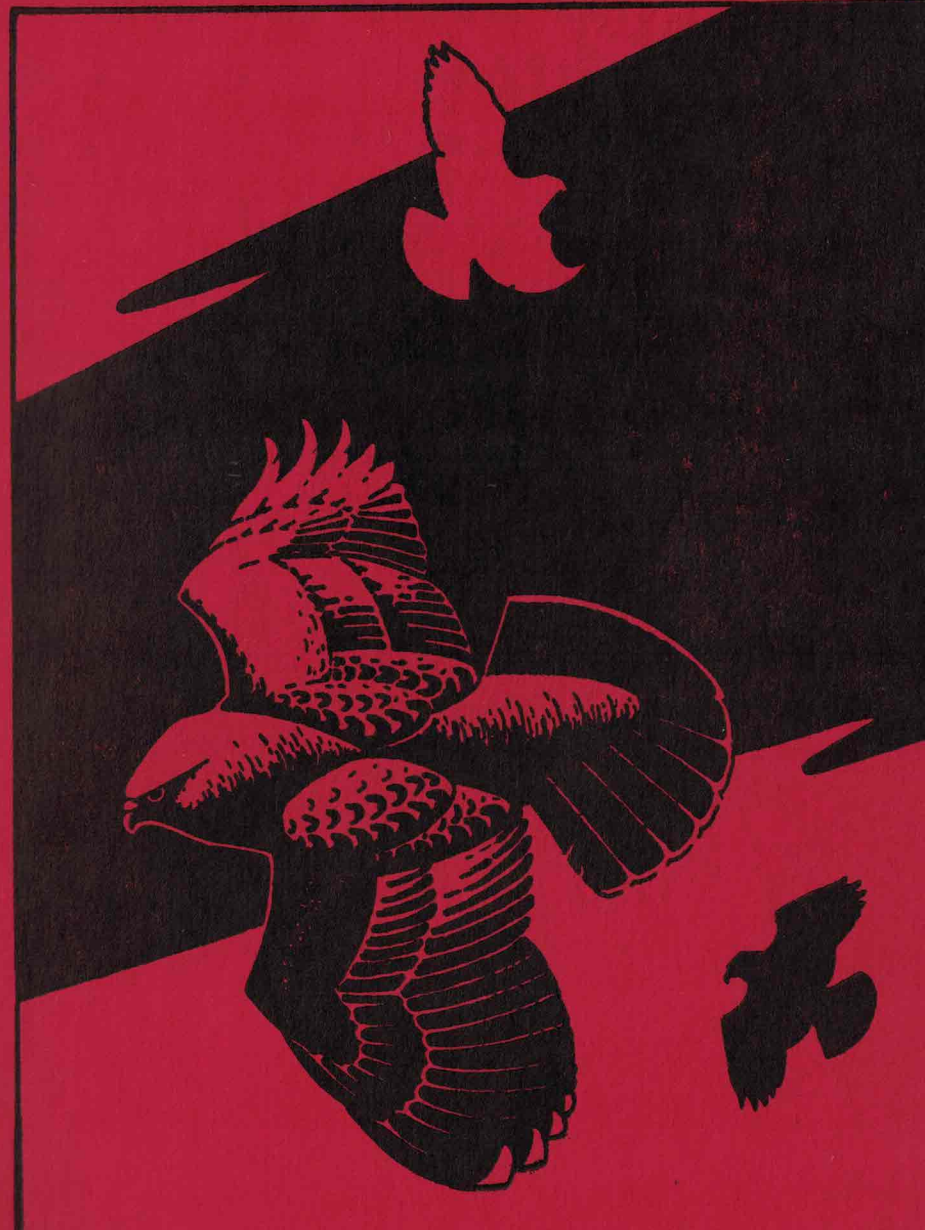


Lore

VOL. 2 FALL ISSUE NO. 4



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MILWAUKEE PUBLIC MUSEUM

Founded By The City of Milwaukee, 1833

"To remain . . . as a free museum for public instruction and the preservation of materials and helps for scientific investigation."

818 W. Wisconsin Avenue

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LORE

Published quarterly by order of the Board of Trustees.

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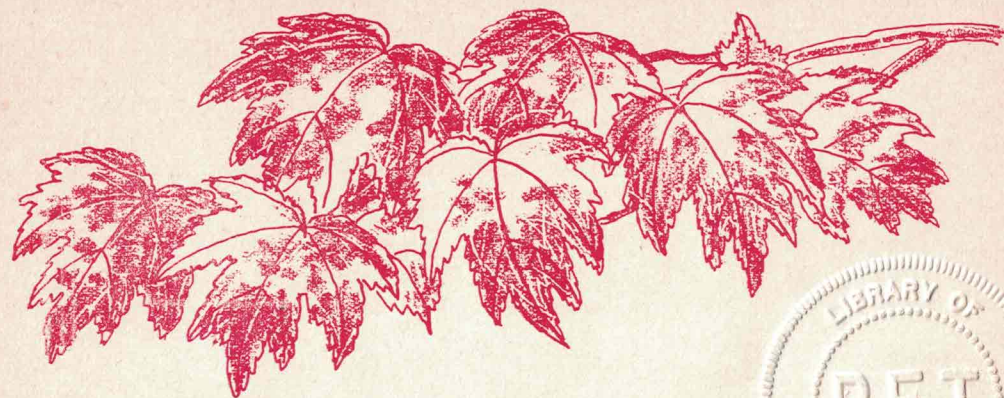
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Fall..

In gratitude

For sun and rain and summer's mood,
The waning season steals the show
As harvests grow.

In one last fling,

Kaleidoscopic colors ring
In gay, pigmented notes to tell
Of Autumn's knell.

In bright array,

These vivid, dancing colors play
Chromatic, stirring symphonies
With flaming trees.

Reborn once more

One year from now in hues galore,
We mourn her not, but live to yearn
For Fall's return.

—C. K. Gebhardt



The Sky Riders

by
"DIXIE" LARKIN



Thrills today are common, but if you have missed this one don't put it off another year. It is time for the big show to start at the "Wisconsin Wildlife Sanctuary" near Cedar Grove. The area lies along the shore of Lake Michigan, thirteen miles north of Port Washington. There, during the weeks following September first (and extending on into October), if we have a cold north or northwest wind blowing, you will find many Wisconsin bird watchers sitting on top of a high, windswept ridge, well bundled in sweaters, scarves, and windbreakers, their binoculars trained on the sky.

The ridge rises abruptly above a low flat area of woods and open grassy spots extending to Lake Michigan's sandy beach. Hawks riding the invisible updrafts are funneled along the eastern side of the ridge. Probably for thousands of years the hawks have followed this express highway south. For many years the Milwaukee Public Museum regularly conducted a hawk banding station there, and finally, through the efforts of a few conservation-minded people, the area was set aside as a Wildlife Sanctuary by the Wisconsin Con-

D-TAILED HAWK

PHOTO. BY ED. PRINS



servation Department, so that all the people of this state might enjoy a ringside seat at this marvelous and mysterious performance.

First come the broadwings, one of our most beloved *Buteos*, with rounded broad wings and wide banded tail, whose food diet, consisting of 67 percent reptiles, amphibians, fish, insects and 15 percent mice and rats, make them valuable to man. Suddenly, as the watcher sits tense and expectant, a tiny speck appears, seemingly from nowhere, and gradually grows larger until the bird is directly overhead, or just to the east of the ridge, when the heavily barred belly and sides may be seen. This hawk never occurs in winter as it migrates early to Central America to spend the cold months.

If you are lucky, a bald eagle or a turkey vulture may glide along. Then a great cry of excitement goes up from the watchers.

Always depending on the weather, great numbers of *Accipiters*, with their short rounded wings and relatively long tails, sometimes called "pursuit ships" as contrasted to the more slowly moving, heavily bodied *Buteo* "bombers," race along, hardly giving one time to call, "Sharpshins," or "Cooper's."

When the pumpkins are ripe, corn is in the shock, and jugs of cider appear at roadside stands, the beautiful *Buteos*, red-tailed, red-shouldered, and rough-leg hawks pour through. Sometimes we have seen many hundreds and, on rare occasions, even thousands of them. They sail, mere specks in the blue sky, as far up as the eyes can see with a highpower binocular, drained from thousands of square miles of northern woodland. For a little while they float, sail, and glide, and then are gone with the wind.

