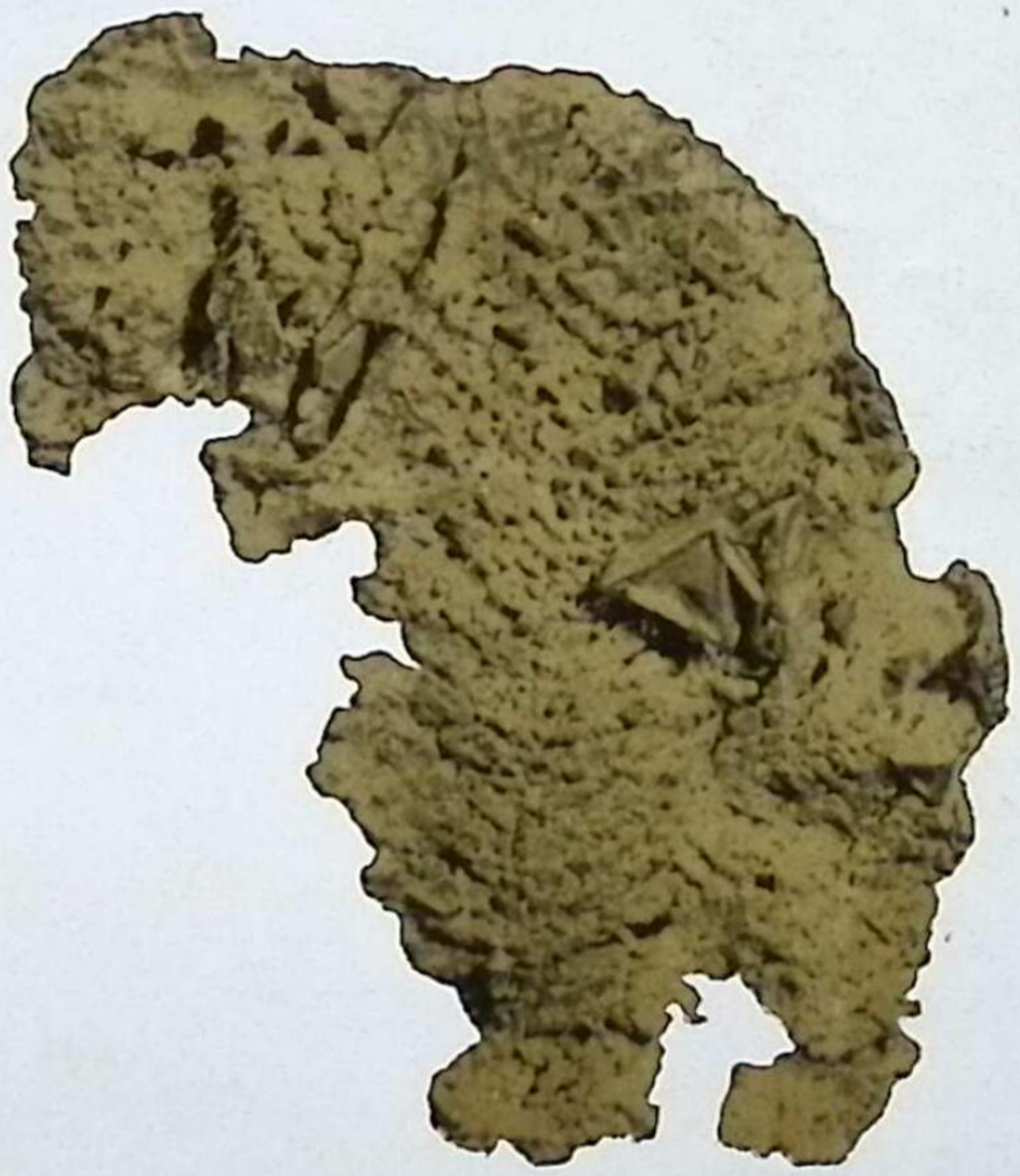
JUNE, 1949

The Lapidary Journal

1849 CALIFORNIA GOLD CENTENNIAL EDITION 1949



THE CALIFORNIA GOLDEN BEAR GOLD NUGGET

A National Magazine for
GEM CUTTERS + COLLECTORS + JEWELRY CRAFTSMEN
Hollywood, California

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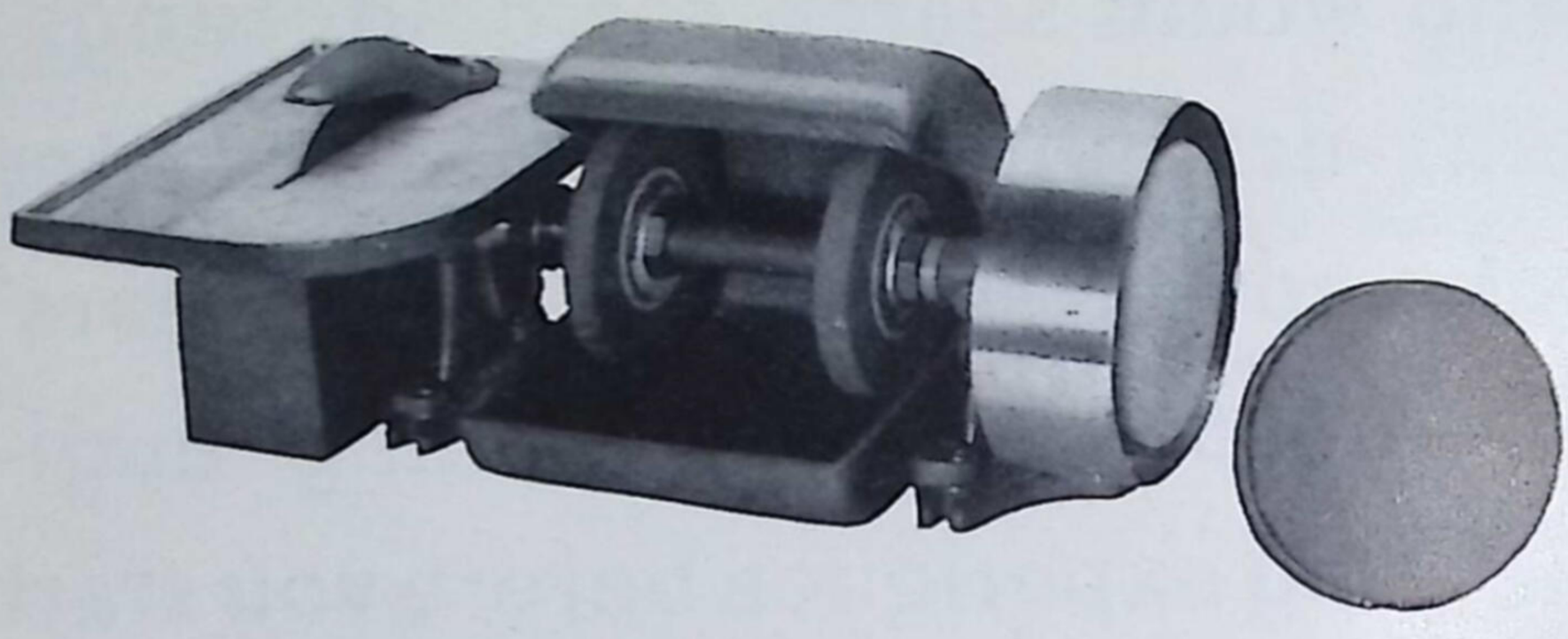
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A NATIONAL MAGAZINE
for
THE GEM CUTTER, COLLECTOR
AND JEWELRY CRAFTSMAN

