly outlines both healthy and damaged tissues by radiation. Tracerlab just brought out a new $3,500 scanning machine which draws a picture, somewhat like an X-ray photograph, recording this radiation. Other radioactive compounds are used to find brain tumors, measure the heart output, and give the blood volume of a patient before a dangerous operation. This is done in a simple and ingenious way by injecting a minute amount of Phosphorus-32 into the blood, then taking a sample and measuring the dilution of the phosphorus.

Another recent medical use for isotopes is the treatment of certain eye diseases and skin cancers with Strontium-90. Tracerlab makes for this purpose a six-inch instrument with a plexiglass shield to protect the doctor's hand. Veterinarians can buy this Strontium Applicator freely, but physicians treating human beings must first satisfy the AEC that they know how to handle radioactive materials.

When they talk about a "Cutie Pie" at Tracerlab they aren't referring to any of the secretaries, but to a portable Geiger counter which they manufacture themselves.

The Cutie Pie is only one of many different civilian radiation-measuring devices made by Tracerlab (quite a few special models were developed for the armed services). They put out half a dozen different Geiger counters and several scintillation meters, together with some two dozen different Geiger tubes and a whole line of artificial crystals for the scintillation meters.

"Growing" these crystals in big electric ovens is a touchy proposition. The

raw material, mostly an organic compound called stilbene, is heated to 125 degrees Centigrade, and the trick is to take a whole week in cooling it off gradually. When radiation enters these crystals they give off tiny flashes of light which are transformed into electrical impulses, amplified, and registered on a meter.

Working in a place like Tracerlab has its dangers. Day and night a couple of dozen Geiger counters keep chattering throughout the premises, giving the "background count" of normal, harmless radiation and automatically warning against dangerous quantities of radioactive materials on the loose.

One day the counters in the main building suddenly started clicking furiously, indicating the presence of something strongly radioactive. The alarm was spread, and while most of the employes made ready to leave, emergency crews rushed a systematic check. Then somebody pointed a Cutie Pie toward a wet fire escape simply bristling with radioactivity—it was raining outside, and the rain had caused a "fallout" of materials originating probably at some distant atomic proving ground. It was nothing unusual, and the quantities of radiation present were far from being really harmful, but it just so happened that Tracerlab had instruments going which registered the phenomenon.

A "fallout" of this type occurred right after the first atomic explosion at Alamogordo. It happened to hit a wheat field, the straw from which happened to be later used for making cardboard, which happened to end up in the form of boxes for the Eastman Kodak firm. When complaints rolled in that the film was fogged, Kodak made a check, discovered that radiation was the cause of the trouble. Ever since that time they, and other manufacturers of sensitive products, regularly check every ingredient they use with a Geiger counter.

IN ADDITION to being protected by Geiger counters in strategic spots, most people working at Tracerlab wear two badges and a gadget that looks like a fountain pen. One of the badges is required by the government for plant security, as half of Tracerlab's work consists of highly restricted military research.

The second badge contains two layers of film which measure radiation up to thirty roentgens. The films are developed every week and checked with a densitometer to determine to what kinds of radiation and how much of each kind the wearer was exposed. Besides checking the badges of its own employes, Tracerlab runs a film-badge service, processing 5,000 badges a week for other atomic enterprises as well as for hospitals and X-ray labs. No worker is supposed to receive more than a 300-milliroentgen exposure per week, according to AEC recommendations. If he does, his employer is notified, and he must stay away from radiation for a while.

The gadget like a fountain pen is a pocket dosemeter costing $42.50. It can be held up against the light to show a scale on which exposures up to 200 milliroentgens are registered. With this device the workers can check themselves at any time, even before their film badges have been developed.

In a "hot" place like most sections of Tracerlab, even the disposal of waste is a problem. Old containers, waste materials, anything contaminated by radioactivity is carefully collected, put in metal cans, covered with concrete, and handed to the Navy which obligingly dumps it in the ocean off Graves Light in Boston's outer harbor.

Precautions are strictest in the "hot lab" proper where workers wear protective clothing and overshoes, and must be checked with Geiger counters whenever they leave so that they won't carry out stray bits of radioactive materials.

"Storms seldom ever bother me . . . but last night *I was worried!*"

In the hot lab the more potent isotopes are kept in heavy lead containers below the basement floor level. At times Tracerlab stocks radiochemicals worth $100,000. It takes a 270-pound lead container to safely store as little as three and a half curies of Cobalt-60. That is why it often costs more than the price of the chemicals themselves to ship the shorter-lived isotopes, which must go by air.

The hot stuff is handled with remote-control tongs, forceps and pi-petting devices which are fastened to rods two to six feet long—equipment which Tracerlab makes and sells. Some of the isotopes can be purified and compounded with other chemicals behind heavy glass walls while others must be handled behind heavy shields of concrete or lead bricks, with the operator watching his work through a mirror on the ceiling.

Around Tracerlab you never know whether you are bumping into a porter or a Ph.D. Everyone dresses "informally," to say the least. Half the employes are scientists and engineers, and everyone is young—so young that the salesman who came over to negotiate a group-insurance contract was first incredulous, then disappointed by the low rates he had to quote.

In a corner of the physics lab we met a young man with crew cut, dirty white sneakers and torn slacks. He turned out to be chief physicist Dr. Joris Brinkerhoff, a frighteningly bright individual who was in the process of shooting 250,000 volts amid flashes of blue and purple discharges, through a mixture of Beryllium and Polonium in order to generate neutrons.

"Same reaction as the H-bomb," he explained cheerfully. Then, as we started backing away, he added, "No chain reaction, though. The discharges are not self-propagating."

With the neutron generator you will be able to make your own isotopes—turn certain elements radioactive. In form of a neat console the size of a washing machine, it will retail below $10,000 and do the job of a $20,000,000 chemical source.

The two men running Tracerlab today are its principal founders, president Bill Barbour and technical director Dr. Wendell Peacock. They have turned out to be an ideal team, with Peacock generating the ideas and Barbour putting them into effect—each of them secretly wishing all the while that he were the other. There were times when Peacock could have used some of Barbour's administrative ability, and when Barbour "wished I had known more of what I was talking about."

A bustling, energetic, sandy-haired man who looks like Charles A. Lindbergh, Bill Barbour has all of the flyer's dogged determination and almost blind optimism. "It hurts me to pass up opportunities," he says, "and every time I have to turn down a new idea so that we can concentrate on what we are doing, it's a painful philosophical decision."

At the age of ten, Barbour was building radios, at fourteen he held a ham license. A born gadgeteer, he has designed his own sprawling, ranch-style home overlooking the Concord River, built most of it himself and put in such gimmicks as garage doors which can be opened and closed by short wave from his car; rheostat switches throughout the house so the lights can be dimmed gradually; and an intercom system with loudspeakers. The intercom is connected to a huge shortwave antenna on the roof so that wherever he flies his private plane his wife can hear him talking to the airport towers, knows that he is safe, and when to expect him home. He built his own swimming pool and filtering system, has a big, well equipped workshop and makes most of his own furniture.

If Bill Barbour hates anything, it's waste. In the early days of Tracerlab he used to prowl around the place at night to pick up nuts and screws from the floor and rummage through waste baskets for usable resistors and the like. Even today he will desert a party of big shots he is guiding around the plant to question a worker why he is using a larger soldering iron than necessary. If they want to discard some old office furniture, they have to do it while he isn't looking. His own office is big, neat, but cheaply furnished, decorated with a chart of nuclides and a chart of the electromagnetic spectrum.

But he is still willing to "shoot the

works" whenever the situation requires, even if it means straining his resources to the limit. One of his biggest gambles on behalf of Tracerlab was buying Kelekel, a fifty-year old X-ray company with factories in Covington, Kentucky and Cincinnati, Ohio—a firm doing more than three times the volume of Tracerlab's business.

Dr. Wendell Peacock, Tracerlab's other pillar, started off in the direction of becoming a "pure" scientist, worked as such for many years, but of late has developed a sense for the more material things in life. It's a relatively recent development.

HE IS one of the top nuclear experts and has played a part in almost every atomic test since Eniwetok," says an associate, "but he is no Oppenheimer who wouldn't know what's doing in the outside world."

A tall, soft-spoken man of thirty-three with graying hair, Dr. Peacock looks ten years older than his age, has never had time for any hobbies and has not felt the need for them. As a boy of ten in Salt Lake City he tried to take the magnetism out of magnets and ever since has been absorbed by physics. He graduated with honors from the University of Utah, got a fellowship at the University of Washington, but he wasn't satisfied.

"Out there all they really care about is football," he says. So he got himself a job as a research assistant at M.I.T., took the bus east with his wife and set up housekeeping. His possessions consisted of not much more than a spoon and two sets of knives and forks. He worked with the group that developed the cyclotron, concentrating entirely on the radioactivity center.

"I feel like a farmer who happened to live where they struck oil," says Dr. Peacock modestly about his association with nuclear science. During the war he worked with tracers to find a method for preserving whole blood, staying at M.I.T. while most of his colleagues went on to Los Alamos. But six months after the founding of Tracerlab the government asked him to go to Oak Ridge to help classify and grade isotopes. From there he went to the Sloan-Kettering Institute in New York to do research on the medical applications of atomic energy.

Having saved some money at Oak Ridge, Dr. Peacock bought a house in Westchester, suddenly discovered the pleasures of trading, and from then on kept buying and selling houses and cars "graphing out" in scientific fashion the pros and cons of his deals and making out well in the end. But before he went into these ventures he boned up on real estate and automobile engines, frequently startling brokers and mechanics with his unsuspected knowledge. And when he returned to Tracerlab in 1951 as vice president and technical director, he boned up on business administration.

Dr. Peacock's favorite morning greeting to his associates is: "Last night I was working on . . ." and then he pulls out the laundry wrapper of a shirt covered with formulas to show how during the night he solved some problem one of his 175 scientists was wrestling with the day before. Incidentally, instead of talking to each other, these scientists write on big blackboards, one of which you find in every office at Tracerlab.

Although most of the things Tracerlab does are beyond the ken of the man in the street, its fame has penetrated to the general public. It even received recognition from Arthur Godfrey and Captain Video. Godfrey had Dr. Peacock guesting on his show, and when some of the teen-agers giggled because the doctor sounded as if he were talking Chinese, Godfrey made TV history by calling them down in no uncertain terms. And Captain Video honored Tracerlab by using its Cutie Pie in tracking down some villains on a distant planet.

Such publicity was bound to draw dozens of odd ideas and screwball requests. A Wellesley woman wanted to buy a "ray detector" to check whether the communist spies she knew lived next door were sending thought rays through the walls of her house in order to pick her brains.

To catch shoplifters, a large New York clothing store wanted to impregnate its price tags with isotopes and set up Geiger counters near the exits. An amateur sleuth suggested that dollar bills used for ransom payments be tagged, so the kidnapers could be found with Geiger counters. A hospital wanted to tag its surgical pads so they wouldn't be forgotten inside the patients' bodies, and a ladies' underwear manufacturer asked to tag his nylon panties and bras to eliminate static—technically a sound idea but dangerous in application. In all of these cases the AEC refused to okay the use of isotopes—and its approval is necessary for all sales, with the exception of very minute quantities.

BUT even the AEC nearly got fooled by Stuart, a fourteen-year old quiz kid in New Jersey whose father apparently has money to burn. For five years Stuart had been buying weak isotopes in small quantities and had spent a young fortune on Geiger counters, dosemeters and all sorts of atomic accessories. Then one day he came through with an order for one curie of Cobalt-60. More or less jokingly, Tracerlab sent him an application form, was amazed to see it come back with AEC approval. Examination revealed that the form doesn't ask an applicant's age but it does ask about his experience in handling radioactive materials. Stuart truthfully claimed five years of such experience. But he never got his Cobalt-60, and ever since that time the AEC periodically checks to see that Stuart isn't in the process of blowing his home town off the map.

One of the ideal things about Tracerlab's setup is that it seems to have the world coming and going, a brilliant coup for any business. If they interest a company in buying any radioactive material, they then also supply the equipment to handle it with and then supply the protective devices to safeguard the personnel

working with the hot stuff. As a final step they also process the safety badges which all workers with radiation are required to wear. This sort of mushrooming arrangement is hard to beat.

From one full-time employe in 1946, Tracerlab has grown to a payroll of more than one thousand people. It has established service branches in twenty-three cities, has a new ultra-modern plant going up in Richmond, California, has a European subsidiary in Paris and is doing business in thirty-three countries.

Despite their denials, it would be smart not to make any mistakes about the future of men like Barbour and Peacock and others at Tracerlab. They are convinced that the world will be run by atomic energy and power—and sooner than most people realize. Right now the fantastically successful Tracerlab, in competition with some of the biggest corporations in America, controls some twenty-five per cent of all atomic by-product and instrument sales. If they can hold onto this ratio (and the men are leaving all profits in the business, banking on research to come up with more and more new ideas) Tracerlab may well turn out to be the General Electric or General Motors of the atomic era.

With dreams like this and with an assurance consistently proved right, it is scant wonder that neither Barbour nor Peacock show the slightest touchiness when their friend and attorney, Bob Luick, says with a sad shake of his head, "I have never seen a less mature bunch of young men going into business." • •

The Kill of the Graf Spee

Continued from page 31

Captain, but I will have to sink your ship. It is war."

Turning toward the lifeless *Clement*, Langsdorff waited until the lifeboats carrying the British crew were out of danger. Then he ordered his gunners to open fire. The sharp clang of steel on steel shot across the thousand yards of shimmering water which separated the two ships. Slowly the *Clement* listed and then heeled over sharply with a widening blanket of oil spreading around her.

Langsdorff wanted to be far away when the *Clement's* crew got ashore and spread the alarm. So he turned his ship around and headed in the opposite direction, for the coast of Africa.

During the first week of October he crossed the Freetown-Cape Town trade routes and found richer game. Before the month was out the *Spee* sent four more victims to the bottom: the *Newton Beach*, *Ashlea*, *Huntsman* and *Trevanion*, all British.