Several times during the spectacle, from September to November, the rarer falcons may be seen; the so-called "hawks of the nobility." Their long, pointed wings and relatively short tails equip these birds with the speed necessary to overtake their prey in sustained flight. In airplane simile, truly these are the "jet-propelled" birds of prey. The duck hawk or peregrine, and the pigeon and sparrow hawk, are among these. Rarely we may see a western species of hawk, and then there is tremendous excitement and thrills aplenty.

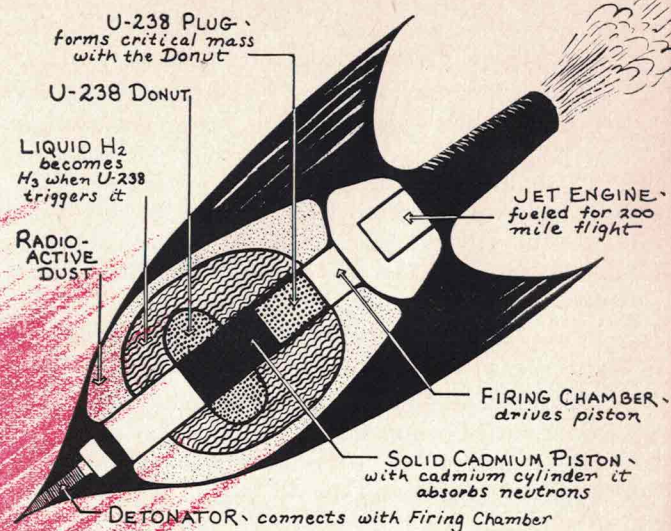
All of the hawks are protected in Wisconsin because conservationists and farmers particularly are beginning to realize the important place they hold in helping to maintain the balance of nature, since their main foods consist of such destructive rodents as rabbits, mice, rats, and gophers, and also many insects.

MARSH HAWK

PHOTO. BY CARL BERNDT



RELEASED BY CARRIER PLANE



AN IMAGINARY DESIGN for a self-propelled bomb. The main explosion is due to H_3 (tritium) and could destroy an area of 700 square miles. The radio-active dust is an insulator and heat absorber, but can pollute an area of 33,000 square miles when wind borne.

BOMB

by A. JOSEPH GILLAN
Physics Editor

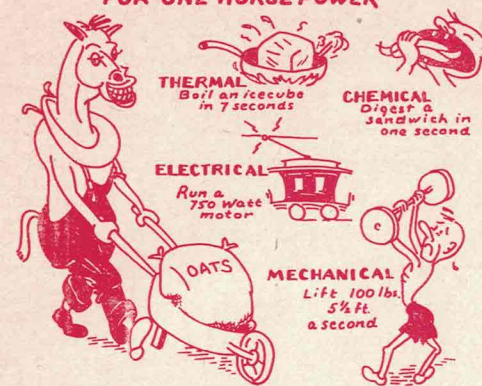
CARTOONS BY AUTHOR

It is rumored that there is a big, bad bomb which, as any high school lad can tell you, converts hydrogen into helium, and BOOM! The old-fashioned fission bomb will be like a firecracker in comparison.

Articles written about it often employ technical terms and overlook simple explanations of basic principles. For example, consider the following erudite gem of explicit verbiage (my own, and somewhat exaggerated definition): An atomic explosion is the release of mass-equivalent energy of ultrafinite degree in infra-infinitesimal tempo consequent upon reduction of mass number through nuclear transmutation.

This article is for the reader who prefers a lengthier but simpler description. It begins with a consideration of energy itself, without which there can be not even a whisper of an explosion. *Energy is simply ability to do work.* The work horse has long been admired for his ability, and even today we speak of the horsepower of machines. A standard horse should be able to raise 550 pounds a foot high for every second that it works. This trick takes muscle, but if you prefer you can raise 100 lbs. to $5\frac{1}{2}$ feet every second, and be working just as hard.

VARIOUS KINDS OF ENERGY FOR ONE HORSE POWER



You say you work like a horse? Well, maybe—but even a horse can't do it for long. His stomach can't take the strain. Energy supplied by muscles has to be replaced, and this comes from the food eaten. Imagine this: for every second you work like a horse, you must consume either an average sandwich or a half-glass of milk. No wonder they taught the horse to eat

hay! One minute of working like that and you'd need 30 sandwiches and 7 pints of milk topped off by 100 stalks of asparagus. Balanced diet, you know!

Fortunately energy can be stored up. *This is potential energy.* Active or *kinetic* energy is what a golf-ball has in flight. If you get hit by the ball and take off after the fellow who did it, the potential energy in your muscles is being changed into kinetic energy to drive your legs.

Energy has a peculiar effect on the weight of an object. A woman can caress a child with a feather-light touch, or deliver a tooth-rattling slap with the same hand. In a crude way, this suggests a remarkable scientific fact: energy can increase the effective mass of an object.

Einstein and other physicists have demonstrated the truth of this. They have shown that *all energy has mass!* A one-ounce ball will weigh two ounces if given sufficient speed. In fact, it can be given any desired weight by increasing its kinetic energy. This means that the extra ounce in weight which the golf ball gained is the *mass of its energy.* Of course, weight and mass are closely allied. The weight of a mass is due to the attraction the earth has for it. On the earth, a pound mass has a pound of weight, but on the moon the same mass would weigh a few ounces.

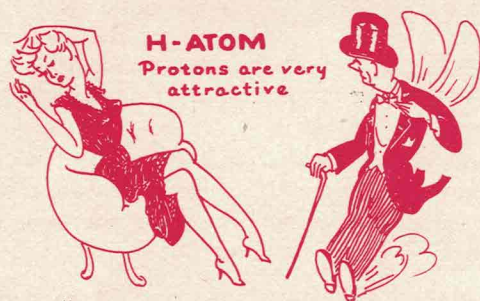
Now then, if all energy has mass, is it possible that all mass has energy? Yes indeed! The recent discovery of this secret led to the atom bomb and the hope of cheap power from atomic energy.

Every material substance is made of atoms, the smallest and simplest of which are hydrogen atoms. Many attempts have been made to picture atoms,

ENERGY INCREASES MASS



but they are far too small to be seen. Customarily they are pictured as small spheres or balls having smaller balls that gravitate around them, like planets around suns. The hydrogen atom consists of a single, relatively large sun, called a *proton*, with a single, small planet, called an *electron*. The "sun" is so much larger than its "planet" that the mass of the latter can be neglected, generally. The important thing is that this tiny electron carries an electrical charge just as large as, but of a different kind than that carried by the proton. This makes a strong attraction of the one for the other. The proton has the same effect upon the electron as a pretty girl has on suitors. She keeps them excited and in the neighborhood.



Electrons are not quite dependable, however, and when another proton seems attractive enough, they switch their affections. One might say that they are sparking a new girl, for actually a true electrical spark is the result of electrons jumping from one proton to another. Generally a proton plays "hard to get" and is quite content to have the electron play the rôle of suitor, but a certain number of them get married, as it were. Electrons so captured are drawn quite close to the proton, and thereafter pay no attention to other protons, and other protons seem to have no interest in them. This wedded couple is known as a *neutron*. A neutron has exactly the mass of a proton and electron combined.

Protons avoid each other whenever possible. Electrons also have strong dislike for the company of other electrons. However, under proper circumstances they will get together. In the formation of helium from hydrogen, the four hydrogen atoms must get together. After considerable persuasion, the four protons will get into a group and hold a heated



argument, probably over who gets married to whom. According to the rules of this game, two of the protons get married to electrons, and two remain single. By the time this is settled they have used up so much energy arguing that they have actually lost weight. Finally they settle down to an arrangement whereby two protons and two neutrons form the nucleus of the atom, and the remaining two electrons stay in the picture as satellites.



We have mentioned that almost the entire mass of a hydrogen atom is due to the proton, which is 1870 times heavier than the electron. Since the hydrogen atom has only one proton in it, we can conveniently consider it to have a mass of unit atomic weight; that is, *hydrogen has a mass number of 1*. Neutrons are merely protons wedded to elec-

trons, so we would expect helium, which has two protons and two neutrons, to have a mass number of 4. But when the four hydrogens become helium, as just explained, a little matter of 0.028 mass units is expended as energy during the argument. Let's see what this amounts to.