TWELFTH ISSUE

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EARLY CALIFORNIA GOLD RUSH DAYS

By ANNIE KEELER WILLIAMS
10303 Parr Ave., Sunland, Calif.

For our special California Gold Centennial Number we present below a portion of a very fine and interesting new book. It is an account of one of the most active and successful participants of the California gold rush scene a century ago. Personal accounts present, as no historian can, the flavor of the scene and the problems of the times. The account is but a small abstract of the California portion of a book on the life of Colonel George Keeler which will be published soon. The complete California portion has already been published under the above title and is procurable from us for $1.50. The author is Colonel Keeler's daughter, and her daughter is Mrs. John B. Clarke, one of the original partners of the S-T Gem & Mineral Shop of Tujunga, Calif., advertisers with us since the first issue. If you are visiting the Sacramento convention your trip will mean far more to you if you read Colonel Keeler's entire story. The book will also be for sale by the *Journal* at the convention.

After a rather eventful and delightful trip, sailing on the Pacific ocean along the coast of Mexico and California, we came in sight of the bay of San Francisco and were soon passing through the Golden Gate. This was a scene I never forgot. As I stood on the deck watching our passage through the Golden Gate, the setting sun sent long shafts of gold and rosy light across the tranquil bay, and the rippling of the waters heightened the glow. I felt the entrance to the bay had been well named.

As we passed through the Golden Gate, I wondered what it would mean to me. Would I be given a golden chance?

My life had been an adventurous one and now, though I was about to land in a strange country, it was at least my own, "my native land" and it was at peace. This gave me new hopes and ambitions and when our ship dropped its anchor, I went ashore in a small boat, landing in San Francisco in the early fall of 1848.

I, along with the other soldiers who had come on the same boat with me, was discharged soon after our arrival.

San Francisco was originally what was known as a trading post. Furs were brought in by trappers who had either obtained them by trapping or trading with the Indians and were exchanged or "traded," as the word was used, for provisions and supplies which had been brought around the horn in ships. Here too, were traded the hides and tallow of the cattle raised by the early Spanish settlers.

I walked up the main street of the town and found a small hotel, deposited my bag in a room which I had engaged and after eating a fair supper went out to see the town.

On the streets I saw people of all nationalities, mostly men as there were very few women in San Francisco at that time. The Americans were more in evidence and next to these in number were the Spanish and Mexicans, also many from South America. The Europeans were principally French and British. Then there were the Chinese who were quite a curiosity to anyone who had not seen them. They were always in their Oriental dress, consisting generally of wide pantaloons with a wide sack-like shirt worn on the outside of these pantaloons, their feet encased in a low shoe which generally turned up at the toe.

Most interesting to me was their "queue" as we called the long braid of hair which generally hung down their backs, sometimes reaching to their heels. They shaved their heads all around except for a small patch of hair left growing in the center of the head. This hair grew to be very long and was braided but before the end was reached a black silk cord was braided in with the hair and the braided cord continued some distance beyond the end of the hair. A chinaman always guarded his queue very carefully as it was claimed that if he died in this country, his body or his bones (in after years) would not be shipped to China if his queue was cut off and he did not consider there was any road to Heaven from America.

There were somewhere from 800 to a 1,000 people in San Francisco at that time and they were living in houses of all kinds. There were a few adobe houses

but most of the houses were of frame, principally shacks of rough boards. Some were merely uprights with canvas or cloth covered sides.

After the discovery of gold in January, 1848, there had been a general exodus to the gold fields, and while many houses had been vacated the crowds coming in by ships were so numerous that they occupied the hills and barren grounds around the town, putting up almost any kind of a shelter from tents and canvases to those covered with boughs. At night when the lights were lit in these tents and cloth covered houses it made a picturesque scene.

Now that I was back on American soil, I wanted a home and looking over the outlying districts of San Francisco decided to take up land there. I preempted 160 acres for which I paid the government $16.00 an acre. It was such a sandy looking country that no one considered the land worth anything, especially for agricultural purposes. I went to work at any occupation that presented itself but after staying around San Francisco for a while I soon found out that most of the inhabitants had gone to the mines. Most of the merchants had taken their stock of groceries and supplies and moved them to the mines, selling them out at a great advance in price. Houses were deserted and signs put on them reading, "gone to the mines." Important duties were dropped and people were coming in from everywhere. Mexicans from Sonora came in great numbers. Ships were deserted and no threat or punishment could induce people to keep their engagements. They were all going to one place, the "gold mines."

It is needless to say that I caught the "gold fever," and as many people were going to the American River I decided to join the mad rush. Gold had first been discovered there the last of January, 1848, by James Wilson Marshall.

I took a boat at San Francisco for Sacramento. The bay was filled with boats coming and going, carrying people and their supplies up the Sacramento River to the city Sacramento, which was at the junction of the Sacramento and American rivers.

Sacramento was a town of a few hundred people living mostly in tents, canvas houses or rudely constructed frame houses. This was the town in which most of the people going to the mines obtained their supplies. Here I bought a "prospector's outfit," a pick, shovel and what was known as a "gold pan." This was a large flaring pan made of one piece of Russian iron and was used for panning gravel, or in other words, making it possible for a person to separate the gold from the gravel.