Langsdorff could accommodate the masters of the sunken ships but the crews were another problem. There was not enough room on board for them. Since most of the sinkings had taken place more than a thousand miles off the west coast of Africa, Langsdorff knew that chances were slim of ever navigating the distance in open boats. Refusing to leave the British sailors to the mercy of the sea, he packed them on board his ship. Later he transferred them to the *Altmark* during one of her scheduled meetings with the *Spee*.

NOVEMBER was lean. Langsdorff made a wide sweep around the southern tip of Africa without sighting another ship. Toward the middle of the month he turned toward the southeast coast of Africa in the vicinity of Lourenco Marques. On the fifteenth of the month the *Spee's* lookouts sighted a small British tanker, the *Africa Shell*, which attempted to make a rash run for the safety of territorial waters where it would be immune from attack. For the first time Langsdorff threatened bloodshed. He sent a shell plummeting off her bow and the *Africa Shell* came to a stop. Under strenuous British claims that the ship was not a prize of war and German claims that she was, the crew and officers were taken off and the *Africa Shell* sent shuddering to the bottom.

After the sinking, feeling his position was increasingly unsure, Langsdorff backtracked, entering the South Atlantic.

The month of December began favorably. On the second day the *Spee* intercepted the *Doric Star*. To bring the British ship to a halt Langsdorff fired a shot across her bow. As the German battleship made her approach, one of her radio operators who had been monitoring the British frequency copied down the following signal:

S 20 10 E 6 15 gunned by battleship. Doric Star.

For Langsdorff the message spelled danger. To his signalman he barked: "Tell them not to transmit by wireless or we'll open fire."

The message was sent and the radioman returned to his station to listen for further transmissions. The *Doric Star* remained silent. Langsdorff bit his lip. There was a chance that the message would be picked up by the British Admiralty. If so, he would have to speed out of the area.

Leaning over the bridge, he shouted, "Embark the British crew." There was a trace of anxiety in his voice for the first time. He called a sharp order to the turret forward. The *Spee's* guns swung around to the *Doric Star*. Spears of flame shot out and the British ship trembled as the heavy projectiles ripped through her plating. Slowly she listed, then went down in a boiling sea of foam. Immediately Langsdorff set his ship on a southwesterly course.

In case there were any British warships in the vicinity Langsdorff rigged a dummy funnel mounted on a false forward turret. The Nazi ensign was hauled down and replaced by a French flag. But with this disguise it wasn't a British warship that he met but another merchantman, the *Tairoa*. This happened only twenty-four hours after he had holed the *Doric Star*.

The master of the *Tairoa*, Captain Starr, wasn't fooled by the disguise. He quickly ordered his operator to send:

Lat 21 degrees 38 minutes S Long 3 degrees 13 minutes W attacked by German battleship Admiral Scheer.

Starr guessed the wrong ship but was close enough for the British Admiralty. The *Spee* was a sister ship of the *Scheer*.

Langsdorff immediately sent his warning message to the *Tairoa* not to use her wireless. But the operator, P. J. Cummins, ignored the threat and repeated the signal. He was in the middle of the third transmission when the *Graf Spee* opened fire with a well-aimed shot from one of her smaller guns that tore into the wireless room, destroying the equipment and wounding several men.

The *Spee's* fire halted further transmissions from the British ship. The *Tairoa's* officers and crew were taken on board the German ship and the merchantman was sunk by gunfire. Langsdorff sent for the wireless operator, Cummins, and congratulated him for his bravery in the face of enemy fire. Then he turned to his large chart of the South Atlantic and studied the situation.

He had been operating for a little more than three months and had sunk eight British ships, totaling more than 45,000 tons, without the loss of a single life. Most of his victims had been bagged along the African trade routes, and he was momentarily tempted to remain a little longer to increase his score. But the risk was now too great. Within the past twenty-four hours his position had been reported twice. If either of the signals had been picked up, the whole British fleet would be out hunting for him. He could take no more chances in African waters. He changed course to the west and headed for the shipping lanes off the coast of South America.

THREE days later he kept a rendezvous with the *Altmark* and transferred most of the British captives. The next day, still pressing hard on a westerly course, Langsdorff converged with the *Streonshalh* and sank her after embarking her crew. His latest victim did not transmit a message, so Langsdorff saw no reason to change his plans.

His estimate of the situation had been correct. The British Admiralty *did* pick up the signals from the *Doric Star* and the *Tairoa*. What he did not know was that the British were at that very moment trying to outguess him.

It was Commodore Harwood, Commander of the South American Division of the British Fleet, who was ordered to track down the *Spee* from information based on the reports of the sunken merchantmen. Harwood had under his com-

mand the light cruiser *Ajax*, flying his flag, and the heavy cruiser *Exeter*, carrying six eight-inch guns. At the outbreak of the war his force had been increased by a loan from the New Zealand Navy and another light cruiser, the *Achilles*, which, like the *Ajax*, carried six-inch guns. A fourth cruiser, the *Cumberland*, was at the time replenishing at the Falkland Islands.

Harwood knew that the *Graf Spee* could fire a broadside of better than two tons of steel, while the combined broadsides of his three available cruisers amounted to just a little more than 3,000 pounds. But on his side was speed. So he sent a message to his ships to attack at once by day or night as soon as the enemy was sighted. The big question was: Where?

The South Atlantic is a broad ocean, 4,000 miles from the Cape of Good Hope to Cape Horn. There was plenty of room for a pocket battleship to hide in. But Commodore Harwood had a sailor's instinct and decided to play a long shot. He convinced himself that the raider, knowing her position had twice been given away, would quickly clear out of the area of South Africa and head for South America.

THERE were three points the German ship might head for: the Falkland Islands, Rio de Janeiro, or the River Plata. He decided on the last, for the River Plata, with its broad estuary, was like a nautical cornucopia, spilling out a continuous stream of ships laden with valuable cargoes of meat and grain.

Having estimated where he might meet the raider, he had to decide when. Harwood figured that his quarry would be cruising at her most economical speed of fifteen knots. If he was right, the German ship would arrive off the approaches to the Plata on the morning of the thirteenth of December. Harwood was now ready to play his hand. He ordered his cruisers to steam for the River Plata.

The morning of the thirteenth was clear and the sun rose a few minutes before six o'clock. At this time the British force was streaming in column formation on a northerly course of fourteen knots and was approximately 250 miles east of Montevideo.

In the meantime, Langsdorff had already brought the *Graf Spee* to within 150 miles of the coast of Brazil without sighting any merchant ships, and was now outbound on a southeasterly course, crossing the shipping lanes out of the Plata area. At six o'clock he was about twelve miles northwest of the British force and was heading directly from it. A few minutes passed. Then a lookout on the *Spee*'s foretop called to the bridge: "Masts sighted dead ahead."

Langsdorff raced to the bridge, grabbed his binoculars and fixed his eyes on the horizon to the southeast. He caught the masts in his glasses. By six-ten he was able to make out the outline of the ships.

"Looks like a cruiser and two destroyers," he said. "We'll hold course for a little while."

Since the British were running at right angles to the bow of the *Spee*, Langsdorff believed that he had not yet been discovered. Convinced that the sighted ships were two destroyers and a cruiser, he reasoned that they must comprise an escort screen for a convoy that was still below the horizon.

At that moment Langsdorff had a terrible decision to make. If he engaged the enemy warships he would be violating his orders, which told him to avoid contact with enemy naval forces. If he ran away he'd be passing up a chance to smash into the heart of an Allied convoy which he was certain was pushing ahead lazily just out of sight.

"Stand by for action," he called. Then he climbed to the foretop, which was to be his command post during the engagement. At six-fifteen all guns were reported as ready. Three minutes passed. The range closed to ten miles. Langsdorff then shouted his command. "Commence firing."

The *Spee*'s eleven-inch guns snapped in the shock of recoil and a spread of projectiles, weighing 670 pounds apiece, went whistling toward the enemy. Through his glasses Langsdorff watched the shells kick up plumes of water just short of the British ships. The German guns were being reloaded when the Brit-

Death throes of the *Graf Spee*. Ten minutes later ship was underwater.

Capt. Langsdorff read paper, went home, put bullet through his head.

ish force divided. The *Exeter* turned sharply to the west while the lighter cruisers, *Ajax* and *Achilles*, which Langsdorff still thought were destroyers, altered their course to the northwest and headed directly for the *Spee*.

At that moment Langsdorff recognized his mistake. "They're all cruisers!" It was too late. He had already committed himself to action. The British cruisers, he knew, were faster than the *Spee*. His only hope was to finish them off with his superior guns before they worked up to full speed.

Promptly Langsdorff swung all his guns on the heavier *Exeter*, which was approaching the *Graf Spee* now from the southeast, and ignored the two light cruisers, still ten miles away.

At six-twenty, Langsdorff, chewing on the end of a cigar, observed the *Exeter* open fire at 19,000 yards. He answered, but no hits were scored. Within the next few minutes both the *Ajax* and *Achilles*, rapidly working up to their full speed of thirty-one knots, fired a salvo at the German battleship.

Although the shells fell short, Langsdorff was now in trouble. The light cruisers, even with their smaller guns, had a tremendous advantage in speed. Two of them could keep both of the *Spee's* turrets busy while the third cruiser might close the range enough to get in a damaging hit.

The *Spee's* third salvo detonated close aboard the *Exeter*, killing the torpedo crew on the starboard side, wrecking communications and spraying shards of steel along the superstructure. Langsdorff watched another salvo strike with a fiery burst on one of the *Exeter's* forward turrets. This was followed by two more direct hits. Langsdorff then turned his eyes to the *Ajax* and *Achilles*.

At that moment the battered *Exeter* found the range and laid an eight-inch shell in the *Spee's* galley. Water lines were severed. Foodstuffs and cooking utensils spilled out of their lockers. Tables were torn from their deck bolts. Other shells from the *Exeter* ripped into the torpedo room, the fire-control station and the living spaces. Pieces of whirling steel spattered the bridge.

LANGSDORFF threw his hands to his face. When he brought them away, a thin trickle of blood ran down his cheek. Below decks, rescue parties were dragging the bodies of the wounded and the dead from the shattered compartments. Langsdorff called for a report of the damage. In a few minutes he learned that there were no hits below the waterline and his guns were still working.

During the brief encounter Langsdorff gradually changed course to the north, then again to the east. The *Exeter's* shells were now falling wide. But at the same time, the *Ajax* and *Achilles* were slowly veering to the right and pointing their bows to the north. At six-thirty, guessing that the light cruisers were trying to sweep around his bow, Langsdorff shifted one of his eleven-inch turrets to them, keeping the other one on the *Exeter*. Two minutes after he split his armament the *Exeter* released her starboard torpedoes into the broad swells, rolling out of the southeast. But long before they had a chance to strike, a sharp-eyed lookout on the *Spee's* foretop picked up their telltale wake. Langsdorff called for a sharp emergency turn to the left, set his ship on a westerly course and concealed his movements with a billowing smoke screen.

THE fresh breeze blowing out of the southeast carried the smoke over the *Graf Spee* like a dark blanket, and for several minutes Langsdorff lost touch with the British ships. Riding out of it, the German captain saw that the *Exeter* was now hauling around to the east. It was clear that she was bringing her port torpedoes to bear, and he ordered his gunnery officer to open fire. The *Spee* was still on the target. One of her shells struck the *Exeter's* forward turret and another exploded inside the ship, starting a fire, destroying the last of her internal communications and putting the gyro compass out of action.

Langsdorff watched the spiraling column of black smoke rising slowly from the forecastle of the *Exeter*. But she was a fighter who wouldn't go down. At six-forty-three she fired her port torpedoes, but her aim was bad and the slender, deadly missiles went wide. A few minutes later she brought her rudder over sharply to the left and set herself on a course roughly parallel to the *Spee's*, all the while pumping eight-inch shells at the German battleship from her two after turrets.

The *Exeter* was then about six miles to the south. Through his glasses Langsdorff studied her movements. He saw that she had already developed a marked list to starboard and he knew now that she wouldn't be able to remain in the battle. He turned his attention to the *Ajax* and *Achilles*. Eight miles to the east of the *Graf Spee* they were throwing up clouds of spray as they burrowed into the swells at their best speeds.

Shortly after seven o'clock, as the listing *Exeter* moved slowly to the southwest to lick her wounds, the other cruisers adjusted their course slightly to the right and were keeping up a continuous fire of six-inch projectiles. Less than a half hour before, the *Ajax* had catapulted her aircraft, and the plane was now circling high above the battle, ready to report hits on the *Spee*.

The two light cruisers were closing the range rapidly and the German battleship, with all her superior fire power, was not able to score a telling hit. After several salvos the *Spee's* gunnery officer called up to Captain Langsdorff and told him that he thought the heavy German shells were passing through the thin armor of the British ships without inflicting any serious damage. At this point Langsdorff debated whether he should take a calculated risk by turning toward the cruisers in an effort to sink them. He decided the risk was too great, so he resolved to break off the engagement.

Grabbing the control telephone, he informed the officer-of-the-deck that he intended to lose the British cruisers, if possible, by breaking his course frequently and using intermittent smoke screens.

But it was at this same time that Commodore Harwood decided that he must close the range at all cost. By seven-fifteen, the cruisers were only five and a half miles behind the *Spee*. A minute later the German ship opened with a trembling barrage of heavy shells; and as they whirled toward their target, the *Spee* let out a thick, swirling smoke screen and turned her bow to the south.

Spouts of water mushroomed up all around the British ships. The *Ajax* was straddled three times by thunderous salvos from the *Spee*, but no hits were scored. The British retaliated and tore several holes in the hull of the German ship. These were all above the waterline, however, and did no serious damage.

At seven-twenty-five the situation began to change. The *Ajax* took a direct hit on one of her after turrets. The shell ripped through the barbette of the second turret and jammed the machinery, putting all four after guns out of action. But she still cracked on her speed, closed the range to four and a half miles and let go a spread of torpedoes. They were well-aimed and would have punched their way into the *Spee's* hull, but they broke the surface, were spotted by a lookout, and Langsdorff easily turned his ship out of their track.

AS THE closest one shuttled down the starboard side of the *Spee*, Langsdorff ordered right rudder and put his ship once more on a westerly course.

By this time the British cruisers were just four miles to the northeast of the German battleship. Suddenly the British shells began to land repeatedly, glancing off the armored turrets or tearing holes in the ship's hull and deck plating.