One mass unit (or one hydrogen atom, which is the same thing) has an energy value of 0.015 ergs. The *erg* is a very tiny measure of energy. A mosquito in flight requires about an erg of energy every second. This means that it takes 65 hydrogen atoms a second to keep the mosquito in the air. If this is so, what value can there be in a mere 0.028 of a single hydrogen atom? Well, if you can get enough hydrogen atoms to contribute this little bit it might amount to something in total. We will start with an ounce of hydrogen. This will give us 18,000,000,000,000,000,000,000,000 atoms. (Don't try to read this number, just count the zeros! Physicists would call this 18 times 10 to the 24th power.) This number of atoms will furnish 126,000,000,000,000,000,000,000 mass units when changed into helium. (If you read this number as 126 times 10 to the 21st power, you were right.) This mass of energy is equal to 5,250,000 kilowatt hours of electricity, which will—

- (a) light a 100-watt bulb for 6000 years, or
- (b) run an 800-HP motor for 1 year, or
- (c) lift a million tons a mile high.

Maybe this atomic energy is worth looking into after all!

The heat and light radiated by the sun could be



furnished by 4,000,000 tons of hydrogen changed into helium every second. The earth gets about four pounds of this as its share. Don't worry about the sun using up all its hydrogen in the next few years! The supply will last for billions of years, and the sun will actually be getting hotter for millions of years to come. The sun is actually a great H-bomb, but the process by which it changes hydrogen into helium is neither simple nor fast.

We couldn't use the same process the sun does because the cycle is too slow, over a million years. We must "improve on nature." This requires the use of heavy hydrogen, or heavy water (which is water whose molecules

FUSION TIME VARIATIONS

MATERIAL	REACTION TIME	PRODUCT
$O + O$ hydrogen	1,000,000 Years	$\bullet\bullet$ deuterons
$\bullet\bullet + \bullet\bullet$ deuterons	.00003 Second	$\bullet\bullet\bullet$ tritons
$\bullet\bullet\bullet + \bullet\bullet\bullet$ tritons	less than a millionth second	$\bullet\bullet\bullet\bullet$ helium

contain heavy hydrogen). Although normally protons are antagonistic to each other, there are exceptions. Some hydrogen atoms contain two protons, that, like twin sisters, get along well together and are satisfied to share a single electron suitor. These amiable creatures can be used to form helium much more quickly than ordinary hydrogen atoms. They can also be used to form tritium, a super-heavy hydrogen, which can be used to form helium very easily.

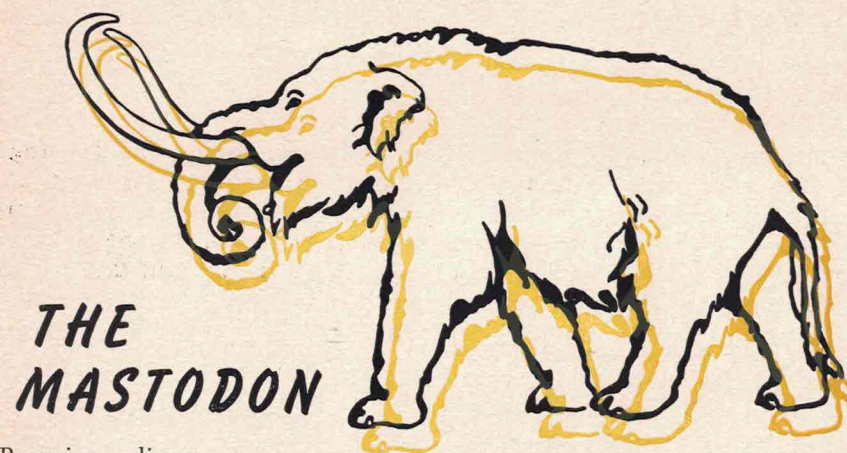
The importance of the time required to fuse helium from hydrogen is realized when we consider the trigger of an H-bomb. The energy for fusion is furnished by the old fission bomb, which explodes in about a millionth of a second. Fusion time must be at least as short or the hydrogen fuel is going to scatter over the landscape before it can fuse.

The H-bomb we illustrate on page 100 has not been copied from the files of the AEC or War Department. It is constructed from information easily found in books in libraries, available to all the world.

The U-238 "doughnut" with its plug is merely a trigger, the old fission bomb. To get the plug into the hole, the cadmium piston is driven by an explosion in a fuel chamber such as found in automobile engines. Around the cylinder is a mixture of heavy hydrogens in liquid form under pressure. The mixture is one that will explode in less than a millionth of a second. A radar set, in the nose, steers the missile and explodes it when the target is

approached. A jet engine, fueled for 15 minutes of flight, propels it.

A diabolical addition, making the weapon more interesting, is a packing of radioactive waste dust (of which we have more than we know what to do with) between the double walls of the thermos-type container for the liquid hydrogen. Thus, while the explosion will destroy everything over an area of 700 square miles, the dust will float down over a much larger area, say 33,000 square miles. An almost invisible layer of it will kill every living thing, plant or animal, for some days after the explosion. Three such bombs would take care of the entire state of Wisconsin. However, their explosion would probably be in violation of our firecracker ordinances.

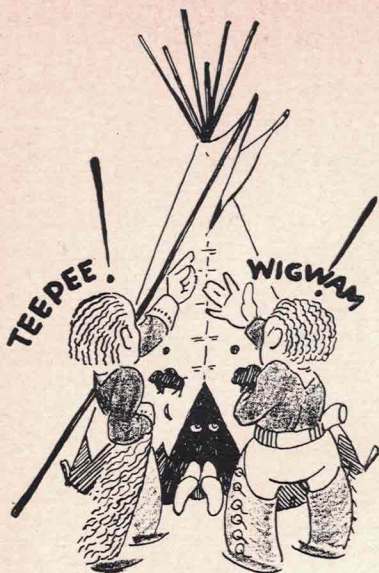


(Remains discovered near Lodi, Ohio)

We delve into the earth; we dig and tear
With aching hands to where, two feet beneath,
Within a shallow grave, half-buried there,
The massive thigh bone, the preponderant teeth—
And fifteen thousand years dissolve away
(Less than an instant reckoned out of time)
While still we struggle through the muck and clay
To lift the past out of the layered slime.

Then we will match the pieces, bone to bone,
Seeking to fit these fragments that remain
Into the common, pristine mastodon
That once ran wild on the postglacial plain.
Yet, as we dig, we pause and dimly sense
We are the fossils of millennia hence.

—Mae Winkler Goodman

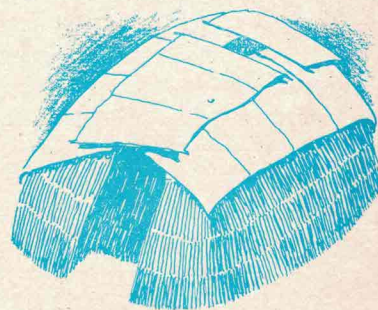


TEEPEE OR NOT TEEPEE THAT IS THE QUESTION

by A. W. BAUERNFEIND, Recorder

The story is told of two movie actors, on location during the "shooting" of a Western picture, who were arguing as to the correct name for an Indian's home. One said it was "teepee," while the other was sure it was "wigwam." While they were arguing, a Paiute Indian came along and they decided to ask him. Pointing, they asked, "What do *you* call that?" The Indian took one look and replied, "A tent."

The fact is, there is no general term which covers all types of Indian houses. We in Wisconsin generally use the term "wigwam," probably because the Indians who inhabited the woodlands of our state lived in houses so called. They were half-domed in shape and were constructed of a framework of tree branches or saplings, covered with bark and mats.



WIGWAM



TEEPEE

The Indians of the Great Plains built their houses of poles and animal skins, but arranged the framework in the shape of a cone, and this type is called a teepee, or tipi.

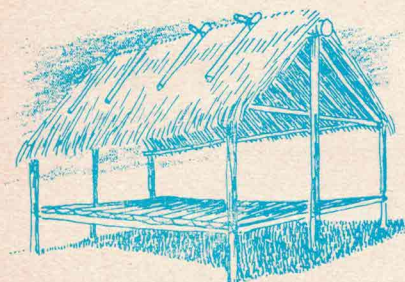
As we turn our gaze to other parts of the country, we see various types, materials, and names—types ranging from the single-family dwelling to communal habitations which housed many families; materials ranging from

rushes to wooden planks, mud, sun-dried brick, or stone; and named "chickee," "hogan," "pueblo," or other names as determined by the particular Indian language spoken.

A type of house found primarily in the Dakotas was the earth lodge, consisting of a wooden framework built over a pit and covered with a dome-shaped top of brush and sod. The grass hut of the Wichita of Kansas was also circular and dome-shaped. The Navaho "hogan" was a circular, dome-shaped structure built largely of logs and roofed with earth or mud. Houses made of rushes, called tule, were built by the Pomo of California. Again we see the circular shape and the domed roof.