With a pack on my back, I started to walk to some of the gold fields or bars. I had nothing definite in mind and trudged along with the rest of the crowd. Meeting many people on the road and passing some who were panning on the different bars. When night came I threw my blankets on the ground under a tree and after a campfire supper slept until daylight.

Often I tried panning without any success but some of the men, who had been there before I came, had grown quite expert at it. They kindly showed me how to separate the gold from the gravel by first throwing out the large rocks and then continually immersing the pan of sand and gravel into the water, shaking it just right in order to settle the gold to the bottom of the pan while continually throwing away the coarser gravel from the top and sides. This process is continued until all the heavy gravel has been thrown away and only a small amount of dirt and black sand is left in the pan. Then by continually dipping the pan into the water, shaking and throwing away the dirt which settles on the sides of the pan, the gold and black sand is worked down to the bottom of the pan, or lowest side of the pan as the gold is heavier than any of the other materials. Then the black sand and gold is poured out into some kind of container and when the black sand is dry it is blown away leaving the pure gold.

It was claimed that gold is generally found wherever black sand occurs.

I have often said panning to save all the gold is merely the right twist of the wrist.

There is no doubt that in the early days a great deal of gold was washed down the stream by the careless or inexperienced at panning.

To be panning away quietly on some gravel bar extending out into the river and all at once see several bright gold nuggets loom up in the pan always makes a miner feel like shouting for joy. The gold nuggets were "easy picking," as we used to say, and

where the ground was really rich, little attention was paid to careful panning.

I would walk along and pan at likely looking bars that did not seem to be occupied, until I came to some rich spot where men were staking off claims and then I would find some good place, stake it off and settle down preparing to work my claims. Sometimes I put up a canvas to cover my blankets and stock of provisions. That was all that was necessary to mark the possessions as mine. At night I left my pick and shovel at my claim and that held my claim for me.

No one ever bothered or seemed to even think of taking any of your things no matter if you went away and left them a long time. This was a sort of law or rule among the prospectors and it was always kept or obeyed. There was no stealing or lawlessness of any kind among the early prospectors. They were very kind and generous and would help a newcomer in everyway possible.

All of the miners wore heavy flannel shirts, overalls held up generally by a belt and tucked into the top of heavy high top boots. Then a soft felt hat summer or winter which often served as a drinking cup at some mountain stream. This would be called a "miner's outfit." In fact everything was spoken of as an "outfit." I hardly know how we would have gotten along without the word "outfit;" it was even applied to people.

I never shaved but I always kept my mustache cut close and then let my hair grow until it came down upon my shoulders as did all the other men.

We were compelled to wade the mountain streams and often stand for hours in the water and some used to grease their boots to make them waterproof. Fortunate was the man who owned a pair of rubber boots.

But all of this meant nothing to the prospector; the gold we had in our buckskin sack at night was what counted. Miners carried a small sack or bag, sometimes several, made of buckskin with two draw trings interlaced into it near the top of the sack. The miner put his gold into this sack and then drew up the string very tightly around the top making this serve as his pocket-book. When he went to a store to make a purchase he threw his sack on the counter and the store keeper took out enough gold to pay for the goods and handed the sack back to its owner .If there were no scales to weigh the gold it was merely guessed at by some system of measurement.

I kept working up the South and Middle forks of the American river. There was a series of camps all the way up to the head waters and while San Francisco had been deserted, the American river had been gaining in population continuously. Every day brought in new miners, the different camps teeming with people.

Stores were located under crudely constructed brush arbors under which clothing of all kinds, groceries and other things were exposed for sale at a very high price. Flour often sold for as high as a dollar a pound and eggs, two or three dollars a dozen. The miners' provisions were generally beans, bacon or salt pork, flour and coffee, when they could get it. We often killed small game for fresh meat and sometimes deer and bear meat could be had. Many of the miners carried shot guns for this purpose.

* * * *

As soon as I had acquired a large amount of gold dust and exchanged a great deal of it for supplies which sold for almost unheard of prices in mining camps, I traveled along camping and mining until I came to the Auburn Ravine where gold was discovered in May, 1948, by Claude Chana. A $400.00 nugget was found; a camp immediately sprang up and a Trading Post was established. This proved to be a very rich ravine and as high as $800.00 to the pan was taken out. On account of the richness of the ground, fifteen linear feet along the ravines was considered a claim. The camp was afterwards called Auburn and became a town of importance in the early days. It was only twelve miles from where gold was first discovered at Coloma by Marshall. Here was a beautiful mild winter climate with wild flowers growing in profusion and in after years Auburn was called the "Garden Spot" of California.

I made good money here and spent a great deal of it on provisions and necessities, but no one seemed to have any regard as to how much money they spent or what

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they did with it. I was able to buy a horse and paid a large sum for a saddle, bridle and spurs. No one ever rode without spurs. I strapped my prospecting outfit on back of the saddle and rode along leisurely over the surrounding country prospecting for a short while at most of the gold camps during my first winter in California.

I passed over a great deal of ground which in after years was found to be very rich. Once while I was washing gravel on a small mountain stream and doing quite well a man came running by and called to me that the Indians were coming. I immediately ran for my horse, and saddled him, throwing my blankets and a bag with some food in it on the back of the saddle. I had some bags of gold in my camp which I took but I had a large two-pound can of gold nuggets which I concluded it would be best to hide. I dug a hole at the foot of a tree and buried my can of gold there and carefully covered it over. I rolled a rather peculiar looking stone on top of it, marked the tree with a mark no one else would recognize and marked other trees leading to this one. I then mounted my horse and rode hastily away, probably none too soon.

When the miners first began to mine on the streams and rivers, the Indians were badly in need, but the miners soon put the Indians to work for them in exchange for food and clothing. At the sight of so many white people flocking into their country the red men grew rebellious and made many raids on the white settlers.

* * * *

Crude furniture was made of poles and timbers cut with axes and hatchets for the various purposes. Because of the scarcity of nails, strips of deer hides and other wild animals were used in their place. Often wooden pegs were used. A fireplace did duty for cooking and heating and during the warmer weather a fire was made out of doors.

Almost any kind of a shelter sufficed for the man who came to make his stake and leave again.