About seven-thirty the *Ajax* and *Achilles* altered their course to the left and headed for the *Graf Spee's* wake as Langsdorff, firing salvo after salvo, dodged the British shells. Slowly the cruisers turned southward. And as they turned, a shell from the *Spee*, flying high, struck the *Ajax's* mainmast, cutting it in two and destroying the ship's aerial. But the wide-sweeping maneuver of the cruisers continued and soon they were heading on an easterly course away from the German battleship.

The range was now opening rapidly and Langsdorff closed his eyes in relief. But his relief didn't last. At about seven-forty-five, when the distance had opened to fifteen miles, the two cruisers turned around to the right and began shadowing the *Graf Spee* at the extreme limit of the German guns. The *Ajax* dropped slightly to the left of the *Spee's* course, and the *Achilles* to the right.

Langsdorff's situation was now desperate. He knew that the British cruisers could close the range at will, or open it if he chose to turn around and attack. As they followed him with impunity, just

outside the maximum range of his guns. they would be signaling to other British units to close in for the kill. An escape during the night was impossible. The German engineering officer had already sent up ominous reports that the *Spee's* fuel was desperately low. He had only one chance—to push ahead for the nearest neutral port, refuel his ship and return to sea, taking what chances he had to with the light cruisers.

For the moment, at least, there was no danger, so Langsdorff left his battle station and made a tour of inspection. The damage the British guns had inflicted was disheartening. The *Spee* had been punctured in many places by six- and eight-inch shells. One large hole yawned widely at the rolling sea, and up forward several smaller ones let daylight into the forecastle. All the ship's cooking facilities, except one small galley, were inoperative. Worst of all, water had ruined much of the ship's flour.

Even more serious, the *Spee* had used up more than half of her eleven-inch ammunition and had enough for only fifty more salvos. And her fuel tanks, because she had raced so long at full speed, were almost empty. With a feeling of deep regret, Langsdorff viewed the bodies of his dead: one officer and thirty-five men.

Langsdorff's only consolation was the fact that his engines had been spared, his guns were still working, and the sea wasn't pouring into the bilges. If things remained as they were he'd be able to reach the South American coast before his fuel ran out.

He climbed to the bridge again and studied the charts laid out on the navigating table. After a short discussion with several of his officers, he decided to point the *Spee* toward the closest neutral port. It was Montevideo.

For the next two hours Langsdorff stayed on the bridge, watching the pursuing cruisers. Then, a few minutes after ten o'clock, the *Spee's* range finder spied the *Achilles* approaching the German ship at a distance of less than thirteen miles, well within the effective range of Langsdorff's guns. In answer to this flaunting gesture he ordered his stern turret to open fire.

The first salvo went wide, but the second plummeted close aboard the British ship. The *Achilles* wasted no time in turning around to the east and pouring out a dense screen of black smoke. For both Langsdorff and Harwood the balance was now struck.

At about eleven o'clock Langsdorff spotted the outline of a British merchant steamer in his glasses. With the two cruisers tailing him with dogged persistence, he was in no position to attempt sinking her. But he got an idea. Turning to his signalman, he worded his message in slow syllables:

> *To the* Ajax *and* Achilles *from the* Admiral Graf Spee. *Please pick up lifeboats of English steamer.*

He hoped the trick might slow the British cruisers just enough to enable him to drop below the horizon.

But Harwood didn't fall for the ruse. He signaled the British merchantman—she proved to be the *S.S. Shakespeare*—and learned that she needed no assistance. This he did without reducing speed. So the chase went on.

It went on without a change for the next eight hours. Then at seven-fifteen, after finishing his evening meal, Langsdorff went to the bridge. The *Ajax* had closed the range slightly, so he opened up with two thundering salvos. The shells went wide but they forced the cruiser to reverse her course and open the range beyond the sting of the German guns.

BY EIGHT o'clock the *Graf Spee* was just south of Lobos Island, which rests a few miles off the Uruguayan coast. There the land turns to the west, shaping itself around the gigantic jaws of the Plata estuary. Less than fifty miles west of Lobos, well within the wide mouth of the river, was a stretch of shoaling sixteen miles long, called the Banco Ingles. At low tide, in certain spots, it is only three feet deep, and white-capped breakers grumble over the graves of submerged wrecks half buried in the sand.

Langsdorff set his course to pass just north of the shoals and head his ship for the approaches to Montevideo. At this time Harwood turned his flagship, the *Ajax*, slightly to the left so he'd pass the Banco Ingles to the south. His course change was calculated to catch the *Spee* if she tried to escape by turning behind the shoals. In the meantime the *Achilles*, ordered to continue the stern chase, passed between Lobos Island and the seaside resort of Punta del Este on the mainland.

Just before nine o'clock, a few minutes before the sun slipped below the horizon, the *Graf Spee* poured out a smoke screen, turned for a broadside and fired three ringing salvos at the *Achilles*. The British cruiser returned the fire but neither ship chalked up any hits.

As dusk fell, the *Achilles* increased her speed in order to maintain visual contact with the German battleship. Again at nine-thirty, the *Spee* turned and fired, but all her projectiles fell short.

By ten o'clock the *Achilles*, still pressing to close the range and keep the *Spee* in sight in the darkness, was just five miles astern of the German ship. By then the *Spee* was passing north of the Banco Ingles and had adjusted her course for the Montevideo channel fifteen miles away. Since Langsdorff made no erratic course changes after this, Harwood knew that the German captain had no intention of trying to escape. So at eleven o'clock, after the *Graf Spee* entered the channel, Harwood called off the chase and began patrolling offshore.

From his bridge, Langsdorff could see the flashes of El Cerro, the lighthouse perched on the top of the hill west of the city. To his right lay Montevideo like a flickering blanket of colored lights. Then from the shore a bright searchlight pierced the darkness. The *Spee* answered, giving her name and requesting permission to enter port. In a few min-

utes the shore station opened its light again and assigned the German battleship an anchorage in the harbor. When this was done Langsdorff sent for one of his officers, Lieutenant Hertzberg, who spoke English well, and instructed him to tell the British prisoners that they were in Montevideo and would be released the next day.

It was midnight when the *Graf Spee's* heavy anchor chains rattled through the hawse pipes and her anchor bit into the mud of the harbor.

Shortly after the *Spee's* arrival, the British tanker *Olynthus* nosed her way out of the harbor to fuel Commodore Harwood's cruisers. When their tanks were filled they continued their patrol, setting a death watch on the *Spee*.

From the moment the German ship arrived in Montevideo she was spotlighted by the radio and press of all countries. Now Langsdorff had a new battle to fight—a battle of diplomacy. The job of patching up the many holes in the *Spee's* hull was too much for the ship's crew. It was true that all the damage was above the water line and in a calm sea the ship's torn hull wouldn't have mattered. But Langsdorff's next port of call would be home. To get there he would have to creep into the North Atlantic, where wintry seas would pound against his ship's shattered hull.

He needed two weeks for the welders to cut away the jagged wreckage and cover the shell holes with steel plate. So the German ambassador at Montevideo, after talking with Langsdorff, asked the Uruguayan government to let the Nazi ship stay in port for fourteen days. Immediately the British and French ambassadors protested, reminding the Uruguayans that the *Spee*, a belligerent warship, was entitled to the protection of the harbor for only twenty-four hours, according to international law.

The German ambassador retorted that the twenty-four-hour limit applied only to ships that were seaworthy. The *Graf Spee*, with gaping holes along her sides, obviously did not fit that category.

THE Uruguayans settled their dilemma very simply. They appointed a special commission to investigate the extent of the Spee's damage. The commission gave its report. Fifteen holes on the starboard side, twelve on the port. It agreed with the German ambassador that the *Graf Spee* was not seaworthy at the moment, but it suggested that she might be made seaworthy within the next seventy-two hours. Further German arguments were of no avail. On the fifteenth of December Langsdorff got the word.

But there was still a chance. By shoring up the damage with stout timbers and filling his tanks to capacity, Langsdorff might still be able to run the gantlet and get to the open sea. It was a small hope, but at least his ship would go down fighting.

Langsdorff was turning this idea over in his mind as his eyes traveled over the forecastle of his ship. There, in the gray light of evening, he saw the thirty-six flag-draped coffins of his dead, resting in orderly rows. An honor guard of young sailors watched over them.

Langsdorff was greatly troubled by this loss. He followed the coffins the next morning as they were loaded on a barge. He watched them as they were brought to the dock. There were several wreaths already waiting, and among them was one from the British captains who had lately been prisoners of the *Spee*. It read:

To the memory of the brave men of the sea from their comrades of the British merchant service.

The coffins were loaded on several trucks and taken to the North Cemetery, where they went into a common grave.

After the mass funeral, Langsdorff returned to the *Spee*. Time was running out. Only the battered *Ajax* and *Achilles* were standing outside the harbor, ready to oppose the more powerful German ship. In an act of desperation, Langsdorff might fight his way through the British force. The *Cumberland*, now steaming full speed from the Falkland Islands, couldn't possibly arrive off the Plata estuary before the seventeenth of the month. The aircraft carrier *Ark Royal* and the battle cruiser *Renown* were far to the north off Pernambuco and would have to steam 2,500 sea miles to get to Montevideo. The British either had to sink the *Graf Spee* or keep her bottled up in the harbor. The plan the British adopted was psychological.

A fabricated story was circulated around Montevideo that the *Cumberland*, the *Ark Royal* and the *Renown* had already arrived and were waiting at sea for the *Spee* to leave the harbor. Langsdorff had no way of checking the story, so he swallowed it. He sent a dispatch to Berlin, explaining the situation. Then he went on:

Close blockade at night. A breakthrough for home hopeless.

The brains behind the German Bureau of Naval Operations was Commander Wagner. He didn't like the tone of Langsdorff's message, and he argued that it was impossible for the *Ark Royal* and the *Renown* to be off the Plata River. But Admiral Otto Schniewind, the German Chief of Naval Staff, felt that Langsdorff must have made certain of his facts before he reported them.

For a moment the German Naval High Command considered the question of internment. But this idea was rejected because the Germans did not trust Uruguay's continued neutrality in the war.

Langsdorff's estimate of the situation convinced him that an attempt to break out into the open sea was foredoomed. And since internment was vetoed by Berlin, he had only one choice left. The *Spee* must be destroyed by his command. As a final precaution, Grand Admiral Raeder drafted a dispatch to Langsdorff, urging him to make the *Spee's* destruction complete if scuttling the ship seemed inevitable.

In the calm of the evening of the sixteenth of December, Captain Langsdorff sat down and wrote a letter to Dr. Langmann, the German ambassador at Montevideo, advising him of his decision to destroy the *Spee*. His letter also made it clear that he linked his own fate with that of his ship.

During the afternoon of the seventeenth Hans Langsdorff transferred his married officers and enlisted men to the German tanker *Tacoma*, which was tied up in Montevideo harbor. With a few officers and a handful of young sailors he ordered his ship to get underway.

It was twenty minutes after six in the evening. The *Spee's* broad-fluked anchors were hauled in. Her engines began to turn and she glided slowly out of the harbor, followed by the *Tacoma*, two tugs and a motor launch. Thousands of Uruguayans watched the funeral procession from the shore.

Later, as the British cruisers moved in from sea for the kill, the *Spee* nosed around to the west. When Langsdorff had his ship six miles to the southwest of Montevideo, well out of the channel, he ordered her engines stopped.

AT ABOUT half past eight Captain Langsdorff, grief-stricken and pale, watched his men carry the warhead of a torpedo into the ammunition spaces. A long roll of wire was attached to the charge and then carried above decks. Then it was lowered into one of the boats standing by. When this was done, Langsdorff sent his officers and crew over the side. Then he swung himself over the rail and climbed to the deck of the tug *Coloso*, chartered by the Germans.

The coil of wire was reeled out. The boats moved away from the doomed battleship. At eight-fifty-four, Langsdorff pressed his nervous fingers to a button attached to the cable—and it happened. The first heavy explosion shuddered in the bowels of the *Graf Spee* and rumbled like a roll of thunder across the water. Langsdorff saluted his ship, and then turned his back.

A second mighty explosion shattered the ship, flinging fire-scarred wreckage across the water, blowing most of her superstructure away and sending huge balls of flame into the air. Water rushed into the opened seams and gurgled through the honeycombed compartments. Her tanks were ruptured, releasing a stream of fuel oil that bled into the sea, bubbled to the surface and caught fire. In a field of flame the *Graf Spee* slowly settled in her shallow grave. And so she rested, in less than thirty feet of water, with smoke and flame swirling about her decks, and her stack and tower silhouetted grimly against the darkening sky.

Hours later Langsdorff stepped from the tug onto Argentine soil. "I am satisfied," he said as he glanced once more to sea, "that I have saved all my men." The next evening he held a meeting with his officers, formed them in a circle and shook their hands. It was his farewell.

On the morning of the twentieth, an aide found Captain Langsdorff dead, a bullet hole in his forehead. By this time the fires on his ship had long since burned themselves out. • • •

Football's Richest Faker *Continued from page 43*

"ANSWER: *The Battle of Sweeny's Bar and Grill, South Bend, Indiana.*"

"QUESTION: What war decorations did you win? Why?"

"ANSWER: *The American Theater Ribbon. I was in America. The Victory Medal. I was on the winning side.*"

"QUESTION: Who is your favorite athlete?"

"ANSWER: *Modesty prohibits me from answering this.*"

Ratterman is a bohemian even on the ball field. In the pregame drill, while rival quarterbacks loosen up in the conventional way (i.e.: duck-walking, toe-touching, pass-throwing) Ratterman carefully rubs his hands together for several minutes, shaking them and slowly swinging them back and forth; marches with military steps up and down the sidelines, feeling for the proper sense of timing; squats on one knee and lofts passes down the field—to toughen his wrists.

By the time the game has begun, Ratterman has co-ordinated his feet, his hands, his right arm and his intellect. Now all he has to do is wait to break into the lineup.