HOGAN



CHICKEE

In Florida, the Seminoles built their "chickee" in a rectangular shape. It was simply a gable-shaped, thatched roof over a raised floor, supported by log posts, but without any side walls—truly an open house. The Iroquois longhouse, too, was rectangular in shape, constructed of logs set vertically, or of poles and bark, and with a thatched, gable roof.

On the Pacific Northwest Coast, the land of the tall timber, houses, complete with totem poles, were built of split-cedar planks, providing permanency and protection from weather.

One of the most interesting forms of dwelling, the pueblo, is found in the Southwest. These buildings, made of sandstone or adobe, or both, were often several stories high and housed anywhere from a number of families to an entire community.

These are the types illustrated in a Museum exhibit recently opened, which also shows the locations of the various types on an outline map of the United States.

A number of other types were found in various sections of our country, but these are the important and most distinctive ones, certainly sufficient to demonstrate that there is no general type of, or name for Indian houses.



PUEBLO



PLAZA
CHIHUAHUA

¿A DONDE VA?

by ELMER R. NELSON, Curator of Geology

PHOTOGRAPHS BY AUTHOR

"¿A donde va?"

The last syllable exploded in my ear.

"What did you say?" I asked the officer, who had with one remark shattered what little confidence I had acquired during two weeks of boning up on Spanish idioms.

"¿A donde va?"

This sounded like nothing I had seen in my thumb-worn GI Spanish book. Here was I only fifty feet from the border and lost already.

"What do you mean—adundeeba? Don't you speak English?"

"Yes."

"Well, I don't speak Spanish even if my truck does."

I pointed to the printing on the side of the truck where in large print, in both English and Spanish, I and my mission were identified. My attempt at humor was ignored.

"Where are you going?" he asked, unexplosively.

"I'm going to Chihuahua, Durango, and lots of other places," I answered hopefully.

He explained then that I would need to get a truck permit from the immigration office and have the customs officers examine the contents of the truck. You would have thought that in the abundant correspondence which had preceded this trip, and the handful of consular letters I was armed with, that I would be spared these preliminaries. Since I wasn't, I eased out of the line of cars which, bumper to bumper, were crossing the international bridge

at El Paso, and proceeded to the immigration office.

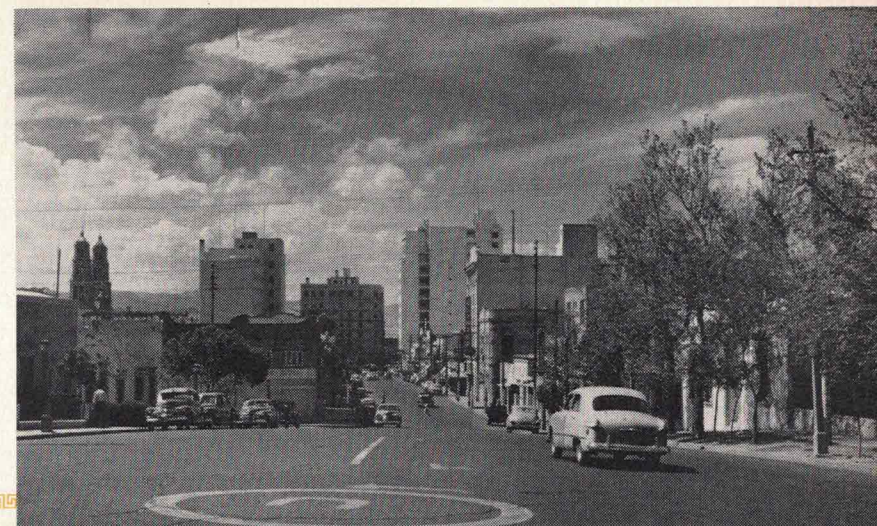
I spent the next two hours impatiently waiting for the customs officers to fine-comb my truck. The fifty gallons of gasoline and forty gallons of water were easily identified and OK'd. To the crowd of curious onlookers I must have resembled Ali Baba entering Damascus with his forty man-size vessels of oil. The rest of the supplies took somewhat more time to examine and classify: boxes of photographic equipment, tripods big and small, a chuck box, a Coleman stove, a plant press, an air mattress, hammers and axes, and a myriad of other trivia such as only a geologist would tote with him.

Finally I was released and sent on my way. I twisted through Juarez traffic on the way to the city of Chihuahua. My bright-red Ford truck, with its shiny corrugated aluminum top covering the load of expeditionary equipment, caused sleepy natives to turn and gape.

Soon I was out of town on the main highway southward. The late morning light was typical of early March. A coppery sun was piercing with increasing success the heavy dusty air that was moving into the Rio Grande Valley from the desert to the south.

I was just beginning to pick up a bit of momentum when, a dozen or so miles further on, I was stopped again for inspection. I began to wonder if a trip into Mexico was worth all the obstacles, including shots for small pox, typhoid, tetanus, et cetera. Fortunately, the stop here turned out to be a short one. It was only about twenty minutes before I was skimming over a smooth macadam highway on my way to Chihuahua.

The wind had risen considerably. Sand and dust were driven in great clouds across the flat plateau. Dunes of sand sifted restlessly before the oncoming wind, at times even encroaching upon the pavement. Out of the corner of my eye I could see the interminable variety of wind ripples punctuated here and there with yucca and cactus. If one were prone to loneliness, this would be the ideal spot to wallow in it—only one's self and endless



SHOPPING
CENTER
CHIHUAHUA

sand. I could not help reflecting a moment on the steadfast courage of early missionaries, singly or in pairs, who covered this same lonely trail by foot. I banished the thought. I was too soft to relish the comparison. Besides, comparisons are odious.

The map indicated a number of small villages along the route. I drew some degree of comfort from the prospect of human habitations until, one after another, I passed the "villages" in the form of signboards beside the road. However, Villa Ahumada turned out to be a bona fide village, the counterpart of the little hamlets in this country which we affectionately call "whistle stops." It was late afternoon and I was hungry. I stopped near a building which bore the sign of a restaurant.

I had hardly come to a stop when an immigration officer ran up to the truck. I was all set to show him my sturdy bundle of letters and papers when he made known to me that all he wanted was a ride to the next inspection station to the south. He was willing to wait while I ate. And what did I get? Not tortillas, frijoles, tacos, or tamales, in this, my first native restaurant, but a spam sandwich and a bottle of beer.

Having thus refreshed myself, my newly acquired companion and I set out. He made himself comfortable by removing his shoes, much after the practice of the fair sex of my own country. He spoke no English, but that didn't prevent discourse. We swapped vocabulary if not ideas, he serving up his share with elegant manners and Pepsodent smiles.

Later his smiles faded when he thought I had stopped to camp for the night, but when he saw me produce the gas tank from the Fibber McGee impedimenta, he cheerfully gave a helpful hand.

The inspection at the next station was very short and snappy, for my buddy, having seen the interior of the truck, could vouch for the harmlessness of its contents. We bowed and scraped and said *adios* many times, and then, once again alone, I snaked my way over the hilly country to Chihuahua. The day was drawing to a close. The short southern twilight slipped by almost unnoticed, and then it was dark.

I arrived at Chihuahua, 376 kilometers from El Paso, at 8:00 o'clock. I was tired and hungry and eager to meet my friend, Jack Despins, who had

come down from El Paso earlier that day, and together we dined at a fashionably late hour, this time on what I'd been promising my cosmopolitan palate: garlic soup, chicken tacos, Mexican cakes, and strong, black coffee.