I did not remain here (Sonora) long but went out about four miles and prospected on a small stream. Here I found very rich gravel and very coarse gold, coarser than any that I had seen elsewhere. Often I found many nuggets. The place was afterwards called Keeler Creek, as I was the first man to mine there.

I put up a canvas to cover my bedding and cooked over an open fire. My only cooking utensils were a long handled frying pan, which enabled me to cook my food over the camp fire without burning my hands, a tin can in which I made my coffee, a fork, knife and spoon. I kneaded my bread in the frying pan, cooked it beside the fire in the same pan when I did not make flap jacks, which we miners cooked in the frying pan and turned over by throwing them up in the air and catching them as they came down right side up. I had a can in which to cook beans, rice, or any other article of food I might wish to cook; then I would fry my bacon or meat, if I was fortunate enough to have any. I ate out of my frying pan and drank my coffee out of the can I had made it in.

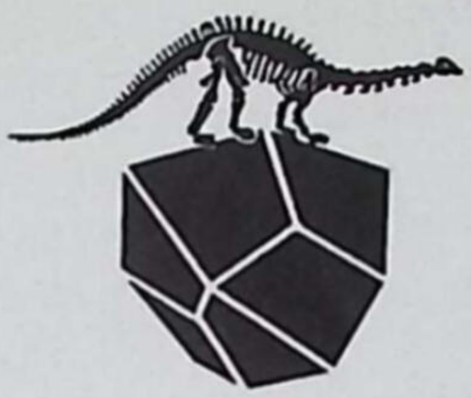
When a man walks miles over rough steep mountains carrying his pack on his back, he does not wish to carry anything that he can possibly get along without. You try to put the weight of your pack into food supplies, and often when you were not able to obtain many of these you would have to subsist on what you could kill in the way of animals.

I washed out a large amount of gold dust here on this little creek and then located some claims and put them on record at Sonora, June 28th, 1849, on ground that was called "Sullivan Diggins." This ground was between Clay and Keeler Creeks which flowed into Sullivan Creek.

* * * *

Tallow candles were used in our tents at night if we could get them. Sometimes in place of candles, they burnt what was known as a fat bowl. Sand was put into a bowl and bacon grease poured into it and a wick soaked in grease was put into the middle of the bowl, then the wick was lit for a light at night.

Any man that came by your campfire was always welcomed and little attention was paid to names. Most of the men were known as Bill or Jack or some other Christian name. Sometimes. the last name. if we happened to know it, in lieu of



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Golden Sapphire (*Corundum*)	$ 1.75	2.75	3.80	5.20	7.00	9.75
Kunzite (*Corundum*)	$ 1.75	2.75	3.80	5.20	7.00	9.75
Alexandrite (*Corundum*)	$ 1.75	2.75	3.80	5.20	7.00	9.75
Garnet (*Corundum*)	$ 1.75	2.75	3.80	5.20	7.00	9.75
Ruby, dark red	$ 1.60	2.00	3.00	4.20	5.70	7.50
Ruby, light red	$ 1.60	2.00	3.00	4.20	5.70	7.50

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Corundum, all colors	$ .90	1.15	1.30	1.50	1.75	1.90	2.35	2.80

	10-8	12-10	14-12	16-12	18-13	20-15
Onyx	$ .30	.35	.42	.45	.50	.56
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that, it might be Shorty, Red, the Big Swede or the little Dutchman, any name, so long as we could designate a man. No one was a stranger. The Mexicans called the Americans "Gringos."

There was very little reading matter and letters from home were so long in coming, it was often hard to send a reply. Everyone was so anxious for the mail that the minute any mail was brought into the camp, the miners dropped their picks and shovels and went to see if they had a letter from home. I rarely ever had any letters as my family had scattered after the death of my mother and I had no trace of any of them, except my younger brother, who was now in California, and occasional letters. But just the same, I was as anxious as most of the miners to see if there were not some newspapers giving us some idea of what was going on in the country outside of our little camp. Then too, the mail rider often had news to tell us of things that had happened in other camps along the way.

Whipsaws came into use and with the aid of axes, timber which grew on the hills in abundance, was used for building purposes. Windows were unknown and doors were hung on leather straps for hinges. There were no stoves, their place being filled by fire places, built of stones, and as there was an abundance of wood, it was an easy matter to keep the houses fairly warm.

Baking was done in Dutch Ovens and often the bread or flap jacks were baked in the frying pans, the same as the miner did in his camps. It was here too, that the long handled frying pan was used with comfort and safety.

The bunks (as the place where they slept were called) were made of boards or split logs and fastened to the walls. Sometimes these were what they called "double deckers," one above another.

The furniture for these homes was made in the crudest style and as these cabins or homes were occupied almost entirely by men who were used to hardships, it represented a comfortable home to them.

There were very few women in the camp, even Mexican women.

The hotels at best consisted of one large room with three or four tiers of bunks, one above the other, built against the wall by means of upright posts or cross-pieces fastened with strips of rawhide. Onto these crude beds or "bunks" were thrown straw mattresses or "ticks" as they were called, or buffalo robes in lieu of mattresses. Then there was an uncased pillow stuffed with the same material and a blanket. All of the miners carried their own blankets and others traveling at that time wished they had, especially if the weather was cold.

Most of the miners merely removed their hats and boots at night.

The tables were only planks or boards with small poles for legs. The benches were the same.

Lumber was very expensive. It cost about a thousand dollars for a floor for just one room. I decided not to remain out to the mines that fall as we had a great deal of rain and I had made many thousands of dollars and always felt that I would have plenty of money.

Prices for all kinds of supplies were so high that I thought a store ought to be a good paying proposition and decided to go into the mercantile business.

I made a trip to San Francisco to arrange for supplies. When I arrived there, I was surprised to see the change that one short year had wrought in this place. The streets were crowded with people.

It was claimed that at least 15,000 people had been added the first six months of 1849 and that they were coming at the rate of three or four thousand per month.

The winter was a very rainy one, and the streets and sidewalks were almost impassable at times. Boxes, barrels, household furniture and almost any available article that would help to plug a gully or hole was used to enable people to pass from one place to another.

The number of houses that had been built was almost unbelievable, even three story frame buildings had been erected.

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There was a great deal of gambling here as there always was in all of the mining towns. Everyone had made money and many had grown rich. Here, the same as any

of these towns, gold dust was the main medium of exchange.

Many and many were the stories related about how gold was obtained in first one way and then another, some almost too good to be true except to those who had had some similar experience.