When he is in the game, there is always the devastating possibility that his teammates will be deceived by his sleight of hand. During one third-quarter drive against San Francisco in 1950 while he was with the Yanks, two Yank substitutes hopped off the bench, exhorting halfback George Taliaferro up field after he had broken into the clear via a Ratterman hand-off. At least that's the way it looked. The scrubs sat back sadly as an enemy halfback pulled Taliaferro to a stop. Only Taliaferro was without the ball. Ratterman, all by himself, lifted it from behind an elbow and arched a twenty-yard pass to his left end.

AT TIMES Ratterman feels called upon to supplement his offensive signals with stiff jolts of practical psychology. In the huddle, he jokes, curses, ridicules or delivers fiery pep talks, depending on the down, the yardage and the score. Once, at the peak of a fourth-quarter march when he was with Buffalo, Ratterman stepped into the huddle, doubled over and scanned the ring of sweaty faces awaiting the signal. He paused and stared at Jack Carpenter, a caveman lineman.

"Carpenter!"

The big tackle blinked once and shook his head.

"Carpenter, you're the ugliest man I ever saw."

Team tension, stretched tight from the long drive up field, loosened with the laughter, and Buffalo scored on the next play.

Ratterman did other things besides play football during his tenure at Buffalo. One day he walked past the Buffalo Concert Hall; it reminded him of the ten years he had dedicated to piano practice. Two weeks later several hundred music lovers turned up to hear George play piano selections with an eighty-piece symphony orchestra.

The following season he found another profitable outlet for his talents. A radio producer who heard him on one of the typical interview programs liked Ratterman's voice. He signed George to a radio and television contract.

Radio and television, unfortunately, were not Ratterman's meat. On one program he delivered a long enthusiastic commercial about the luggage on sale at the sponsor's store—naming a rival firm. Ratterman's announcing career soon came to a rather abrupt end.

In 1949, the honeymoon at Buffalo ended. Ratterman felt himself at odds with the management over salary and decided to stay out of football that fall and take some law courses at Notre Dame.

Among the club owners in both leagues who looked on this decision as a waste of talent was Ted Collins, then well on his way to squandering a million dollars in pro football. Collins, owner of the New York Yanks, signed Ratterman to a three-year contract at $60,000 to take effect in 1950. The normal one-year holdover clause in professional contracts prevented Ratterman from playing with the Yanks in '49. But Buffalo officials took care of George. They signed him to a one-year contract without a holdover clause, at $23,000 for the season, which is what Ratterman was holding out for in the first place.

On a whim, Ratterman deserted the Yanks before the 1951 season, signing with the Montreal Alouettes of the Canadian League. He signed for the same $20,000 he would have received from the Yanks, but he also received business opportunities from the Alouettes' management.

Frankly, Ratterman was a bust in Canadian football. The fact that he never could run too well from the quarterback slot prevented him from making good. Canadian rules call on the quarterback to be something of a Red Grange as well as passer and ball handler. Ratterman quit Montreal in November, at the completion of the Canadian season, and rejoined the Yanks for the last half of the NFL schedule, for an additional $10,000.

Since then, the Ratterman family has been sitting pretty. The Ratterman household now numbers three daughters and one son between the ages of eight months and seven years.

"Only a sport like Ratterman can afford four children these days," says Ed Sharkey, a strong-arm guard with the Philadelphia Eagles.

Between seasons, Ratterman keeps fairly occupied with his own business in downtown Cincinnati, Ratterman and Company, Investments. Through many miscellaneous contacts and his own unpredictable charm, George has already built up an impressive string of clients.

His hobby these days, his obsession, if you will, is maps. For hours at a time he happily studies them, plotting distances, drawing up test itineraries, laugh-

ing at the odd names of small counties and farm towns.

Around the first of May, Ratterman goes into an annual ritual. He tapers off on his drinking by eliminating everything except for an occasional beer. At home he starts working with a football in front of the bedroom mirror, palming it, holding it for slants, spinning with it, taking half- and three-quarter pivots.

In mid-June he begins his own pre-practice workouts to put an edge on his wind and tighten the long muscles that have gone saggy since December. He also plays at least one vigorous set of tennis every day. "It works your legs and builds up the wind," he says. "And besides, I like the game because I can't find too many players who beat me."

The Rattermans occupy a large home in suburban Cincinnati. They play bridge, throw lavish dinner parties and occasionally drive off on long weekend trips south through the rolling Kentucky landscape. They do not, if they can help it, attend movies.

"Ann and I have seen one movie in the eight years we've been married," Ratterman says. "Of course, I have to go to the ones they stick me with the night before games."

The Browns coaching staff herds the entire squad to movies every Saturday night. Even then Ratterman has been known to make for the nearest exit once the theater darkens and he can get away without being seen.

There were many people who wondered how Ratterman would get along with Coach Paul Brown, who is a strict disciplinarian. So far, he's gotten along fine, and without losing any of his unusual charm.

Ratterman, of course, would be happier if he were allowed to play a more active role with the Browns. But at a salary of $15,000 a year, he keeps his complaints to himself. • • •

Trail's End *Continued from page 45*

murkily in the wind. There was a keen bite in this September night air and he had put on a coat over shirt and vest.

A hostler came slowly from the gloom of the stables and took the bay.

"Grain him good," he said and turned his back to the wind to make a cigarette.

The hostler lingered, observing this tall shape in the lantern's half light. "Travelin' through or stayin' awhile?" he asked.

The stranger licked the edge of paper and stuck the cylinder in his mouth. "How far to Hashknife?"

"That's a big outfit," the hostler answered cautiously. "The main spread's about twenty miles due north." He waited, but the man got a light, the cupped match flame casting shadows on his lean face, glinting on deep-set eyes beneath heavy brows.

He shook out the match and dropped it. "How far to Bell?"

"About fifteen miles east." There was surprise in the hostler's tone. "Which one?" But the man had turned away.

The hostler watched him cross the street and mount the hotel steps. For a moment the tall figure blotted the light from the open doorway. "Another one," he said and took the horse into the stable.

The girl behind the desk gave the newcomer the register to sign and laid a key beside it. "One flight up. Third door on your left."

"Is that in the front?" He paused in the middle of signing his name. The pen looked awkward in his big, work-toughened hand, and she thought swiftly, for no apparent reason, that a gun would fit better there.

She shook her head. "Back."

"Give me a front room," he said, and finished signing.

She flushed at the bruskness of tone, but got another key. Her hair was deep brown, pulled up high on her head, and the light from the hanging oil lamp made shiny hummocks in it. He stared at it, as though remembering something, his long flat fingers hefting the key, his glance so impersonal she could not take offense. His eyes fell to the arched brows, the eyes brown as the hair, and the curved mouth.

"You'll know me next time," she said.

He flushed a little and the present came back into his eyes. "Sorry. . . . Is the dining room open?"

"Not at this time of night, but there's a restaurant down the street."

He nodded, hoisted his war bag to his shoulder and tramped up the steps.

The girl's eyes followed him, curiosity in them. There was something about this big quiet man that was arresting. He was about thirty, and he did not look like the average foot-loose drifter. There was something vaguely familiar about him. She swung the register around and read his signature: Ben Croyden, Texas. She studied the angular letters, half smiling. Then, moved by sudden impulse, she hurried into the kitchen.

He dumped his war bag on the bed and stretched his long arms. He had been traveling since five that morning, as he had for a long succession of days, and weariness was deep-seated in him. But hunger was worse. He stripped to the waist, drank from the pitcher, filled the bowl and washed. He got out his razor and shaved, to be rid of the itchiness of a two-days' stubble. He combed his hair and went downstairs.

She beckoned to him from the doorway of the dining room when he came into the lobby. "That restaurant isn't much good so I fixed you a steak."

"You didn't have to bother, but seein' that you did, I won't let it go to waste." He smiled for the first time and followed her into the dining room.

She motioned him to a place at one side of a long table, went out and returned with a tray: steak, fried potatoes, bread and butter, coffee and a wedge of pie. She sat opposite him so she could see into the lobby and poured herself a cup of coffee, sipping it as she watched him. "Are you staying, or passing through?"

He shrugged without answering and his indifferent silence irritated her. "I suppose," she said sharply, "it depends on if you can hire out your gun."

He laid down his knife and fork and looked at her steadily. "Why do you say that?"

"The country's full of gun slicks." She added, "I'm Ida Farraway."

But the name seemed to mean nothing to him. "My brother, Steve, owns Hashknife," she said.

He picked up his fork. "Is Hashknife hiring gun hands?"

She nodded. "And so is Bell."

"What are they fighting about?"

"What do they ever fight about?" Her tone was bitter. "Grass and cattle."

He chewed silently for a moment. "These two ranches smack up against each other?"

"No. Shriner's Lazy S is between. That's what they're fighting about."

"How about Shriner?"

"He was killed," she said shortly, and left the room.

He finished eating, laid a half dollar beside his plate and went into the lobby. Ida Farraway was busy with accounts, her brown head bent over the ledger. He put an elbow on the desk and built a smoke. "You work late for hired help."

She looked up, a little pucker of concentration between her eyes. "It's my hotel. My father left it to me."

He was silent until he got his smoke going. "Ed Shriner—who killed him?"

"George Talyou, the owner of Bell." Her lip curled. "He shot him down while Shriner's arm was in a sling. . . . Why?"

"Just wondering. You didn't finish your story." He nodded and went out into the street and she stared after him into the blackness. There was a puzzle here; and then it came to her. She had not used Shriner's first name.

The windows of the Shamrock threw yellow blobs of light out onto the plank walk. He pushed through the batwings into a long room hazy with smoke

and found a place at the bar. The bartender pushed glass and bottle to him and he poured a drink and felt its violent shock run through him. He stood there idly, half turned, feeling his weariness. The place was better than half full, and tobacco smoke, whiskey and the sweaty smell of men made a heavy atmosphere.

A man at the end of the bar picked up his glass and came down and made a place for himself beside Croyden. He hooked a foot on the rail and filled his glass. "I hear you were askin' how far to Bell?" He was big, with wide shoulders and a blunt, smooth face.

"News travels fast," Croyden said.

"You lookin' for work?"

Croyden nodded. "If the job suits."

The man now put both elbows on the bar and crossed his arms. "I'm Art Hindus, Bell foreman. We're havin' a little trouble. You afraid of a fight?"

"Not if the pay's right."

"It's right." Hindus picked up his glass. "Be out in the morning." He moved back to his place at the end.

Croyden had another drink and went back to the hotel. It had been easy.

Ida Farraway was at the desk when he checked out in the morning. "Did you sign up?" she asked, eyeing his bag.

He nodded. "With Bell."

Surprise flared in her eyes. "Bell? I thought—" She bit her lip.

"You thought what?"

She shrugged. "It doesn't matter." Her brown eyes, steady and direct, studied him. "You have a lot of confidence."

"Enough," he admitted, studying her in return. She was a pretty girl with a crisp freshness that the heat could not wilt, and this morning her hair was pulled back into a coil at the nape of her neck, giving her a clean, chiseled look.

Ida took his payment and made an entry in her ledger. "I wonder what you'll be like," she murmured, "when you get through with Bell."

He could make nothing of this and it was on the tip of his tongue to ask what she meant. But she turned away and he picked up his war bag and went out.

Ida sat at the small desk behind the counter after he had gone. She picked up a pen and hesitated, nibbling the end of the holder. With the tiredness gone out of him he seemed younger than last night; he couldn't have been more than twenty-seven or -eight, and despite his bluntness of speech there was a quality about him she liked. She drew a sheet of note paper to her and began:

DEAR STEVE:—

THE headquarters of Bell was a two-story frame house, almost pretentious for this place and day. The outbuildings were of solid logs, some almost new, which showed that George Talyou was planning expansion. Art Hindus was standing beside the peeled-pole corral talking to another man when Ben Croyden rode in.

He swung around, cold blue eyes impatient. "You take your own sweet time."

"It's mine until I start drawin' pay." Croyden stepped from the saddle and watched color come into Hindus' face.

The other man put his hand on Hindus' arm. "We want them tough, Art."

"All right." Hindus planted his hands on his hips and shoved his jaw forward. "You're drawin' pay from this minute. . . . This is your boss, Mr. George Talyou."

Croyden nodded, hands busy with a cigarette. He had known without being told; Talyou's uncalloused hands, bench-made boots and quality clothing marked him as the owner. He was big but without his foreman's work-hardened brawn. Croyden sized him up as a man of money who attached great importance to belongings and position; one who had fed upon small victories until his self-esteem was great. It showed in the soft lines of his face and in his air of assurance.

Talyou nodded, strolled over to where Hindus was saddling up, and said a few words to him. Then he went toward the house.

Hindus swung up on his horse, crooked a finger at Croyden, and the two rode out of the yard.

"We're usin' Shriner's place for a line camp," he said as they rode north. "I've got a couple of men there, but Hashknife's crowdin' us. I'll drop you off to back 'em up."

IT WAS noontime when Hindus stopped his horse before the Shriner shack and swung down. He raised a shout, but there was no answer. He kicked the door open and went in. Croyden followed, feeling a tightness grow in him as he looked about the two-room shack—stove, table and chairs, in one room and, in the other, two bunks and a litter of gear.

"Throw your stuff in here," Hindus said. "You'll have to knock a bunk. I'll stick around until the boys get back." He tramped from the house.

Croyden took a deep breath. This was where he had hoped it would happen and he was lucky that the other two hands were not here.

He stepped outside and pulled his gun. "Turn around!"

Hindus turned, and amazement streaked his face. "What's that for?"

"Unbuckle your gun belt!"

A wary anger came into Art Hindus' eyes. He stared at the gun for a moment, then his fingers undid the buckle of his belt.

"Throw it up on the porch!" Croyden ordered.

Hindus heaved the belt, his face red with anger. "Now what?"

Croyden holstered his gun, unbuckled his own belt and tossed it after Hindus'. As he stepped forward, arms wide, Croyden hit him solidly in the face, driving him back. Hindus shook his head, ducked to take another blow on his forehead, and then they were slugging with ferocious intensity, great, rounding blows that jarred when they landed. The fight shifted around the hard-packed yard, their boots sending up flurries of dust that turned to gold in the hot sunlight, their breathing deep and heavy. Hindus got in an overhand blow that rocked

Croyden. He bored in, got him around the neck and used his weight to pull his head down while he slugged to the face.