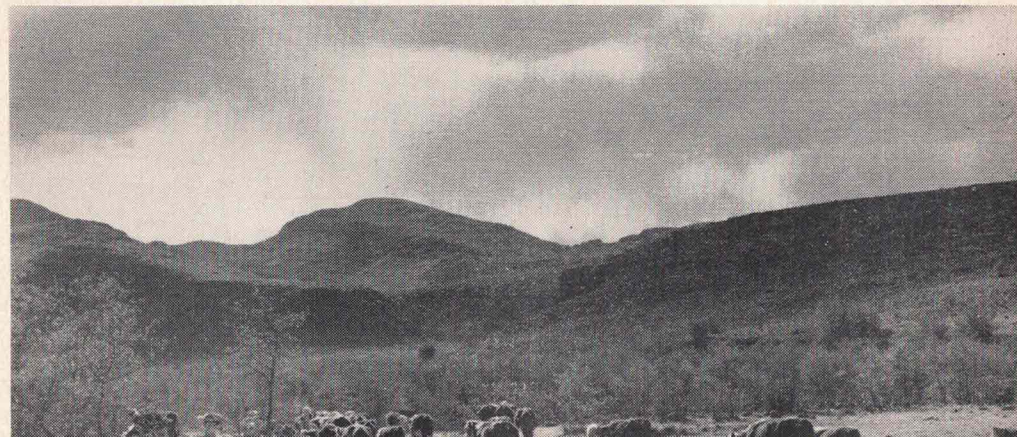
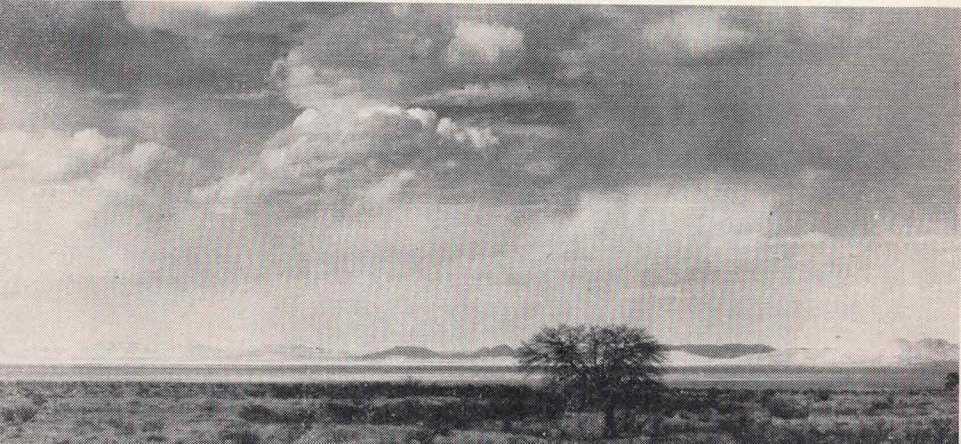
The next morning Jack showed me the town, which surpassed my expectations, although I'd known its population to be over 112,000. Chihuahua is essentially a commercial city, being the main supply center and distribution point for thousands of square miles of north central Mexico. There is considerable mining and smelting activity in nearby Santa Eulalia, while in the surrounding mountains cattle are raised in prodigious numbers.

The view from the plaza was modern and metropolitan, except for the twin spires of the cathedral, started in 1717 and finished in 1789, and said to be one of the most famous New World examples of baroque architecture. Though freedom from Romanesque and Gothic tradition was being enjoyed in Seventeenth Century Spain, the rampant and joyous delight in new and startling design was even more conspicuous in the New World. Columns of great variety grace the portals: twisted columns, fluted columns, columns interrupted midway by a seemingly spontaneous outburst of design. Statues adorn the niches between the columns, and the over-all riotous scroll work makes a very resplendent facade. Tall twin towers rise in three graceful, ever diminishing stories of columns and arches.

One September morning in 1810, in the shadow of these magnificent spires, Miguel Hidalgo, Ignacio Allende, and Don Juan Aldama, leaders of the ill-fated revolution, were executed, thereby gaining the fame and prestige of martyrdom. These heroes live in the names of villages and towns scattered over the countryside.

And now, if one were to ask me at the border, "¿A donde va?" I should know what to reply. "I go to that city on the desert where a new and modern civilization has been built in the shadow of the Old World, where still linger the glory of the conquistadors and the faith of the padres, where a difference in speech turns out to be a happy adventure, and where friendships are born with a smile and a handshake."

The next episode will appear in the Winter number of Lore.

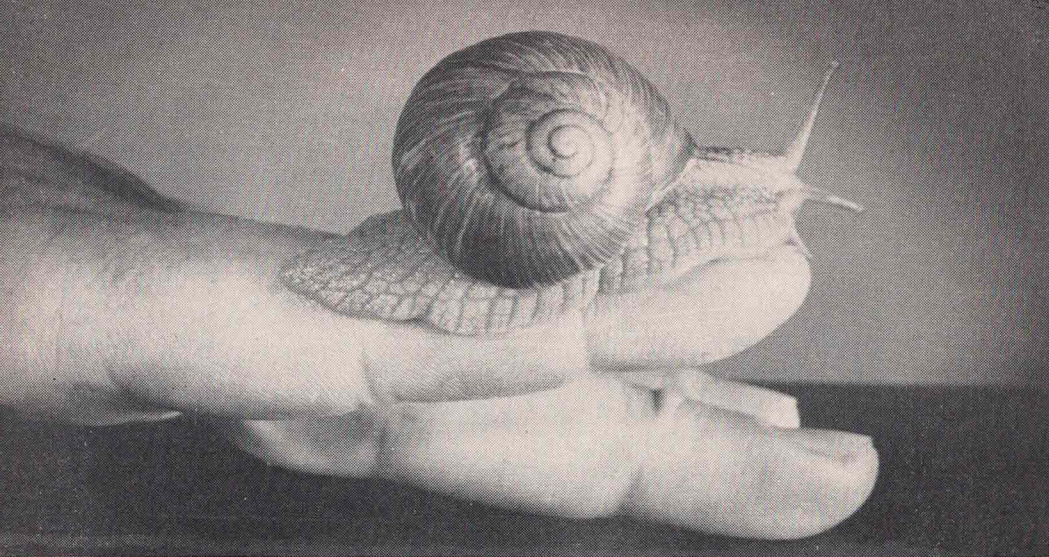




CATHEDRAL AT CHIHUAHUA

SOUTH PORTAL OF CATHEDRAL





EDIBLE ALIENS

by

LAURA LEVI

UNIVERSITY OF WISCONSIN EXTENSION CENTER, WAUSAU, WIS.

Milwaukee citizens may be surprised to learn that a delicious but potentially dangerous alien is living among them. Several years ago a thriving colony of giant snails (*Helix pomatia*), the famed European "Weinberg-schnecke," was called to our attention by Mr. Rudolph Boettger of Milwaukee. They were found on an island in the upper Milwaukee River. The discovery caused renewed interest among Wisconsin students of mollusks, for this species of the destructive *Helix* snails has, to our knowledge, established itself in only one other place in the United States. Though it has not yet caused extensive damage in either place, perhaps due to the peculiarities of the situations in which it has established itself, the animal is notorious in Europe for its depredations in gardens, orchards, and vineyards. Until its discovery locally, several previous records from Milwaukee had been dismissed as stray shells left over from the days when Milwaukee Germans staged outdoor snail feasts, using imported "escargots."

The snail, measuring two to three inches in length, carries a brown spiral shell. Engineers and artists will recognize the name "helix" as that given to any spiral.

Because of its size, abundance, and fine flavor, the snail is highly prized in most European countries as a table delicacy. In Paris alone, about 50 tons a day are consumed during the snail season, which reaches its peak during Lent. As snail flesh is not considered to be meat, in the narrow sense of the word, it may be eaten on fast days. Many of the snails used are collected by gardeners in order to protect their vineyards and crops from attack by these voracious eaters. However, it is so popular, that to meet the demand,

it is necessary to farm the snails on a commercial scale in elaborately fenced pens where they are fed on cabbage, lettuce, potatoes, bran mash, and fruit. Pliny tells us that as long ago as 50, B.C., *Helix* was raised in Tuscany, where wine was an important part of the snails' diet.

In order to prepare these palatable mollusks for the table, they are either broiled in butter or steamed with rice. In olden times they were considered to have medicinal value, and broths or porridges of snails were used as laxatives, cough medicines, and as a treatment for consumption. The soothing effect of these brews is due to the snails' slime, which coats irritated surfaces and protects them.

Mr. Boettger reports that the part of the island where the snails live is flooded during the spring. The animals do not perish, however, for at this time of year they are hibernating. In fall, each snail digs a small hole about six inches deep, and lines it with slime. Inside the hole, the snail withdraws into its shell, sealing the opening with a chalky lid. This hibernation period ends in spring normally, but may continue through some years if spring rains fail. The "Singing Snail" of French literature is a *Helix* which makes a peculiar squeak for a few weeks after emerging from hibernation.