I knew too well the excitement of seeing the large nuggets gleaming in my pan and of finding the precious metal in what would seem an unusual place for gold.

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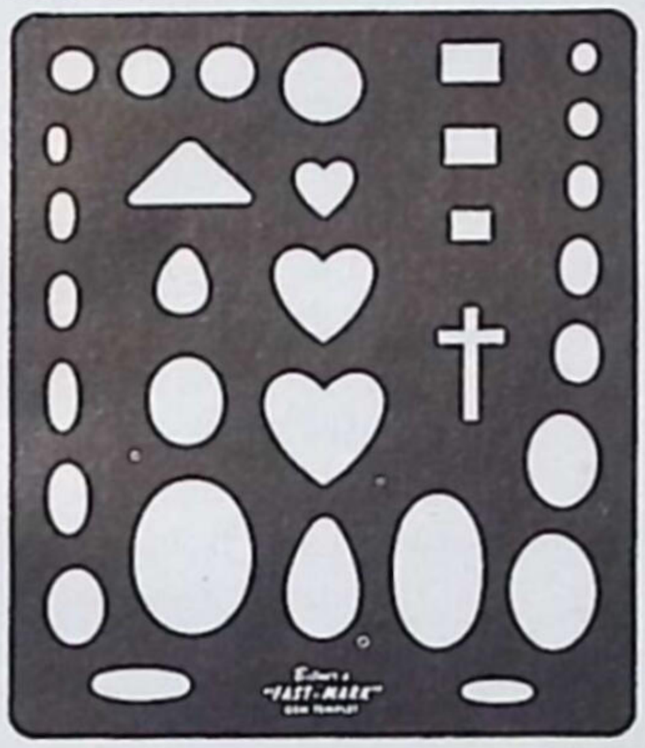
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THE DISCOVERY OF GOLD IN CALIFORNIA

By DONALD C. CUTTER

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When James Wilson Marshall found gold in the tailrace of Sutter's Mill on January 24, 1848, he was not the first to come across this much sought mineral in California. As early as 1816, there were reports of gold in the Spanish province of California. Reports and rumors of gold persisted, but it was not until 1842 that there was a real gold rush in the future Golden State. Either late in 1841 or early in 1842, Francisco Lopez, majordomo of the San Fernando Rancho, and a companion were in search of some stray cattle in the mountains near the ranch. Becoming tired they dismounted to rest in San Feliciano Canyon. Here Lopez whipped out his knife to dig some wild onions to eat and in the earth clinging to them he found particles of what appeared to him to be gold. Using his knife he continued to mine in the vicinity and found additional alluvial gold deposits. Following this gold find came the first rush in California history. Californians left the monotony of their daily life and went to this canyon located thirty-five miles northeast of the Pueblo of Los Angeles. Although they used the crudest of methods and were without nearby water to pan their gold, some of the miners succeeded in making their operations profitable. The first gold seekers at the Los Angeles placers were the local residents, but within the year men of greater mining experience were imported from Sonora. These miners introduced into California the method which became known as dry washing to extract the gold. As a method of mining it was simple, crude and inefficient, but it had the advantage of being inexpensive. After the pay dirt was dug, it was sun dried on a large canvas and then pulverized into dust. The next operation was to throw the dirt by the panful into the air in order to allow the wind to blow away the lighter elements and to let the gold dust fall back into the pan. Thus the old agricultural procedure of winnowing was the first method used extensively in California mining; for not only was it used in the Los Angeles area, but also it was introduced by many of these same Sonorans into the mines of the Sierra Nevada after 1848.

One wonders why this gold was not more generally known, especially since the estimates of the productiveness of the placers were considerable. William Heath Davis, an early pioneer, estimated that $80,000 to $100,000 in gold was taken from the mines in the first two years. Abel Stearns, a resident of Los Angeles, estimated that $6000 to $8000 a year was extracted prior to 1847. Hubert Howe Bancroft, the historian of California, states that by December 1843, 2000 ounces had been taken, valued at $38,000. These however are merely estimates of production. As a matter of record, the first California gold dust sent to a United States Mint belonged to the aforementioned Don Abel Stearns. On July 8, 1843 his package of 18.34 ounces of placer gold was deposited in the Philadelphia mint by Alfred Robinson. The gold had been transported around the Horn and at the mint brought somewhat over $19 an ounce. It cannot be said that the United States Government was not officially informed of the existence of gold in California, for Thomas O. Larkin as vice-consul at Monterey notified Secretary of State James Buchanan of the fact in an official communication of March 1846. In view of these circumsatnces, what were the reasons for the lack of publicity of this early uncovering of gold? Doubtless they are a combination of the following: the small amount of gold was soon exhausted; inadequate mining processes and difficulty of extraction made gold mining economically profitable in the long run only to those with previous mining experience; the Mexicans had inherited the Spanish ideas of mercantilism in pursuit of which policy trade and communication with foreign nations were discouraged and consequently the possibility of publicity was lessened; and in general, the Mexican authorities were not favorably inclined to increased immigration into California.

It is obvious that James Marshall was not the first to find gold in California, and in justice to Francisco Lopez, Marshall ought not to be so credited. Nevertheless, it was this New Jersey carpenter, in the employ of John Sutter, who made the *effective* discovery which electrified the world, altered the course of western history, greatly accel-