Croyden took two of those hammerlike blows before he caught Hindus' hand and held it. He hit Hindus low in the belly, felt the arm loosen about his neck and pulled free, chopping Hindus twice to the side of the face. As Hindus whirled about, Croyden got in a terrible sledging blow to the stomach, and when the man doubled, drove a knee into his face.

Hindus went down flat on his back. He pushed himself up on his arms, shaking his head, while blood ran from his smashed lips. He lunged to his feet and came in again, the breath whistling in his throat. He got his arms around Croyden and brought up his knee, and when Croyden twisted away from it, he drove his heel down on the instep. He slashed at the eyes with a thorny thumbnail and put a gash in Croyden's cheek.

Then a fist caught Hindus full on the nose and he felt the bone go. Another blow took him solidly on the cheekbone, laying it open and shaking him up. He still fought, but his arms were losing their steam and his lungs were not big enough to hold all the air he needed. Croyden was steadily driving him back.

And now a cold fear touched Hindus. Croyden was not trying to knock him out, he was deliberately cutting him up, pounding him around the eyes and the fleshy parts of the face. A kind of panic filled him, but his rubbery legs could not run and his pride would not let him lie down. It was with almost a sense of relief that he saw a fist coming at his jaw and knew he could not dodge.

On widespread legs, Croyden sucked in great gasps of air. Blood ran down his face, and his shirt was torn half off. He walked slowly to the porch and buckled on his belt. Coming back, he bent over, lifted Hindus' right arm and pulled it stiffly out. He drew his gun, slammed the barrel down across the arm, once and yet again, until the bone snapped. A shudder ran through the unconscious man.

Some time later, Hindus hauled himself into the saddle, his right arm in a sling, and peered at Croyden through puffed eyes. "Why did you do it?"

Croyden shook his head. "You figure it out." But he was thinking, I can't kill a man while I'm drawing his pay. "Tell your boss," he said, "that I'm through," and watched Hindus ride slowly off.

He washed at the horse trough, had a smoke, then mounted and headed west.

At dusk he stopped beside some willows where a stream furnished scanty water, picketed his horse, got out his bedroll and in five minutes was sleeping as though dead.

Ordway was sleepily awake at midmorning when Croyden tied his bay to the rail before the hotel. He came into the lobby and Ida Farraway shoved the register to him, her eyes searching his face.

"I see you did it." Her voice was calm.

"Did what?" He bent over the register.

"Beat up Art Hindus and broke his arm. They brought him in to the doctor's last night."

"So?" He straightened up, unconsciously touching a puffiness at his right eye.

"I suppose now you'll kill George Talyou for killing your brother." Her voice was so quiet, so matter-of-fact, she might have been discussing the weather.

He stared. "So you knew?"

"It was easy," she said. "I thought there was something familiar about you. And it all fits in: Art Hindus beat up your brother, Ed, while two men held him, then broke his arm with a club." Her eyes examined his bruised face. "I see you gave Art more of a chance."

"He had his chance." His voice was grim. "You take it pretty calmly for a girl who was engaged to Ed."

Color came into her cheeks and a fire smoldered in her brown eyes. "I was *not* engaged to Ed! I thought a lot of him, but he was cursed with ambition like my brother, Steve, and George Talyou. Expand, expand. More grass and more cattle. There is never an end to it. Ed was killed because he didn't have the means to hire gun hands like Talyou and Steve. He stretched his luck—and his luck ran out."

His brows came together. "Is it wrong to be ambitious?"

"Yes, when it leads to this senseless brutality and killing." Her voice was hot. "I wasn't engaged to your brother because he thought more of grass and cattle than he did of me." She looked at him steadily. "Suppose you kill George Talyou. Have you thought what it will do to you? You've already changed since yesterday."

SO HAS Art Hindus. He'll think twice before he takes a club to an unconscious man."

"You'll never understand," she said and sighed, wondering why she explained so much to this man whom she barely knew. And yet, she did know him from Ed; knew him better, probably, than he knew himself. A feeling of futility came over her. He would go the same way as had so many others. And, once he killed in vengeance, something fine in him would be destroyed. He would never again be the same man.

She pushed the key to him. "The same room." She forced a smile. "You're really Ben Shriner. Where does the Croyden come from?"

"Middle name." He picked up the key and stood a moment studying her as he had at their first meeting. Then he hoisted the war bag to his shoulder and went upstairs. I wonder, he thought, how she'd feel if it was her brother that had been killed.

From the window of his room he commanded a view of the street. Across it and at the far end was the livery stable and feed store. Then came a harness shop, barber's, general store and butcher shop. On the corner was the Shamrock Saloon.

There was no use in drifting about the country hoping for a chance to catch George Talyou without his crew. Somewhere in this town, he decided, would come the showdown. He pulled his gun, slipped in the sixth cartridge, whirled the cylinder to see that it spun smoothly, holstered it and went downstairs.

"Your job didn't last long," the hostler said when he brought his horse in.

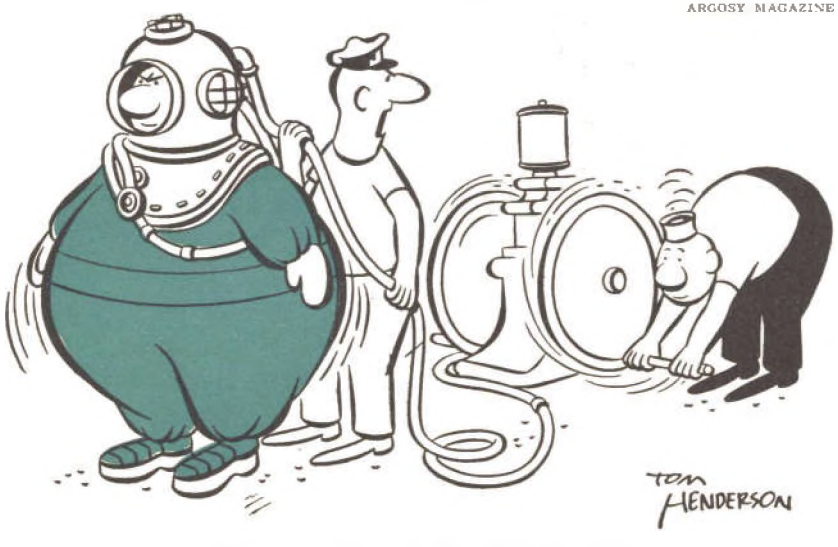
"Long enough," Croyden said. "Talyou's got a yellow streak up his back like the stripe on a skunk."

An affronted look came into the hostler's eyes. "That's a hell of a thing to say about a man!"

"It is," Croyden agreed. "You tell him about it." This would be an additional goad to boost Talyou into a fight.

He made the same remark at the restaurant where he took his noon meal and at the general store where he bought a shirt. Thereafter he sat on the hotel porch, chair tilted back, his eyes watching the street from under down-slanted hat brim. But nothing happened.

He ate his supper at the hotel, had a smoke in the lobby and went to his room.



"Stop pumping so fast, Thompson."

For an hour he watched the lazy traffic outside his window and then undressed. Before turning in he tilted a chair against the door, top under the knob, and slid his Colt under his pillow.

He lay on his back, fingers laced beneath his head, while moonlight silvered the weathered buildings across the street. Ida Farraway had said, "I wonder what you'll be like when you finish with Bell." It had meant nothing at the time, but now it did. He was already changed: the joy of living, the laughter and the high spirits were gone. In their place were the grimness, the cat-eyed vigilance that had started with the arrival of Old Pete, Ed's only hired hand, back in Texas with the news of Ed's death, and its manner. He sighed and murmured aloud, "I will finish up this business, Ed, and then quit this Indian game and live like a white man again."

But as he dropped off to sleep it was not Ed he was thinking of.

As he was finishing breakfast in the hotel dining room, a small Mexican boy dragged off a shapeless hat and ducked his head beside him. "*Señor*, two men come into town. Señor Talyou and Señor Hindus. They are at the Shamrock."

He looked down into the boy's dark face. "Who sent you?"

The boy grinned. "Señorita Farraway."

He gave the boy a coin and stood up, feeling a grim pleasure. He eased his gun in the holster and went into the lobby.

Ida Farraway gave him her strained, watchful attention across the desk.

"Thanks for sending the boy," he said, and would have gone on, but she stopped him with a small motion of her hand.

"There is still time. You can get your horse and ride out of town."

He gave his head a slight, impatient shake, his thoughts intent on what was to come.

"You and your vengeance!" Her voice was hot. "You don't care what it does, or whom it hurts!"

He considered her gravely, searching for the meaning of her words and not finding it. "I have traveled a thousand miles for this," he said, and went out into the hot glare of morning.

She sighed and looked across the lobby to where sat a man with eyes as brown as her own. "All right, Steve," she said.

THEY knew. He could tell by the way people stared at him with a kind of fascination. And as he traveled along the board walk, the street ahead of him magically cleared. This town was old in the ways of trouble; it knew the signs. Men disappeared from chairs and benches before store fronts and peered at him from alleys and doorways as he went by. A woman ran into the street, fear pulling at her face, and shepherded her two children into the house. He turned at a sound behind him and saw that the Mexican boy was following. "Go home," he said, but the boy grinned and ducked behind a post.

He stepped off the walk, angling across the dust of the street in the direction of the Shamrock Saloon.

The sun's heat struck like a hammer blow through this high, thin air that carried the smell of sage from the clean, open spaces beyond town. Its brightness put a hot glitter on everything, making shade between buildings and under wooden awnings seem denser. And as he walked he thought of this man who had shot down his crippled brother without giving him a chance, and he felt his anger grow into an iron rod of purpose. Here was the ending, the culmination of weary miles of travel! Here was the moment he had lived out so many times in his mind when he had been alone.

He was not fifty feet from the Shamrock when three men emerged from the alley beside it and suddenly stopped. "That's him!" Art Hindus said, and stepped back into the alley. The other two men began slowly separating, watchful and alert.

He had seen many of this kind before, with their hooded eyes, starved, animal-cunning faces, low-slung guns. As the distance between them widened, he felt a sense of outrage that Talyou should send out his gunmen when his personal reputation had been attacked. In his book that was something a man would take care of for himself.

AND now the dismal knowledge came to him that he would never get his chance at Talyou. Out here in the street there was no shelter, no way to escape the cross fire that would come. And the longer he waited the worse matters became. Driven by a black, despairing anger, he made his draw.

Three guns crashed almost together, and with the sound came the flat, high crack of a rifle. Something hot as fire touched his right forearm. The man at whom he had fired bent double over a smashed wrist and the other went down, the bullet in his shoulder flinging him backward.

A soft, high scream came from behind him. Croyden eyed the two men carefully for a moment, but there was no more trouble here. He holstered his gun and turned. Then the muscles of his stomach contracted. The little Mexican boy was down, one leg doubled under him, red staining the boardwalk.

People were coming out into the street. Two men ran to the boy and bent over him. One looked up at Croyden and cursed him. "You damned gunman!"

A movement at a second-story window of the hotel caught his eyes. Standing there in full view, a man levered a cartridge into his rifle. A strange feeling of humbleness came to Croyden. But for this unknown who had come to his aid he would be lying in the street with a bullet through him.

He turned back to the Shamrock. Blood dripped steadily from his right hand. He ripped back the sleeve and brought it up across his chest for examination. Cradling it in his left hand, he saw it was hardly more than a skin break, although bleeding badly. Then he froze,

standing absolutely motionless, as Talyou came from the Shamrock.

The owner of Bell stood rooted, staring at his two gunmen. His panicked gaze shuttled to Croyden with a wild disbelief. Then, as his eyes took in the bloody arm still across Croyden's chest, a heartbreaking relief came into them. Confidence flowed back like water through a pipe. His shoulders went back and his chest out.

"I understand you're looking for me, Croyden." His voice rang with regained assurance.

Talyou thought he was facing another crippled man. But Croyden knew him now.

He was an empty bag puffed up with arrogance and conceit. There was no bottom to him at all. And he wanted him to know the full measure of fear and despair before he died. He dropped his arm by his side and then flexed it, opening and shutting his fist.

"I'M LOOKING for you," he said, and watched the confidence wash out of Talyou's face.

He stared at Ben Croyden's arm with a horrified fascination, as though living through some evil nightmare. He licked his lips and his eyes fluttered to the people who had scuttled to the walks to be out of line of fire. There was no help here. He had made his stand before the eyes of the town and there was no evasion, no retreat.

"Make your draw," Croyden said and started for him. And still Talyou stood as though struck dumb, fear scratching its claw marks about his eyes and the corners of his lips.

Croyden came steadily on until he was directly before Talyou. "I won't tell you again," he said and slapped him with his left hand.

Talyou's head jerked back, but his arms remained rigidly at his sides.

Croyden slapped him again, left and right, heavy, full-swinging blows that rocked the man's head and cracked sharply through the breathless stillness; slapped him until blood started from Talyou's nose. And Talyou remained rigid, locked in fear, afraid that raising his hands would bring a bullet from Croyden's gun.

A wild anger came upon Croyden.

"Fight, damn you!" he cried, and slashed him across the mouth with his fist.

The blow carried Talyou back a step. Then, a terrible fear crowding his eyes, he sank slowly to his knees and stretched out his hands. A sound bubbled through his broken lips.

Something like a long sigh went up from the watchers on the walk. A man spat in sudden disgust. "He ain't even coyote bait."

Croyden scrubbed a hand across his sweaty face. He reached for his gun—and stopped, hand on butt. With hatred the spur, he had traveled a thousand miles to kill this man who had killed his brother, and now the drive was gone. Killing would not bring Ed back, nor help him, wherever he was. It was his own pride that had demanded it. And now he could not shoot a man who knelt to beg for his life. As for Talyou, it would have been better if he had gone down with a gun in his hand.

He let his hand drop and turned away, feeling a desolate emptiness. He took two steps—and a man yelled in warning. He whirled as a gun exploded. Talyou was falling forward upon his face, a gun slipping from his fingers. From out the alley came Art Hindus, his Colt in his left hand.

He came up to Talyou and looked down upon him. "I ain't no angel," Hindus said heavily, "but there's some things the devil himself couldn't stand."