In keeping with tradition, snails turn to love in the spring. Courting snails "dance" two inch circles around each other at a stepped-up snail speed. They are hermaphroditic, that is each snail functions as both male and female. During mating, the unusual "Liebespfeil," or love dart, is implanted by each snail into its partner. As this horny, barbed dart, thought to be an aphrodisiac, cannot be withdrawn, it breaks off when the snails separate; but, another is grown in a day. Both participants in the mating procedure ultimately lay 60 to 80 white, pin-head sized eggs in little holes in the soil. These eggs, which have hard shells like those of chickens, hatch in about 25 days. The translucent baby snails, whose life expectancy is 6 to 8 years, eat their egg shells for their first meal, scraping off little bits with their tooth covered, tongue-like rasps.

Each snail has on its head two pair of feelers; the longer and higher pair bear eyes at their extremities which are sensitive to various light intensities, but do not produce an image. The shorter and lower pair probably are the scent organs which enable their owner to find hidden food at a distance of

HABITAT



as much as 18 inches.

The proverbial "snail's pace" has been clocked at about two inches per minute, and is one of the most unique methods of locomotion to be found in the animal kingdom. It is accomplished by ripples or waves of muscular contractions which move forward from the back of the flat projecting foot, thus advancing each successive portion for a short distance. A gland opening near the mouth literally lays down a smooth highway of slime as the animal moves along. The slime is so tough that a snail can crawl over the edge of a razor blade without injuring itself.

It is not surprising, considering the importance of snails to the Europeans, that immigrants to this country should have brought with them snails, which they hoped to cultivate in America. Thus it is that we have several members of the *Helix* group in this country: *Helix pomatia* from Germany and Switzerland, *Helix aspersa* from Spain and Italy, and *Helix aperta* from France. Once the snails escaped captivity in California, they became uncontrollable, stripping orange groves, truck gardens, and vineyards. At one time 789 individuals were counted on a plant less than 24 inches tall, and as many as 3,000 have been found on a single orange tree. The state of California launched a campaign, using flame throwers, poison baits, and hand-picking methods to bring the animals under control, but has no hopes of completely eradicating the snails. Luckily, the Milwaukee population is confined to an island, and the snails probably will not become serious pests here as long as they are isolated.

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The Guide Book is a product of Friends of the Museum, published on your Museum press—with your money. This has made it possible to sell this extensively illustrated booklet for the small amount of thirty-five cents. Of course, a copy will be mailed to all members without cost.

We invite your frank criticism of the Guide Book.

Ed.

Snails

The life of a snail is a fight against odds,
Though fought without fever or flummox,
You see, they are one of those gastropods,
Who have to proceed on their stomachs.

Now how would you like to go round on your own
Especially if it were gummy;
And where'er you travelled, leave on the cold stone
The horrid imprint of your tummy?

Wherever you went by this glutinous trail,
Some boring acquaintance would follow;
And this is the miserable fate of the snail
Who is pestered to death by the swallow.

Now hark to the reason why numberless snails
Will cast themselves into abysses;
They are none of them born to be definite males,
And none to be definite misses.

They're never quite certain which one of a pair
Is the Daddy and which is the Mummy;
And this must be really much harder to bear
Than going about on your tummy.

—English Folk Song

A TOTEM POLE GOES TO THE BEAUTY PARLOR

by R. E. RITZENTHALER
Acting Curator of Anthropology

THE FORTY-ONE FOOT totem pole that has stood for thirty years in front of the Milwaukee Public Museum as a silent sentinel has undergone a face-lifting. Sawn in half, it was brought to Milwaukee from British Columbia in 1921 via a specially routed flatcar. After being impregnated with creosote, it was erected on an eight foot high concrete foundation set well into the ground. A steel pole was embedded in the concrete, running up the interior rear of the cedar pole to provide a stiffening backbone against the strong winds of the Wisconsin winters.

Here was an excellent example of artistry in wood as done by the Haida Indians of the Queen Charlotte Islands, some forty miles off the coast of British Columbia, Canada. But immediately upon erection, a storm of protests arose from certain of the citizenry. Some insisted that such a piece of aboriginal American art clashed with the thirteenth century Italian renaissance architecture of the Museum Library building. A few mistaken souls thought it to be a phallic symbol and objected to it on moral grounds. Some just



didn't like it. The majority of Milwaukeeans, however, seemed impressed with their new, unique monument, and with the passing years it became accepted as part of the facade of Wisconsin Avenue.

As time went on, dirt and weathering deadened the once bright colors and the pole merged more and more into the gray obscurity of its background. The paint became blistered, cracked, and peeled by the sun until only tiny patches remained. With the protective layer of paint being gradually eliminated, water seeped more readily into the porous wood and its disintegration was accelerated. By 1951 some areas were badly rotted, and bits of the carved portions had fallen off.

For a long time it was felt that the pole should not be reconditioned, but rather allowed to weather and disintegrate, as is done by Northwest Coast Indians themselves. In 1951, however, it was decided that, because the totem pole was such an excellent specimen and an irreplaceable one, steps should be taken to repair and repaint it not only to restore its former colorful appeal, but also to help preserve it as long as possible for the people of this community. Accordingly a budget was drawn up, plans made, experts consulted as to the best technique for doing the job, and the actual work began on June 9, 1952.

A steel scaffold was erected and the loose paint removed by means of sandpaper and scraper. The pole was then completely covered with a white wood filler to seal it against moisture. The thirsty wood soaked up plenty of this primer coat. The larger cracks were then filled in with putty. New pieces of wood were carved in the carpenter shop to replace those which had rotted away, and these were nailed into place and painted. Loose portions were fastened on tightly by means of doweling. A finishing coat of white was added, and next a coat of the tan base color in enamel. Finally the colors were applied—bright, durable, automotive enamels in black, red, yellow, white, tan, and green to match the original hues. The work was done by the museum painter following a color chart supplied by the art department which showed exactly which areas should receive which colors. The whole repair and repainting job was done in 20 working days.

It now shines like a new penny. Once



more the symbolic animals of the East clan of the Haidas can be clearly seen. The important figures on such a pole are the heraldic crests inherited by and belonging to a clan, with the other carvings merely serving as ornamental fill. Interestingly enough, although this is an Eagle clan pole, the eagle is not represented on it, the raven and beaver being the clan symbols. It is believed that the clan members are ultimately descended from these animals.

At the top is a complete carving of the raven perched on a chief's hat, symbolized by three white cylindrical sections which indicate that the chief in whose honor this pole was erected had given three potlatch feasts. The potlatch was a wealth demonstration, given for such occasions as birth, puberty, marriage, death, and house building, at which great quantities of goods were distributed at a high rate of interest or destroyed and the prestige of the giver increased as a result. Below the chief's hat is a representation of the moon. A popular Haida story tells how Raven stole the moon from the chief's house where it was hidden in a box, and of his escape through the smoke hole in the roof. Descending the pole, in order, are carvings of the bear, frog, butterfly, raven, a human face, beaver, and finally an inverted face at the bottom. An inverted figure on a pole usually meant that a slave had been killed and buried under the pole at its erection.

Totem poles are of three general types: the house pole erected in front of the plank house of the owner, the house posts to be found in the interior of the dwelling, and the grave or memorial columns erected to the memory of an important person. The Milwaukee pole is of the latter type.

The Northwest Coast Indians were the only American Indians who made totem poles. Before the coming of the white man the carvings were done on planks, but with the introduction of metal tools by the whites, the round poles, such as this one, could be carved. Totem-pole carving was the work of paid specialists who had inherited the right to acquire this skill. The huge cedar logs were floated down to the village, rolled onto shore, carved and painted while on the ground by one or more artisans, slid into a prepared hole in the ground, and pulled upright by means of cedar-bark ropes. Some were as much as sixty feet in height and completely covered on front and sides with these conventionalized figures of fact and fiction.

The manner of portrayal of the figures is unique and interesting. To represent a certain animal, only one or two identifying symbols may be necessary. For example, the two large projecting incisor teeth and the cross-hatched tail symbolize the beaver no matter what type of face or body is represented. The hawk is identified by a curved beak the point of which is curved back to touch the face. The killer-whale is symbolized by a blow-hole and large dorsal fin, while the bear has long claws, large teeth, and a protruding tongue.

Totem-pole carving has been abandoned by the Northwest Coast Indians. While there are many still standing in that area, each passing year takes its toll and it is only a question of time before they will disappear from the local scene. Milwaukee is indeed fortunate in having such an outstanding example of this lost art.