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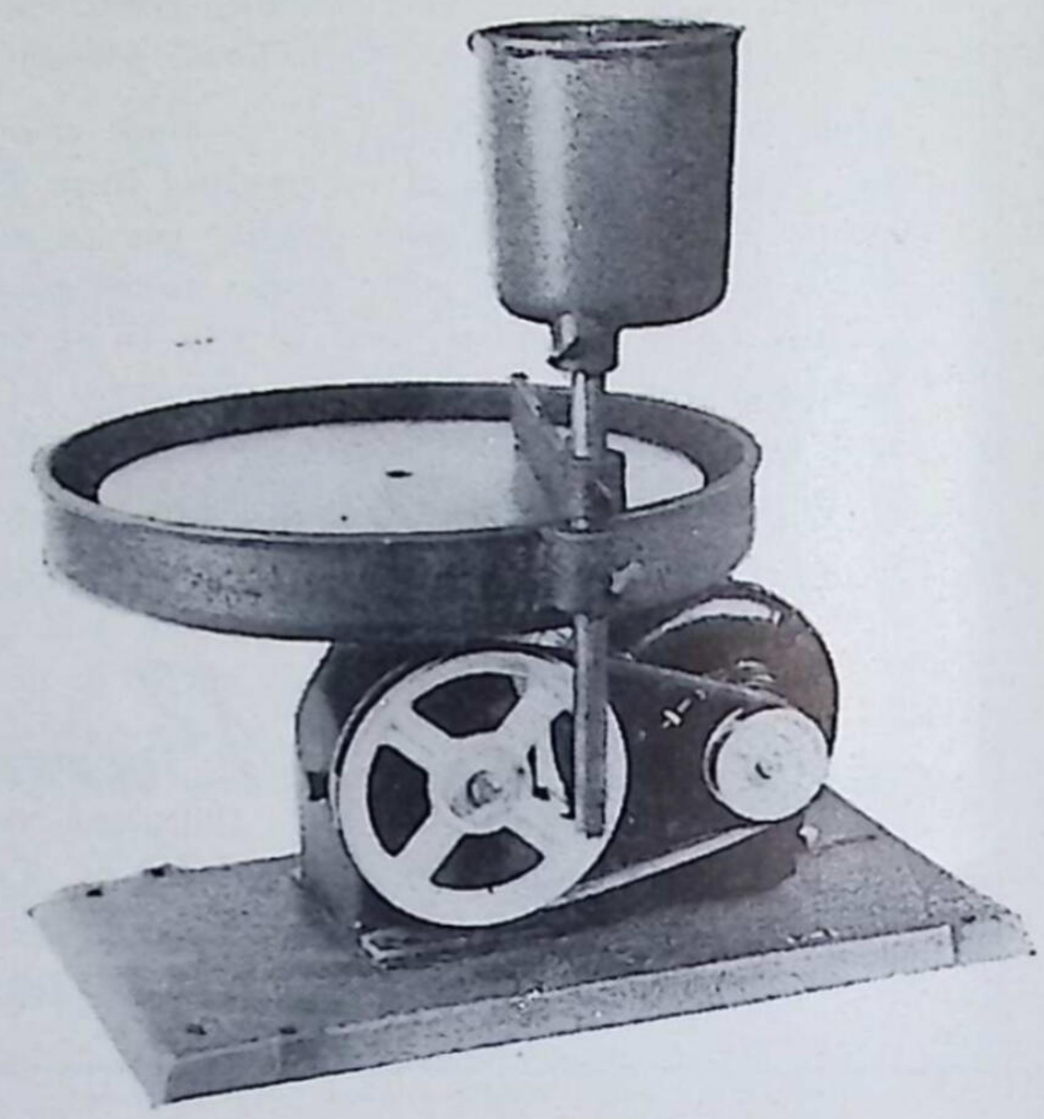
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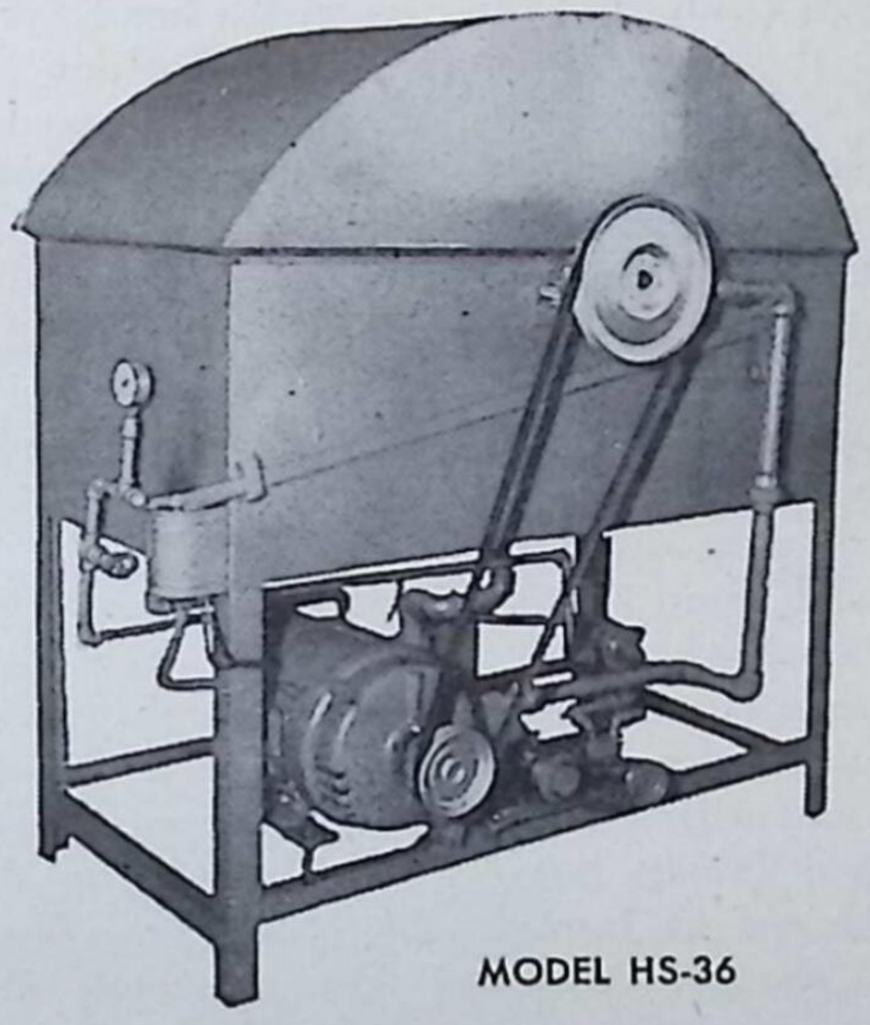
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erated the development of California, and had national and international ramifications.

For years, John Sutter, grantee and almost feudal baron of a large Mexican grant in the vicinity of present day Sacramento, desired to provide a supply of lumber for his own use and for sale. Consequently he provided for the establishment of two mills, a sawmill at Coloma and a gristmill at Natoma. The latter mill was to use the products of the former in its construction. In August 1847, Sutter signed a contract with Marshall which provided that Marshall should erect and operate the mill and that Sutter should supply the labor, tools, supplies and equipment. After they had determined the location for the proposed mill on the South Fork of the American River, in a small valley which was later to be called Coloma, they built two cabins, one to house the workers and the other the boss—Marshall. The work of construction of the mill advanced quite rapidly after its commencement in September. Laborers, Indians, Mormons and others were employed and the work on the mill was almost finished by January of the following year (1848). This early completion was due in considerable measure to the industry and abilities of the Mormon workers who had been recently discharged from the Mormon Battalion.