"Thanks," Croyden said.

The little Mexican boy still lay on the walk where he had fallen. Ida Farraway looked up from beside him at Croyden's approach. "It isn't too bad," she said, "but we'd better not move him until the doctor comes." Her eyes studied his face.

Croyden hunkered down. "I told you to go home, son."

"That is true, *amigo*." The boy smiled despite his pain. "But, see, I too am now the fighting man. I have the wound."

Croyden ruffled the boy's hair and stood up as a brown-eyed man with a rifle in the crook of his arm strolled over to them.

"My brother, Steve," Ida said.

"You're a handy man with a rifle, Steve." Croyden's hand went out to meet Steve's grip.

"Thank Ida," Steve said and smiled.

Croyden turned to her, his eyes asking their question.

"I couldn't help it," she said. "I knew how Ed died, and I knew how George Talyou worked. "But," she added, "I'm glad you didn't kill him."

HE WAS silent, deeply thinking. He had ridden this trail, self-sufficient and alone, seeking to beat out his own idea of justice without let or hindrance, asking no help of any man. And yet, three people—these two and Art Hindus—had, in their separate ways, saved his life. It was a mystery and a wonder. It shook his blind faith in himself: no man could stand entirely alone.

Ida came around to him. She turned back the bullet-torn sleeve and examined his arm with practiced eyes. "It won't even leave a scar." She went back a step and regarded him gravely. "Ben, why didn't you kill him?"

The answer, it seemed, was important. He had known her for but forty-eight hours, but her warmth and her nearness affected him powerfully and he searched his mind, trying to understand the great lift of feeling that filled him, unlocking the tensions until he felt clean and loose and free-running again. But he had no words to express what he felt. He shook his head.

"He just didn't seem worth killing—"

He stopped, for a smile came to her now and in it he found the answers to many things. • • •

The Invention *Continued from page 37*

Professor's invention, and that sooner or later Georges would have had to square him. But I like to think that there was more to it than that.

"The full details of the scheme for exploiting the device are, of course, unknown to me. I gather that Georges had been expansively eloquent—not that much eloquence was needed to convince anyone who had once experienced one or both of his playbacks. The market would be enormous, unlimited. The export trade alone could put France on her feet again and would wipe out her dollar deficit overnight, once certain snags had been overcome. Everything would have to be managed through somewhat clandestine channels, for think of the hubbub from the hypocritical Anglo-Saxons when they discovered just what was being imported into their countries! The Mother's Union. The Daughters of the American Revolution. The Housewives' League, and *all* the religious organizations would rise as one.

"The lawyers were looking into the matter very carefully, and as far as could be seen the regulations that still excluded 'Tropic of Capricorn' from the mails of the English-speaking countries could not be applied to this case, for the simple reason that no one had thought of it. But there would be such a shout for new laws that Parliament and Congress would have to do something, so it was best to keep under cover as long as possible.

"In fact, as one of the directors pointed out, if the recordings were banned, so much the better. They could make much more money on a smaller output, because the price would promptly soar and all the vigilance of the customs officials couldn't block every leak. It would be Prohibition all over again.

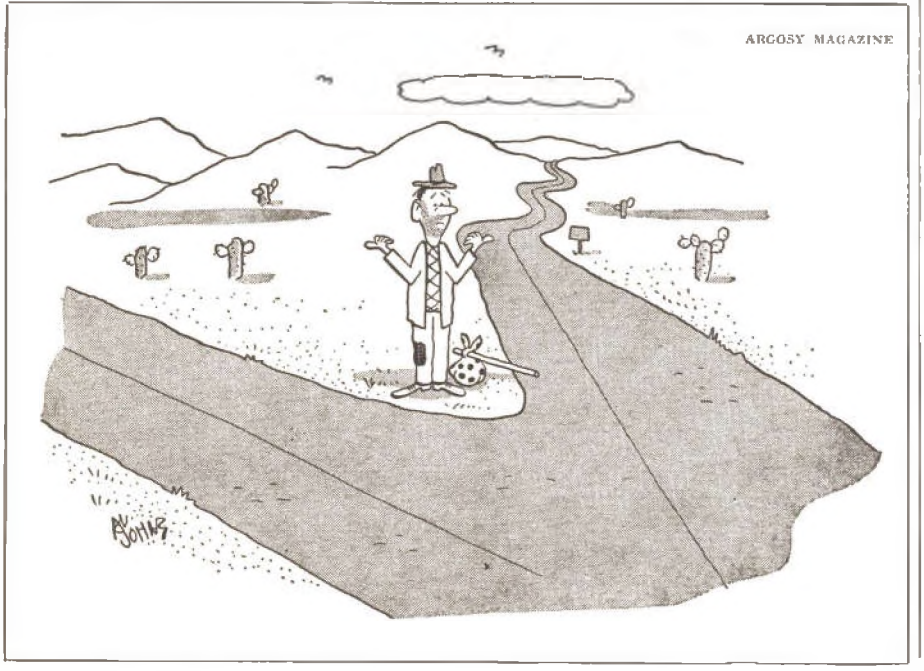
"You will scarcely be surprised to hear that by this time Georges had somewhat lost interest in the gastronomical angle. It was an interesting but definitely minor possibility of the invention. Indeed, this had been tacitly admitted by the directors as they drew up the articles of association, for they had included the pleasures of the cuisine among 'subsidiary rights.'

"Georges returned home with his head in the clouds and a substantial check in his pocket. A charming fancy had struck his imagination. He thought of all the trouble to which the gramaphone companies had gone so that the world might have the complete recordings of the 'Forty-eight Preludes and Fugues' or the 'Nine Symphonies.' Well, *his* new company would put out a complete and definite set of recordings, performed by experts versed in the most esoteric knowledge of East and West. How many *opus* numbers would be required? That, of course, had been a subject of profound debate for some thousands of years. The Hindu textbooks, Georges had heard, got well into three figures. It would be a most interesting research, combining profit with pleasure in an unexampled manner. . . . He had already begun some preliminary studies, using treatises which even in Paris were none too easy to obtain.

"If you think that while all this was going on, Georges had neglected his usual interests, you are all too right. He was working literally night and day, for he had not yet revealed his plans to the Professor and almost everything had to be done when the lab was closed. One of the interests he neglected was Yvonne.

"Her curiosity had already been aroused, as any girl's would have been. But now she was more than intrigued; she was distracted. For Georges had become so remote and cold. He was no longer in love with her.

"It was a result that might have been anticipated. Publicans have to guard



against the danger of sampling their own wares too often—I'm sure *you* don't, Drew—and Georges had fallen into this seductive trap. He had been through that recording too many times, with somewhat debilitating results. Moreover, poor Yvonne was not to be compared with the experienced and talented Suzette. It was the old story of the professional versus the amateur.

"All that Yvonne knew was that Georges was in love with someone else. That was true enough. She suspected that he had been unfaithful to her. And *that* raises profound philosophical questions we can hardly go into here.

"This being France, in case you had forgotten, the outcome was inevitable. Poor Georges! He was working late one night at the lab, as usual, when Yvonne finished him off with one of those ridiculous ornamental pistols which are *de rigeur* for such occasions. Let us drink to his memory."

"That's the trouble with all your stories," someone grumbled. "You tell us about wonderful inventions, and then at the end it turns out that the discoverer was killed, so no one can do anything about it. For I suppose, as usual, the apparatus was destroyed?"

"But no," replied Purvis. "Apart from Georges, this is one of the stories that has a happy ending. There was no trouble at all about Yvonne, of course. Georges' grieving sponsors arrived on the scene with great speed and prevented any adverse publicity. Being men of sentiment as well as men of business, they realized that they would have to secure Yvonne's freedom. They promptly did this by playing the recording to *le maire* and *le préfet*, thus convincing them that the poor girl had experienced irresistible provocation. A few shares in the new company clinched the deal, with expressions of the utmost cordiality on both sides. Yvonne got her gun back."

"Then when—" began someone else.

"Ah, these things take time. There's the question of mass production, you know. It's quite possible that distribution has already commenced through private—*very* private—channels. Some of those dubious little shops and notice boards around Leicester Square may soon start giving hints."

"Of course," said the New England voice disrespectfully, "you wouldn't know the *name* of the company."

You can't help admiring Purvis at times like this. He scarcely hesitated.

"*Le Société Anonyme d'Aphrodite,*" he replied. "And I've just remembered something that will cheer *you* up. They hope to get 'round your sticky mails regulations and establish themselves before the inevitable congressional enquiry starts. They're opening up a branch in Nevada; apparently you can still get away with anything there." He raised his glass.

"To Georges Dupin," he said solemnly. "Martyr to science. Remember him when the fireworks start. And one other thing—"

"Yes?" we all asked.

"Better start saving now. And sell your TV sets before the bottom drops out of the market." • • •

What's Coming Up for Your Workshop

Continued from page 48

motor to operate any number of full-size tools with a change-over that takes just ten seconds to make. The complete shop consists of five power units, but with their system you can start with any one tool and add the other equipment later. This permits you to purchase the most needed and most used tools first.

Kits are the vogue among homecraft manufacturers today. One of the most useful ones I have seen is the carport-patio shelter kit put out by the Kawneer Company. Kawport, as they call it, forms a ten-by-twenty foot aluminum canopy and can be assembled with a few simple tools. Besides its major function as an economical shelter for the family auto, the carport also makes a fine place to relax or entertain friends in warm weather. Just move the car, set up some lawn furniture, and you have a comfortable place to lounge in the fresh air, shaded from scorching sun glare. The unique feature of this prefabricated shelter is its system of W-shaped louvers designed for passage of air and diffused light. This provision for ventilation solves the smoke problem for the outdoor chef who likes to broil his steaks in the shade. At the same time, the louvers form a drainage system that will channel off rain at the rate of ten inches an hour.

Ed Rich, a neighbor of mine, and I made this practical addition to his home in less than four hours. Actually, all that was involved was to set the two-inch supporting posts, install the fascia and fasten the louvers in place. Proper spacing of the louvers was a cinch since all bolt holes were predrilled. Because the aluminum was specially processed, giving it a lustrous finish that was both attractive and rust-resistant, Ed didn't bother to paint it. However, ordinary house paint can be used without a prime coat.

If you are a "Hi-Fi" fan, you can buy ready-to-assemble equipment cabinets and speaker enclosures for approximately the same price you would pay for the materials alone. The Cabinart kits, for example, are complete from hardware to pre-cut baffles and include easy-to-follow assembly and finishing instructions.

One of the most complete of the many furniture kits now available is New Trend's upholstered chair. The kit, for $30, supplies completed hardwood frames for arms, seat and back, precut padding, and springs that entail no hand-tying or webbing. The smart fabric arrives cut out and fully sewed.

The Chris-Craft Company, in addition to their boat and trailer kits, have several excellent prefabricated gun-cabinet kits. These kits of high-grade knotty pine include gun-rack pattern, hinges,

screws, wood plugs and easy-to-follow, illustrated instructions for assembly in about six hours.

You can now also buy a plumbing kit that lets you install semipermanent cold water service any place you need it. A flange along the edge of this flexible plastic tubing enables you to nail it directly to walls or woodwork for easy piping of water throughout a house. With the tubing, you can feed a darkroom, hook-up basement, garage or attic sink. It sells for $5.95 and comes in fifty-foot lengths to standard ¼-inch pipe thread, and another for ¾-inch garden-hose thread. Two types, for indoor and outdoor use, are available.

Just before this article was finished, Jerry Gammon of Reynolds Metals sent me the following wire: "We are making an addition to our line of Do-It-Yourself Aluminum to be available about November. It is a new combination window channel that will make interchanging storm sash and screens possible. As to prices, the cost of the materials (exclusive of glass) will be about five dollars for a three-by-five-foot opening."

Another handy metal product your local hardware store should now have in stock is an item called Redi-Rods. These new steel rods come in round, flat or angle bars of many sizes, just right for a hundred and one repair and construction jobs from tool stands and benches, shelves and bins to recreation gear.

Of the new wood products, Microwood — the wood that comes in rolls—is perhaps the most unique. Only 5/1000 of an inch thick, this finely shaven wood can be put up like wallpaper with ordinary paste or applied as a decorative veneer to wood, metal, paper and other materials. Bonded to a thin paper backing, it is flexible, tough and takes wax, stain, or varnish and other wood finishes. It comes in ten different woods in 27½-inch wide rolls from 32 to 328 feet long.

Another material that makes wood finishing easy is Meyercord's Plastic Veneer—wood-grain veneer that is applied like a decal. This material has been used commercially for years in car interiors, furniture and on the cabinets of most radio and TV manufacturers. Available in four- to six-square-foot sheets, the veneer consists of a film of paper-thin lacquer printed in color from photographic engravings of actual wood and marble pieces. To apply, the paper back is removed by soaking in water and the veneer is cemented to the surface with a special adhesive. To complete the job, a protective coat of varnish, shellac or lacquer is given to the surface.

Before leaving the subject of wood finishing, I would like to mention the sand screen recently introduced by the Carborundum Company. This new-type sandpaper is an abrasive-coated mesh resembling window screens. Sanding residue passes through the openings, which eliminates clogging and allows the sand screen to be used over and over again. (It lasts from seven to fifteen times longer than ordinary sandpaper.) Since the screen is coated on both sides with sharp, durable silicon-carbide abrasive grain, when one side wears down, the reverse can still be used for sanding.

Last November we said that one of the brightest spots in the advancement of "do-it-yourself" products was in the field of adhesives. The Borden Company has made two contributions to this field. For ease and speed in applying Elmer's Glue-All, it is packaged in a handy squeeze bottle similar to those used for deodorants. Just give the bottle a squeeze, and after the adhesive has set for twenty to thirty minutes, the glued object is ready for use. The other Elmer product is an easy-to-use waterproof glue. It can be used for building or repairing boats, toys, outdoor furniture, etc.

If you plan to finish off a basement or workshop floor, the lack of an adhesive is news. There's a new type of plastic tile you can put right down over a wood or concrete floor without adhesive or other fastening. Waffle-like pockets in the underside create suction that helps hold the tiles down, and provide air space for added insulation. The tiles are also kept firmly in place by a slight wedging action between the walls. Another new floor covering is Robbins Self-Adhering Tile. Adhesive is applied to the tile during manufacture, and installation involves nothing more than swabbing the floor with a solvent and laying the tiles in place.