MARY ANN GRAYSON

BAVARIAN QUILL EMBROIDERY

by ELDON G. WOLFF, Associate Curator of History

OF ALL THE problems which present themselves to a student of history, the "who-dunnits" are the most intriguing. A private file of "who-dunnits" comes in handy occasionally, supplying materials to while away a long evening or to stimulate otherwise lagging conversation. In instances no solution is reached, but generally the problem is clarified so that one at least knows where the blank pages are in the story. So it is in this case.

Recently, while going through some leather materials in the store room, a hitherto unsuspected quill-embroidered leather belt, noted as German, came to light. Another, definitely Bavarian, had been on exhibit as an accessory to a dance costume. Presumably the former is Bavarian also.

When one thinks about quill embroidery it is normal to envision the American Indian and the porcupine. Here, however, we must change to a Bavarian *hausfrau* and a bird, possibly a barnyard hen. The problem which presents itself is whence came the idea of using quills for embroidery in Bavaria? Is it a native craft in that country or was it introduced from America? If the latter, why is a different technique employed? Why are bird quills used instead of porcupine quills? The latter are available in Europe where the animal is also found. How old is the art? Is it practiced in other localities without our knowledge?

In the first place, the form of embroidery found in the two belts at hand is the same as that so universally used on cloth—a through-and-through stitch. In fact, it is the technique which many folk think was employed by our Indians, which, however, is not the case. The Indian form, with the exception of quill-decorated birch-bark boxes of late origin, consists of an applique of folded quills, held to the decorated surface by some form of sewing, usually a spot-stitch technique, the sewing being done with sinew. No through-and-through stitch is used. The under side of an Indian example of quillwork at best shows only an occasional sinew knot, but *no* quills.

The form of application, therefore, is not American.

Next comes the matter of material. Whether the bird from which the feathers were taken is wild or domestic we frankly cannot ascertain. That the material is feather quill is certain. The feathers must have been quite long, too, inasmuch as few ends are to be seen. In porcupine quill work remarkably short pieces have to be used, the ends being hidden beneath the work. Here, however, we can see the reverse side and, were the quills short, many ends would show. The wing feathers of chickens or ducks could furnish the needed material.

How wide-spread is the use of bird quills? Orchard, in his excellent work on quilling, states that, while bird quills were occasionally used along with those of the porcupine over the greater range of the art, the Alaskan Eskimo did weaving entirely with bird quills. This, however, is not the same tech-



nique as used by the Indians. Split bird quills have one glossy side and one dull side. Porcupine quills are round, glossy all over, and need not be split for use. They are flattened just before being applied. This permits a wide range of techniques to produce unique effects. Bird quills, on the other hand, can be used in a limited number of ways only, granting that the glossy surface is to show. Hence, in the Bavarian product, the through-and-through stitch is employed.

A feature which strikes one rather forcefully is the lack of colors. The quills are not dyed. One of the belts which we are examining is embroidered with what appears to be quills in green, yellow and red, but a close inspection reveals that the colored strips are leather, not quill. A rosette of red leather has been applique and thereafter embroidered with quills and colored leather strips. Five other areas are similarly treated. This combination of applique and embroidery is not native American. Examples recently produced by the Indians following European techniques employ the white man's materials.

In attempting to prove the possibility of the idea of quilling coming from America, one must look for a trail. None exists across the Atlantic, nor in Europe for that matter. If the idea came in that direction, the fact that it "took" in Bavaria is curious. Inasmuch as bird quill embroidery is found in Alaska, one would expect that a route should be found across northern Asia. The art has not been reported as existing even south of Siberia, and we know nothing of it in the north. Were it to have come westward overland it should logically crop up in the Baltic countries where it would have been appreciated. The art and handicrafts among the Scandinavians show no suggestion of quillwork, although needlework and conventional embroideries are well known.

So, here is our "who-dunnit." Is quillwork native to Bavaria or has it been introduced? Why bird quills? Why a through-and-through stitch with applique? Why the addition of colored leather instead of dyed quills? If the idea is imported, how and whence did it come? Have you an answer?



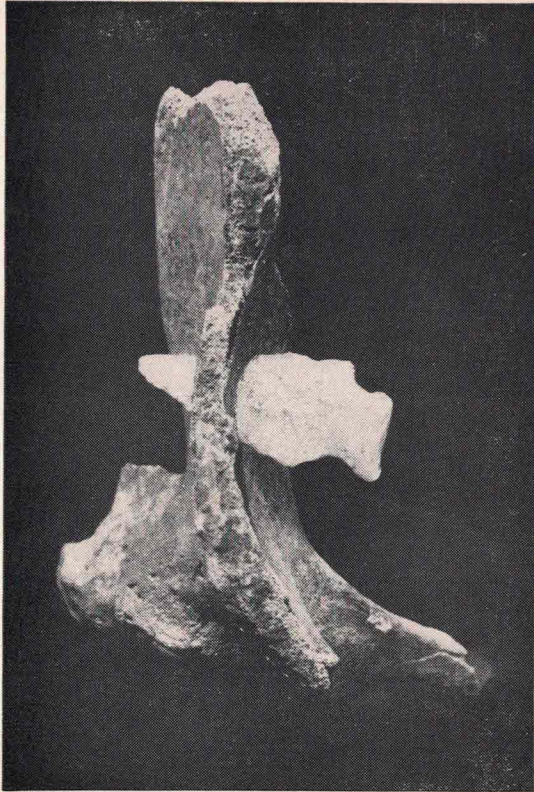
Nope!

A hibernating, sluggish bear
Sucks not his paw for winter fare.
He lives on fat through summer stored,
Which neatly solves his room and board.



DEATH IN THE FOREST

by
**ARTHUR
NIEHOFF**
Division of
Anthropology



"ONE INANIMATE bone (human) with arrow-point imbedded, Kratz Creek Group, American Indian, Marquette Co., Wisconsin." This is the Milwaukee Public Museum catalog description of a specimen consisting of a piece of bone, the part of a pelvis, through which a stone arrowpoint was driven. The words are brief and explicit, sufficient for the purpose of cataloging it. Moreover, not too much more is known about it. The bone was recovered by archeologists while excavating one of several mounds near Buffalo Lake in Marquette County. It was one part of forty-five skeletons buried there. The skeletons had all been jumbled together with no care taken to keep all the bones of one person associated. The pelvis, or hip bone, came from the bottom of this mass.

The bodies of these persons originally had been placed in trees, or on scaffolds, and later the bones had been taken down and wrapped in bundles for permanent burial. On the bottom of their final burial place sacred sand had been spread. Then the forty-five bundles were put in and covered up, the earth being heaped over the grave until it stood about six feet above the surrounding land.

But what of the person, the Indian, who was struck by the arrow, and who probably was killed by it? For he could well have died from its effects. The arrow went through his abdomen, through some of his vital organs. Even if no vital organ were pierced, the point remained imbedded in the bone, and he probably died from its effects shortly after, for no knitting of the bone at the site of imbedment is discernible and he was buried without it ever having been removed. I imagine the scene to be somewhat like this:

It is very early morning in the Indian village. The first awakening calls of the forest birds announce the coming of the new day, though there is no perceptible change in light yet to the human eye. There are only the sounds of sleep noises coming from the birch bark houses. But suddenly there is a shriek and the young Indian father leaps up from his reed mat, instantaneously awake and grasping his bow and arrows. The camp is being attacked! When he gets to the doorway he sees the vague shapes of the enemy racing from one house to another, trying to kill the occupants before they can rally. The men are trying to hold off the attackers so that the women and children can escape.

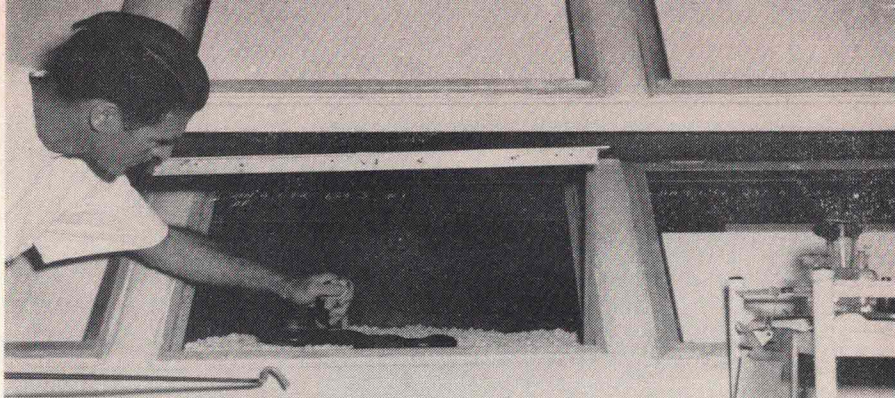
One of the enemy sees the young brave and races towards him. Perhaps he does not see the weapons in the poor light or he would not be so foolhardy. For the young father notches an arrow quickly but efficiently, steps outside, and discharges it point blank into the onrushing enemy chest. His inertia keeps his foe running a few more steps, then he falls.