The story of this group of soldiers and their part in the discovery of gold in California is of considerable interest. The battalion, about 500 strong, volunteered for service in the United States Army for the Mexican War. Besides desiring to aid their country, the Saints enlisted in order to become the advance guard of the Mormon westward migration. The termination of their one year enlistments found a considerable portion of the original group in Southern California, after having opened a wagon road to the West. Some of the group, about 81 in number, re-enlisted for an additional year of service. The remainder, some 240, were released after exemplary service. By this time the Battalion had been informed that the new headquarters for the faith was to be in Utah, and they began to head for that destination. The soldiers were not, however, the only Mormons in the Golden State at the time, for on July 31, 1846, a group of homeseekers had arrived aboard the sailing ship *Brooklyn* led by Sam Brannan as presiding elder. Late in 1847, this same Brannan met the homeward bound group of ex-soldiers at Tahoe Basin. There he urged the men to remain in California until the following spring since it was already September. Brannan's entreaties were of no avail but a bundle of letters and an epistle from Brigham Young, which arrived the following day, changed the minds of many. In the epistle they were advised by their leader to remain in California until they had outfitted themselves, unless their presence in Utah was essential. Thereupon most of the group turned back and sought employment in California. About 40 of the young ex-soldiers found work with John Sutter, some being sent to Natoma, some to Coloma, and others remaining to work at Sutter's Fort at New Helvetia. Probably about nine of the Mormons were assigned to Marshall at Coloma, this group entering into a contract with Sutter whereby they agreed to remain in his employ until the completion of work on the sawmill. One of the Mormons, Henry Bigler, kept a diary from which historians have drawn heavily in determining the details of the discovery and the actual date thereof as January 24, 1848. In spite of the discovery of gold the Mormons completed the provisions of their contract with Sutter and engaged in mining only when they were off duty at the mill. By March 11th, the work on the sawmill was finished and it was in operation. Presently the Mormons terminated their contract with Sutter, were paid off at about $1.50 per day for work at the mill, and set about digging gold on a full time basis at Mormon Island near the confluence of the South and Main Forks of the American River. Here many of the saints joined in the enterprise, working the area until June of the same year, at which time the members of the Battalion decided to leave for the home in Utah which they had not yet seen. In July, forty-five of them united and left the easy money of California for the alkaline plains of Salt Lake Valley, because of their attachment to the faith. This marked the first return of miners from the gold fields, and was a preview of the role that California would play in the filling in of the West.

Just as the date of the discovery has been a subject of discussion, the accounts of the events leading up to Marshall's find and his actions thereafter conflict in different narratives. The main facts however are in accord. The sawmill constructed by Marshall was operated by diverting the water of the river through a headrace into the

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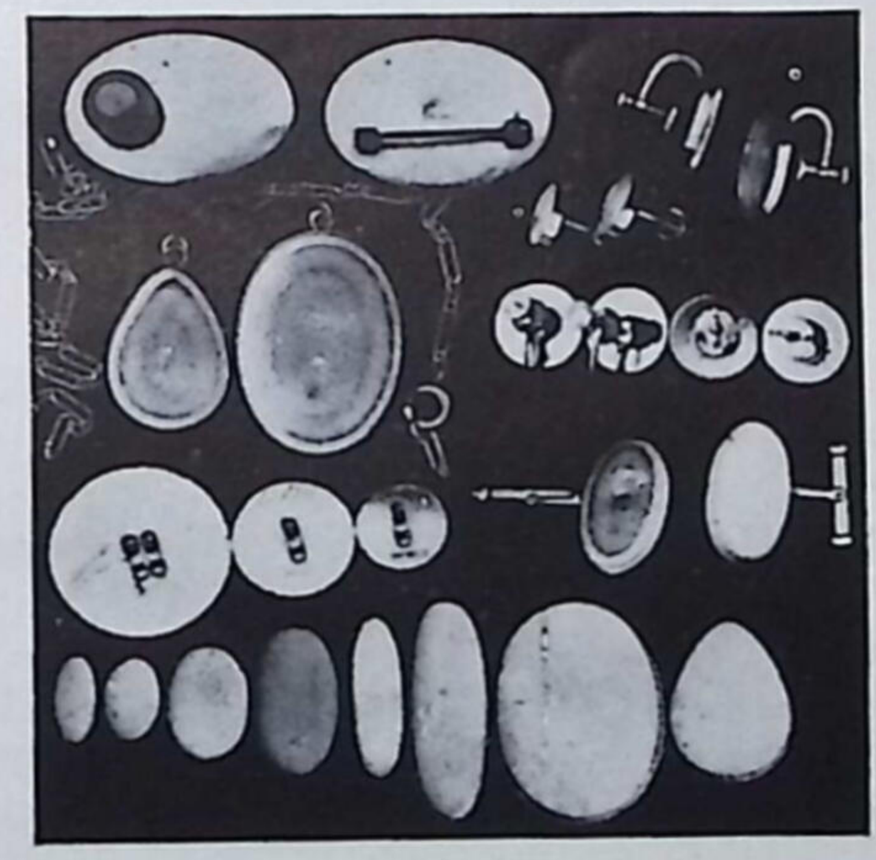
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forebay of the mill, whence it was directed to the waterwheel, flowed under the length of the mill and escaped back into the river through a tailrace. It was determined by test in December 1847, that the mill foundations had been set too low and therefore the water did not escape sufficiently into the tailrace. This necessitated the deepening and widening of the race to expedite the run-off of the water.