Sometimes a manufacturer will bring in new products for us to test. One that we recently tried out quite successfully is called Liquid Tile. Available in many colors, it is applied like paint but when it dries its surface has a hard, ceramic-tile appearance. You know how brittle gypsum board is; well, after applying a coat of this material, I couldn't break the board with a hammer. It is ideal for basement walls (it's waterproof), kitchens and bathrooms (it's washable) and, as I used the test gallon, for darkrooms.

New to the home market, Gaco Neoprene gets around the house or shop to do more jobs than any other single product we have seen for a long time. This versatile material is a liquid synthetic rubber that is air-curing. You apply it by brush, roller, or by dip to almost any surface where you want a tough, flexible coating of rubber. Waterproof, it won't chip, rot, crack, or be affected by heat or cold. Used right from the can as a protective coating for tanks, pipes, or any metal surface, Neoprene prevents rusting. For coating leaky roofs, drains, raincoats, boots, etc., it is a perfect seal. Handles of tools used in electrical work become nonconductive when coated with it. Thickness is built up by repeated coats. For you ARGOSY readers who have boats, Neoprene plus a little sand makes a good nonslip boat deck.

I saw, naturally, a lot we don't have space to mention. All I can say is that this is going to be a good year for the home workshopper. If you want to know more about any of the items mentioned here just write to ARGOSY Home Workshop, Dept. NP, 205 E. 42nd St., New York 17, New York, and either I or someone else will supply you with the dope you want. • • •

Daniel Boone's Favorite Shooting Iron

Continued from page 39

when the musket-equipped British troops had advanced to within 200 yards of the breastworks. Many of the dead were shot through the head. Some had two or more holes in their skulls and hundreds of the bodies were literally riddled with bullet holes. This was the first sizable engagement between the rifle and the smoothbore musket—and the rifle won hands down.

The great day of the Kentucky rifle took place from 1760 to about 1820, and it was early in that period that it acquired its name. By 1770, there was an entirely new region of exploration west of the Cumberlands all the way to the Mississippi River. This area was invariably referred to as Kentucky. The exploits and discoveries of Daniel Boone and his companions soon became the chief topic of conversation among the settlers along the Atlantic Seaboard. Gradually, the long rifle, associated with Boone and the other frontiersmen, became known as the Kentucky rifle.

Nobody will ever know who actually made the first of these amazing single-shot flintlock rifles. It was the result of the ideas and craft-manship of many individuals over a long period of time. But the final development of the Kentucky rifle took place in eastern Pennsylvania, probably in Lancaster, which was founded in 1718. The westernmost settlement at the time, Lancaster was the supply point and stepping-off place to the wilderness. And when you stepped off into the unknown you needed accurate rifles merely to cope with everyday life. Naturally, some of the very best gunmakers made tracks to the Lancaster area, where they engaged in a booming business.

By 1730 the Kentucky (some called it the American) rifle had evolved about as much as it ever would. It was a rather weird-looking instrument with a long barrel of some 44 or 45 inches (sometimes even five feet) for better balance and holding qualities, and for more complete powder combustion. With the long barrel, the sights could be set farther apart to cut down errors in sighting. To conserve lead, which was scarce and heavy to carry, the bore of the new rifle was smaller than that of its European ancestors—varying from about .30-caliber for the squirrel and small-game rifles, to about .60-caliber for the big-game and man killers. The majority were from .45- to .50-caliber. Thus, fifty .45-caliber bullets, against eleven for a .75-caliber gun, could be molded from a pound of lead.

The typical Kentucky rifle stock, with forearm extending to the muzzle, usually was carved out of well seasoned maple, although walnut, apple or cherry were also used on occasion. Linseed oil, sometimes tinted red with the native alkanet root, was heated and rubbed into the wood to seal the grain. Odd-moment polishing with soot from the fireplace and a drop or two of linseed oil on the palm of the hand, gave the gun a lovely finish. The trigger guard, butt plate and forearm tip were fashioned from easy-to-work brass; the majority of the Kentuckies also had a brass patch-box inlet set into the right rear of the butt stock. Late rifles often were highly adorned with brass or silver inlays.

What really put the Kentucky rifle over was its loading characteristics. The spherical bullet was seated into the bore wrapped in a tallow-soaked buckskin or linen patch. No one thought to record the name of the nimble-minded fellow who thought of this gimmick, but it was the idea that made possible the Kentucky rifle. As the gun was loaded the greased patch did a fairly clean job of wiping out the thick black powder residue of the previous shot. If this grime accumulated and hardened it killed the gun's accuracy. The primary function of the greased patch was to provide a snug easy-to-load fit into the spiral rifling. The rifling bit only into the patch so that the fired ball remained undeformed, and spun rapidly for stabilized flight and consistent accuracy unheard of until that time.

By modern standards, the ritualistic act of loading was lug slow, but in those days it was speed, sometimes life-saving speed.

First the hammer was put at half-cock or safe position. If the bore was dirty it was swabbed before loading. The worm, a smaller than bore-size double-corkscrew affair, was secured to the end of the ramrod and wrapped with a hank of greased, unspun flax fiber called tow. When pushed into the bore this wad turned with the rifling and cleaned the grooves. Clean swabs were used until all of the fouling was removed.

Next a blast of breath was blown through the barrel from the muzzle to clear the flash channel between the pan and bore at the barrel breach. With the channel clogged, the flame of the flint-ignited flashpan powder could not fire the main charge behind the bullet in the barrel. So, the pick and brush came into play and it was cleared.

THE actual loading was an operation. With the rifle butt on the ground, in front and to the left of the shooter, and the muzzle in the crook of the left arm, he pushed the powder horn and hunting bag forward with his right hand and grasped the powder measure in the left hand. The measure, a small horn thong tied to the reservoir horn, had by trial and error been adjusted to hold a powder charge that gave the best accuracy for that individual gun. With his right hand, the shooter raised the large horn to his lips, pulled the plug or stopper with his teeth, and filled the measure. Replacing the plug, he dropped the horn, passed the measure to the right hand and poured the powder down the bore.

Next, a well-greased round or square patch was taken from the supply in the

patch box of the rifle or from the hunting bag, and placed squarely across the gun muzzle. A ball was centered on the patch and started down the barrel with the thumb. One steady stroke of the ramrod seated the patched ball firmly on the powder charge. The rod immediately was replaced in its thimbles under the barrel.

Some shooters customarily made the patch while loading. A large piece of the patching material was drawn across the muzzle and the ball pushed into the bore to a position just below the muzzle opening. A sharp belt knife, or one from the hunting bag, was used to cut away the excess material. If the rifle was to be fired within minutes, as in a shooting match, an ungreased patch, wet with saliva, was often used.

Then came the priming. With the rifle held across the left arm, the steel frizzen of the lock (which the flint struck to make sparks and fire the gun) was pushed forward and the pan filled with fine, fast-burning powder from a small horn. The frizzen and pan cover was snapped back to keep the priming powder in place and protect it from the weather. The hammer was pulled back to the full-cock position, and at last the rifle was ready to be fired.

If you never have fired a flintlock gun, but are familiar with modern arms, you will be surprised at the comparative slowness of the flintlock ignition. When the trigger is pulled, the distinct click of the flint striking the frizzen can be heard before the *whush* of the burning priming powder and the following blast of the main charge as it slams the ball out at the muzzle. It is easy to understand why the rifle had to be held "steady as a rock" during this lag time for a sure hit.

The legend is that any youngster who grew up with the long rifle in hand was sure to become a dead shot when reaching manhood. In areas on the fringe of civilization this undoubtedly was true. But in larger and older settlements along the Atlantic Coast, the Kentucky rifle wasn't even used to any great extent. These settlers relied more on the smoothbore musket.

Compared to the trade musket, the Kentucky rifle was an expensive precision instrument of super-accuracy. Some specimens could hit a man at 200 yards. The musket was lucky to hit a man at 60 yards, and at 100 yards the man had it made.

There is very little available evidence of Kentucky-rifle accuracy in the pioneering days. A few old targets are still intact, but in most instances the ranges at which they were made went unrecorded. Some specimens show five shots in about two inches at 100 yards, but I feel certain that the run of the Kaintucks never could shoot that well. After all, there were over 600 known American rifle makers in business before 1840, and not all of these craftsmen maintained quality standards.

But the early American settler loved target shooting and it was the center of his social activity. When a big shoot was planned, posters were circulated and the news scattered far and wide. Sometimes the festivities would last for several days, and people would come for miles

". . . Now, $50, minus interest in advance, minus service charge, minus legal fee, minus my commission. . . . Yes, that's correct. . . . Here you are, sir—$7.86."

on horseback, wagon or their own two feet to participate or watch.

Shooting distances varied from 20 to 100 yards. The targets generally were blocks of charred wood marked with cross lines. Pieces of cardboard were used if available. The contestants usually fired only one shot per target and scored to the cross. Group shooting was mostly from muzzle rest, with each shooter firing from three to five shots. The winner was determined by string measurement. Wooden pegs were inserted in each bullet hole and a piece of cord stretched around the pegs. The marksman with the shortest cord won.

For his skill, the winning marksman might receive as prize a "big fat ox" or a "long-barl gun," or bear and wolf traps, powder and lead, knives, robes and skins, or even the lead recovered from the backstop after the matches had ended.

Turkey shoots were also very popular. The turkey was tied to a stake 200 yards from the firing point with the body fully exposed, or at 100 yards with the body protected and only the head and neck showing. The shooters paid a stipulated fee for each shot fired. When a highly regarded marksman missed with his shot, he heard about it from his fellow competitors and the spectators.

One of the Kentucky rifle's most useful functions came in the hunt for meat. Game was plentiful and varied and the long rifle was ideal for picking animals off at short range. A drive took place once in the vicinity of Pomfret Castle in southern Pennsylvania in 1760. Here is what was killed: 41 panthers, 109 wolves, 112 foxes, 114 mountain cats, 17 black bear, 1 white bear, 198 deer, 111 buffalo, 3 fishers, 1 otter, 12 gluttons, 3 beavers and upwards of 500 smaller animals.

As wonderful as they were for game, the Kaintucks had definite limitations as a military weapon. For one thing, it was practically impossible to secure a bayonet on the long rifle. On several occasions during the Revolutionary War, General Washington ordered rifle regiments to be re-equipped with smoothbore muskets and bayonets. Not that he didn't appreciate the rifle's accuracy; he simply recognized that it was impossible to quickly teach inexperienced men to handle a precision weapon. Washington's favorite fighting gun was the musket loaded with a bore-size ball and half a dozen buckshot.

George Washington may have preferred the musket, but the archives have him making some strange indorsements of the Kentucky rifle. For instance, Washington is supposed to have said that a good marksman, firing from rest, could put three out of five shots on a piece of note paper at eighty rods. Now eighty rods is 440 yards, or almost four and one-half football fields laid end to end. Tack up a piece of notepaper at that distance and try and see it over open rifle sights. You'll probably go blind. With open sights on the best of our modern sporting rifles, which are the most accurate the world has seen, it is a considerable feat to put three out of five shots on a similar target at 440 yards.

Washington wasn't the only propagandist for the rifle during the Revolution. The press did its share, too. For instance, an excerpt from Dunlap's *Pennsylvania Packet* of August 14, 1775, says, "The riflemen picked off ten men in one day, three of whom were field officers that were reconnoitering; one of them was killed at a distance of 250 yards, when only half his head was seen."

The *Pennsylvania Gazette* of August 21 in the same year had this interesting item: "A gentleman from the American camp says—last Wednesday some riflemen, on the Charlestown side, shot an officer of note in the ministerial service . . . and also killed three men on board ship at Charlestown Ferry, at a distance of a full half a mile."

BRITISH newspapers, chafing at their country's defeats, had even more breath-breaking tales. The London *Chronicle* contained an item that "the provincials used rifles peculiarly adapted to take off the officers of a whole line as it marches to an attack . . . and this is the real cause of so many of our brave officers falling, they being singled out by these murderers, as they appear in the eyes of every thinking man."

Other British newspapers were even more bloodthirsty. One printed this report: "The Americans load their rifle-barrel guns with a ball slit almost in four quarters, which, when fired out of those guns, breaks in four pieces and generally does great execution.

"I cannot help mentioning one thing, which seems to show the hellish disposition of the accursed rebels," the account continued. "By parcels of ammunition which were left on the field, their balls were all found to be poisoned."

Such exaggerations of American backwoods riflery did a great job in cutting enlistments in the British Army, and had much to do with the purchase of Hessian mercenaries by Great Britain.

With all this talk of the Kentucky rifle's amazing accuracy, I decided to find out once and for all just how it would stack up against a modern sporting rifle—if both were fired under similar conditions by a top shooter.

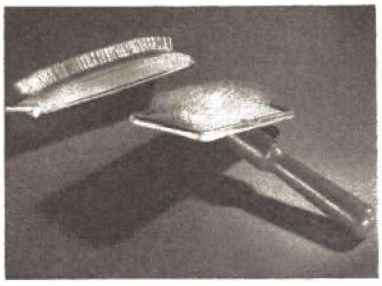
First I located a representative flintlock Kentucky rifle in almost perfect condition. Then I persuaded John Crowley, the United States Small Bore Champion of 1953 to shoot the Kaintuck and a Winchester Model 70, and see which was more accurate.

We lugged the two rifles, a supply of ammo and the necessary paraphernalia for the proper feeding of a Kentucky rifle, to the Blue Trail range, located at East Wallingford, Connecticut. The Blue Trail range, incidentally, is one of the finest in the county. It is maintained by the Lyman Gun Sight Corporation for the use of any shooter who may have a yen to burn a little powder.