The young father pauses; perhaps in his man's pride he is momentarily exultant. But the pause is the beginning of the pause of eternity. "Thup," there is a blow in his abdomen, an arrow from an unseen and forever unknown hand. The scene about him whirls, reddens, whitens, and loses focus. He feels the earth against his back.

The enemy is repulsed. They pull out the shaft but the point is so deeply buried in the bone that it breaks from the shaft. He remains unconscious for several hours. A medicine man shakes a rattle over him and chants, attempting to alter the destiny of life. Before morning he is dead. When they place his corpse on the scaffolding, his wife lacerates her body and tears at her hair in mourning.

Months later, when the flesh was entirely gone from his bones, they were taken down and, mixed with others, wrapped and carried to the sacred burial place. Here they were placed in the earth, the giver of life and the final recipient when life is gone.

They remained thus undisturbed for hundreds of years, until the archeologist uncovered them, and seeing the arrow-head imbedded in the bone, dimly visualized the violent death that occurred when the forests were young.



DANGEROUS DAIRY

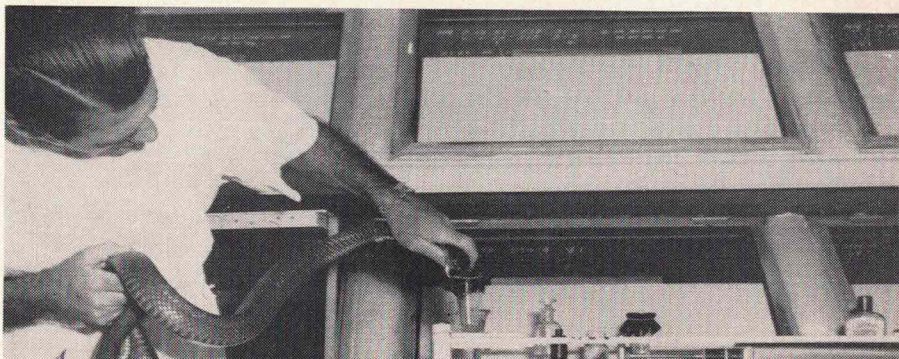
by W. E. DICKINSON
Curator of Lower Zoology

A few miles south of Miami in Florida, the Museum's 1952 Botany-Zoology field party visited a quiet and efficient young man, Bill Haast, who conducts a most unusual business. He "milks" deadly cobra snakes. He does it many times a day in a beautiful, clean, outdoor laboratory tastefully landscaped, and without the ballyhoo used by most roadside snake farms.

The venom is used to manufacture a remedy for cobra bite. This manufacturing has been going on in Mr. Haast's own body, of all places. In September, 1948, he injected into his body the first dose, 1000 parts of water to 1 part of venom. Today, 71 doses later, he can accept the venom full strength, and though he has been bitten 11 times up to April of 1952, his worst effects were nausea and swelling of the hand. Mr. Haast's blood is now used as a source of anti-venin for the treatment of snake-bite victims. The petite and gracious Mrs. Haast, who guides the conducted tours, called our attention to his swollen wrist as he posed for our photographer.

The venom of the cobra has been used for the relief of persistent pain, similarly to the better known narcotics, and, though slower in action, is said to be more lasting in its effects. It is reported to increase the acuteness of hearing and sight also.

Mr. Haast's snakes include several species of the smaller cobras as well as a 14-foot King Cobra. He also has many harmless species from Florida in addition to poisonous forms from all over the earth.



QUERY QUADRANT

Conducted by the Museum Staff

As you make your daily contacts with the world about you, you are confronted with questions—often regarding usual things, in instances originating from new observations or experiences, but in any case questions for which the answers are not readily available. Send your questions to LORE, and let us attempt to answer them. Be sure to sign your name.

Dear sir:

Please tell me how I can find or buy some cocoons. I want to raise moths.

Robert B. Kruschke

Cocoons of the very attractive, native, giant silk moths may be collected in the autumn after the leaves have fallen. It is then that they may readily be observed fastened to various woody plants in the City's parks or on the ornamental trees and shrubs on private grounds. Permission to take them from the premises is ordinarily granted since the owner usually regards them as potential pests.

If the gathering of cocoons is delayed until late winter, the collector may discover to his disappointment that some insect-eating bird has beat him to the punch, a ragged hole in the cocoon revealing that it has served as a convenient, richly-stocked larder for some curious avian prowler.

The silken enclosure of the beautiful promethea moth is found, almost invariably, on lilac. A silken cord is spun by the caterpillar as reinforcement, entwining the stem of the leaf and the adjoining twig, while the lilac leaf itself is neatly wrapped and bound around the body of the cocoon which is about an inch and one-half in length and about the thickness of one's little finger.

The caterpillar of the magnificently colored giant cecropia moth likes variety in its diet. In this area it is particularly fond of apple, snowball bush, dogwood, elm, and grape; and its rusty brown cocoon, usually about the size of a man's thumb, is firmly bound to the more slender twigs of those plants.

A simple test may be used to determine whether the cocoons collected are "sound" or whether they should be discarded as "duds." Place them in the palm of the hand and give them several slight flips into the air by quick movements of the arm. This action allows for a simple appraisal of their weight. If one senses a certain quality of solidness or "heft" to the cocoon during the above procedure, added assurance is given that one may ultimately be able to witness at least one phase of the fascinating phenomenon of insect transformation. If on the other hand the cocoon feels very light and hollow, the caterpillar that constructed the silken structure was most probably "stung" some weeks earlier by a parasitic insect to provide a source of food for the latter's young. Eventually, instead of a beautiful moth there will emerge a small, strange, wasp-like creature, a situation experienced sooner or later by all cocoon-collecting enthusiasts.

Much greater probability of the moth's emergence from its protective structure can be assured by duplicating as closely as possible the conditions to which the cocoons are normally subjected during the winter months.

They may be kept outdoors, exposed to the elements within a screened enclosure, or may be stored in the moisture chamber of a refrigerator. If it is desired that the moths emerge prematurely, the cocoons may be kept indoors at room temperature. Under such conditions it is advisable to dip the cocoons in warm water for a minute or two at intervals of a week to provide the necessary periodic supply of moisture that would normally result from exposure of the cocoon to rain and snow.

Living cocoons may be purchased in season from the General Biological Supply House in Chicago, Illinois; or through Ward's Natural Science Establishment in Rochester, New York.

Kenneth MacArthur



FABULOUS BEASTS, Peter Lum, 1951, Pantheon Books, New York

An account of the strange animals of story the world over, with examinations into the origin of fables regarding such examples as the phoenix, Chinese dragon, basilisk, griffon, unicorn, mermaids, pegasus, chimaera, and others.

He says, "Until quite recently mankind lived in an enchanted world that is lost to us . . . a world of terror as well as of magical enchantment . . . a world in which animal and human forms were interchangeable. . . ."

An absorbing book that examines the origin, beliefs, and actual significance of these strange creatures, a book hard to put away once it is begun.

The first of these printed accounts of strange beasts was the Bestiary or Physiologus, founded on the Bible and the Egyptian Book of the Dead, and dating about the 1st Century, A.D. This work was regarded very highly at the time, according to Mr. Lum.

Other excellent and absorbing books:

Where Winter Never Sleeps,

Marston Bates 1952, Scribners, New York.

The Sea Around Us,

Rachel Carlson.

CIVILIZED MAN AND NATURE: Man, who calls himself civilized, is the greatest destroyer of nature . . . he destroys the insect-eating birds: more than fifty species having disappeared. One doesn't realize it, but if "nature's policemen" are not numerous enough to insure the indispensable equilibrium, man risks annihilation, overrun by insects.

From: "Capture-Les Vivants," by Berthollet,
Edition L'Ermite, Paris, 1951.

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THE EXPLORER'S CLUB is the membership for children. For \$1.00 a year, our young explorers receive 52 copies (one each week) of the Explorer's Log, a quiz-fun sheet.

Address all communications to Mr. Ambrose Bauernfeind, Milwaukee Public Museum, 818 W. Wisconsin Avenue, Milwaukee 3, Wisconsin.



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