Our Kentucky rifle was a vintage 1800, made by H. W. Deeds of Reading, Pennsylvania. It measured 56½ inches overall and had a 41⅝-inch barrel. The stock was full- (*Continued on page 96*)

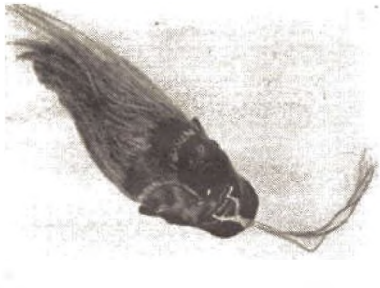
ARGOSY'S MAIL-ORDER BUYING GUIDE

STOP TO SHOP

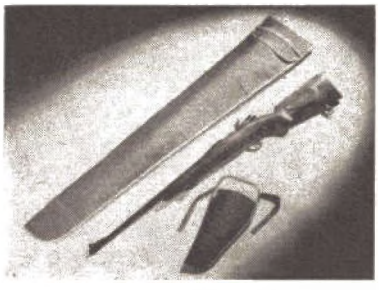


FOR YEARS, top dog handlers have used this type of bent wire brush for grooming. It does the best job, but is too rugged for many dogs. New brush has layer of foam rubber under wire that cushions it, keeps it from being harsh. $1 ppd. Warner Products, Baldwinsville, N. Y.

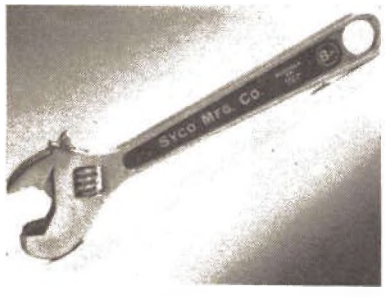
NOTHING COLDER than sitting in a duck blind waiting for a flock to come over. A good way to keep warm is with this adjustable red Jon-e belt that has 2 pockets designed to hold a couple of hand warmers. Belt alone, $1.95 ppd. From Aladdin Labs, 419 S. 6th St., Minneapolis, Minn.



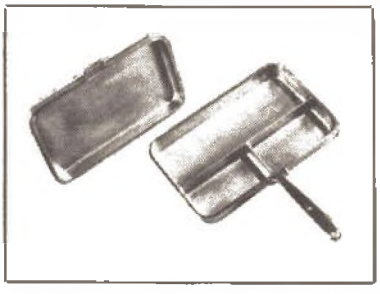
KNICK-KNACK above is a remarkably authentic replica of a shrunken head. Made by the happy aborigines of Ecuador who know how, it's fashioned from monkey skin, has human hair. $20 ppd. Spencer Gifts, 6 Spencer Bldg., Atlantic City, N. J. (Sorry, no custom orders.)



WHY DIDDLE around with a lot of goo to keep your gun from rusting when you can get one of these chemically treated envelopes that'll give rust protection for 4 years? These are the best we've seen. $4 ppd. for 52" case; $2.75 for 9" case. Frederick & Laurence, Box 117, Detroit, Mich.



A SOLID bargain in a wrench, this new adjustable steel ratchet one eliminates many wrenches and sockets, gives direct leverage, extra speed as wrench never leaves nut. 8" one with 7/16-¾" jaws, $3.95; 12-incher, ¾-1 3/16" opening, $7.95. Jim Albert, Rimmon Rd., Woodbridge, Conn.



LIGHTWEIGHT (3 lbs.) aluminum frying pan has 3 divided sections that make it easy to cook up a quick meal at one time, saves packing a lot of pans on a short trip. Cover doubles as separate pan. $5.95 ppd. Richards, Box 502, Monmouth Beach, N. J.

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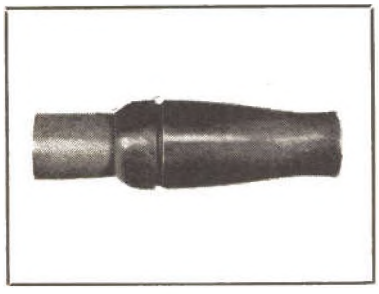
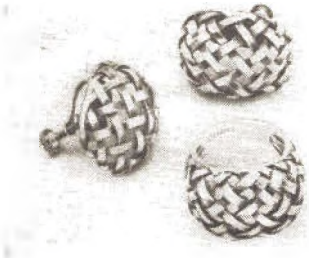


THERE ARE a couple of "rabbit" calls around, but this walnut one is the most versatile we've seen to bring in foxes, wolves, hawks and other predators. Call has set screw that adjusts it to imitate wail of a wounded cottontail or jack rabbit. $3 ppd. Sta-Dri Mfg. Co., Rt. 4, Independence, Mo.



UNUSUAL DESIGN in this ring and earring set makes it a nice gift for the favorite gal. Sterling silver, set has basket weave motif. Specify ring size. Earrings, $3.95; ring, $3.95; set, $7.50 ppd. Order from Ruth Brawer, Box 4035-ABR, Tucson, Ariz.

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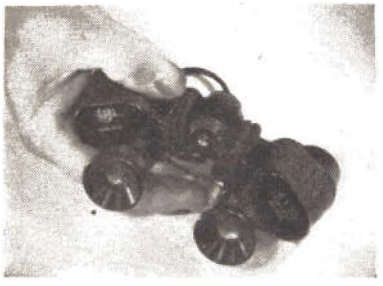
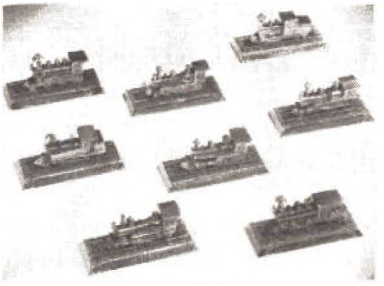
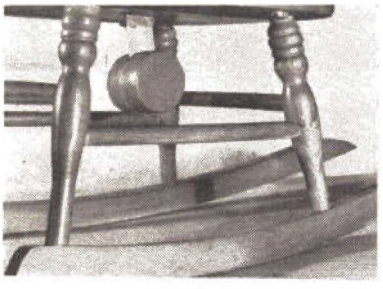


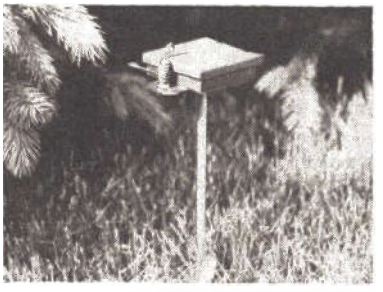
ANOTHER of the fine prism binoculars the Japanese are making, this 6x20 one is small and light enough (7½ oz.) to carry in your shirt pocket. Has coated optics, separate eye focus, and black finish (won't reflect) instead of usual shiny one. $24.95 ppd. A. Waeldin, 10 Maiden Lane, N. Y. C.



FOR RAILROAD FANS—a set of 8 metal scale models of old-time locomotives. Includes Double End Tank 1868 and 1875, Wheel American 1874 and 1880, Magul, Wheel Freight, Hudson, Double Truck 1872. Base is 3⅞". $1 each; set, $6.98 ppd. International Models, 33 Union Sq. W., N. Y. C.



LATEST MUSIC box the Swiss have come up with is this little one that'll take you about 2 minutes to mount on the bottom of junior's rocker or hobby horse. When either rocks, it starts knocking out "Rock-A-Bye-Baby", naturally. $3.98 ppd. B. Gately, 335 East 31st St., N. Y. C.



NATURALLY nobody wants to be mean to dogs, but if the neighbor's hounds persist in fertilizing your yard, this little metal box will send 'em back—and quickly. Wire leading from it sets off cap when dog trips it. Uses toy pistol caps. $2.50 ppd. Dog Gun Mfg. Co., Box 514, Yakima, Wash.

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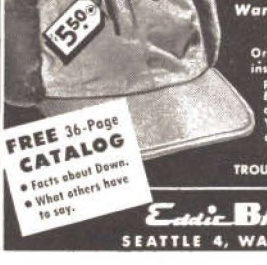

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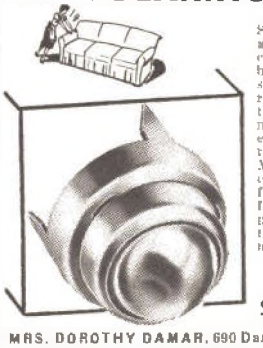

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length, with cheekpiece. It had the usual type of double-set triggers, often called hair triggers. The pitch of rifling was one turn in the length of the barrel. Our Winchester was a Standard Model 70 of .270-caliber.

In order that the sights be as nearly equal as possible, the Model 70 was fired using the standard open sights, which gives a sight picture similar to that of the Kentucky. The old rifle had the advantage here—with a sighting radius of 28½ inches, against 17½ inches for the Winchester. We picked two fine shooting days. The weather was clear and sunny, with only an occasional light wind.

To commence action, John Crowley fired both rifles at fifty yards. They were fired from rest to eliminate the human element as much as possible. Besides, the early long-rifle boys always used a rest if they could manage it.

Crowley's best group at fifty yards with the Kaintuck measured 2⅛ inches between bullet holes farthest apart. His best at the same distance with the Model 70 measured .9 of an inch, center to center of the holes farthest apart, or .63 of an inch between edges of extreme bullet holes. You can't do much better than that.

At 100 yards the best five-shot groups with the Kentucky rifle ran about nine or ten inches, well scattered from shot to shot. Crowley's best group at 100 yards with the .270 measured a hair over two inches, edge to edge. Crowley was really holding and squeezing and seeing those open sights this day.

As a sort of *pièce de résistance*, we decided to find out what a comparatively inexperienced shooter could do with the Model 70 in competition with Crowley's best fifty-yard Kentucky rifle group. We talked young Joe Pawelczak, an employe of the Lyman Corporation, into firing the high-power rifle. He was slightly embarrassed by the ordeal and I figured that he might flub the whole works. But he didn't. Firing only one group at fifty yards, the measurement was 1¾ inches, ⅜ of an inch less than Crowley's best with the charcoal burner.

This proved pretty conclusively, to me at least, that the run-of-the-mill Model 70, in .270-caliber, is more accurate than the best Kentucky rifle that I had been able to find.

Actually, the long rifle existed only a comparatively short time as a household weapon. The percussion cap was developed shortly before 1810 and gradually became available in the more settled portions of the country. Cap-lock ignition was more convenient than flintlock, so many Kentucky rifles were converted.

By the time the frontier had reached the Mississippi River, a new rifle—really a modification of the Kentucky, but without its classic lines—became popular and the Kentucky rifle died a natural death. Died, that is, as far as practical use was concerned. It lives big to this day, as an object of beauty and as a conversation piece for the people who still remember the early days and the part the Kentucky rifle played in the winning of our country. • • •

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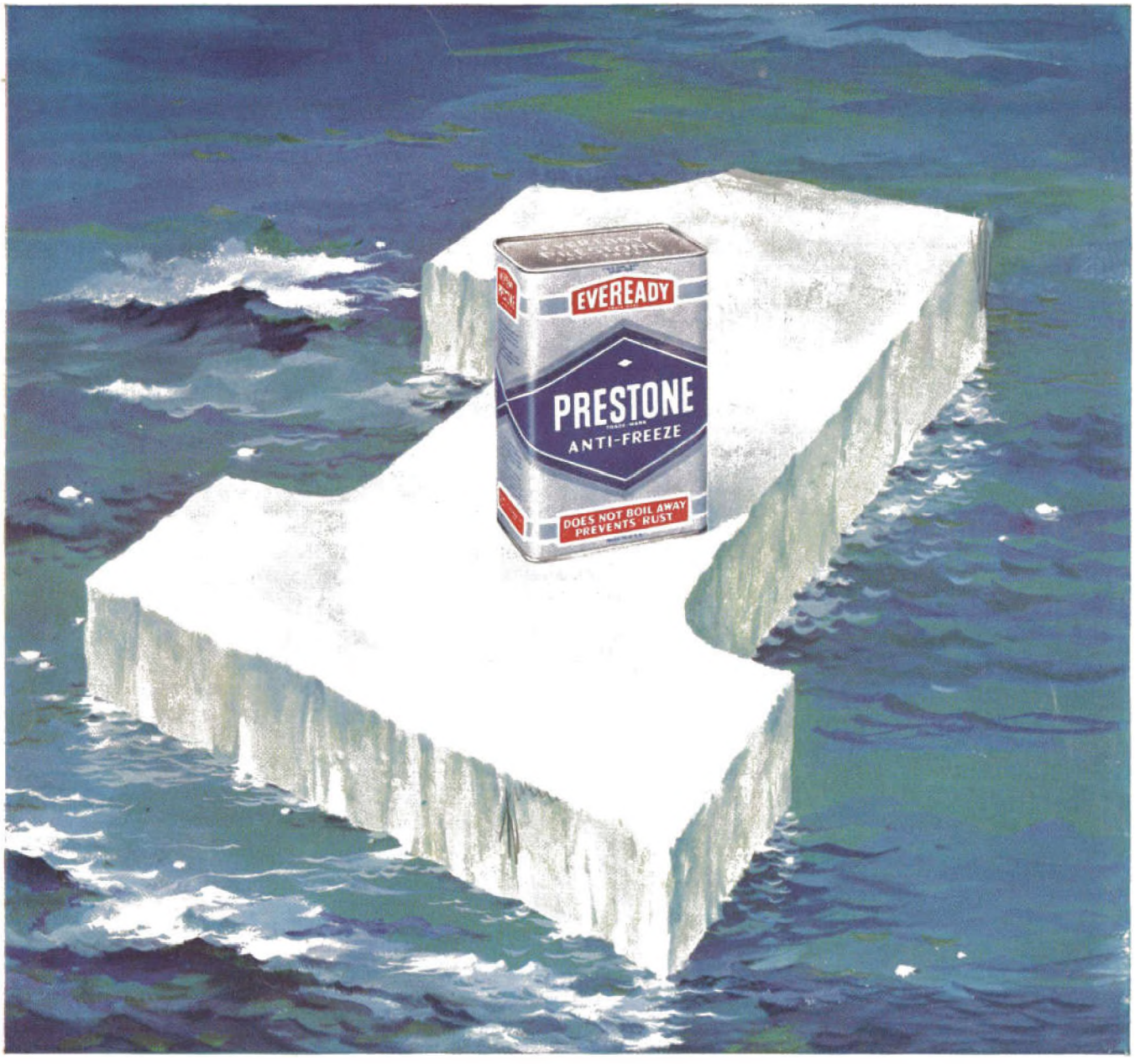

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