Leaving the mill in the same month, Marshall ordered that this work should be accomplished in his absence. Upon his return to the mill, Marshall found that his orders had been carried out, but the race was still not sufficiently deep. Additional excavation was done during the daytime, and at night the gates of the forebay were opened and the running water assisted the work by clearing away the loose dirt. Boulders were blasted out and the decomposed granite was being dug out manually by both the Indian laborers and the Mormons. On the morning of January 24th, when Marshall was making one of his frequent inspections of the tailrace, something glittering caught his eye. There, resting in a shallow depth of water, was a yellow flake of what appeared to be metal. Testing its malleability, he became hopeful; he picked up some more flakes, placed them in the crown of his hat and made his way to where the men were working. The Mormons shared Marshall's interest and several elementary tests were made, by which the group could not disprove the possibility that the metal was gold. Work on the mill was halted temporarily while all went to the tailrace to pick up these available flakes of metal. Use of the fingers alone was found to be exceedingly difficult, but the assistance of a knife in gathering gold was discovered to be efficient; thus the knife was the first implement used in mining at Coloma as well as at the Los Angeles placers. By this knife method several ounces of gold were collected. Further tests were given the metal, all of which were favorable; but in order to make certain, Marshall decided to depart for Sutter's Fort for a conference with his partner-boss. More scientific tests were applied there, proving beyond a reasonable doubt the authenticity of the find.

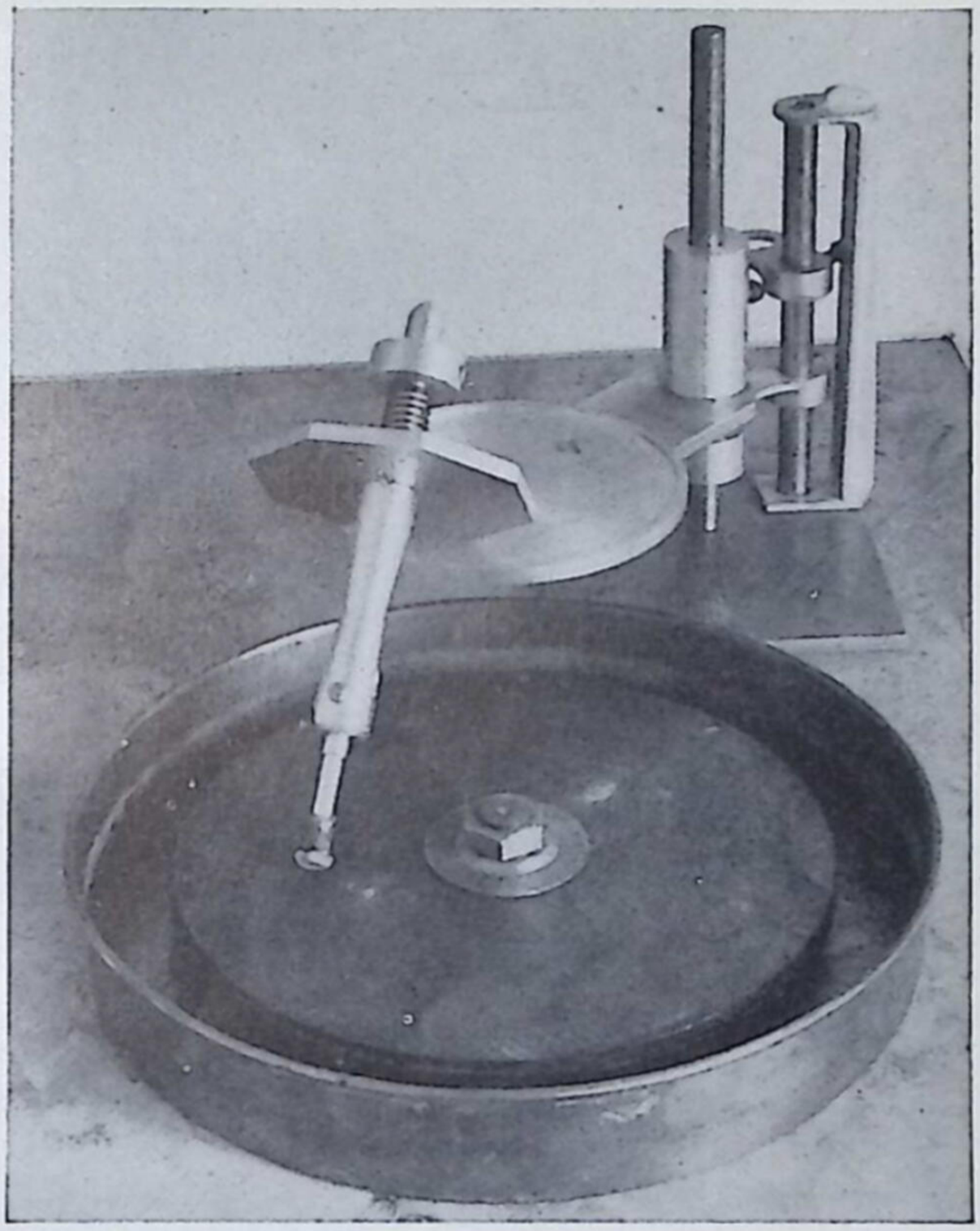
The plans of Sutter and Marshall to keep the discovery quiet came to naught, for the secret of gold could not be kept. The ex-soldiers at the Coloma millsite confided the secret to their associates at Natoma. Charles Bennett, sent by Sutter to Monterey to secure a grant of the Coloma area from Governor Mason, could not restrain himself from showing the gold in Benicia and San Francisco. Upon hearing of gold, Sam Brannan, the Mormon elder, could not curb his curiosity and visited Sacramento. Upon his return to San Francisco he did not hesitate to proclaim the discovery. Even Sutter, who most wanted the secret maintained, confided the news to General Vallejo. The first published announcement of the discovery of gold was made on March 15, 1848, in the San Francisco weekly newspaper *The Californian*, and no longer could the discovery be withheld from the whole world.

While in San Francisco, Sutter's agent, Charles Bennett, sought the advice of an ex-Georgia miner, Isaac Humphrey, and showed him the gold. The miner lost very little time in getting to the location of the discovery and became the first of many professional miners in the gold fields. Among other things he is credited with having introduced machinery when, on March 9, 1848, two days after his arrival, he made use of the rocker for the first time in California. He had the distinction of being the first professional only by the space of a few days, for a French Canadian backwoodsman soon arrived who had had previous mining experience in Sonora. He was Jean Baptiste Ruelle, called by all simply Baptiste. He and Humphrey were a great help to the many greenhorns, who were arriving in increasing numbers. These mining men, augmented by the arrival of some Sonorans from the Los Angeles placers, were the authorities on gold mining, the Sonoran miners being the vanguard of thousands of foreigners to be lured by California's wealth.

The crude method of pen-knife and butcher-knife mining soon gave way to more adequate methods of placer mining. The *batea*, or dish shaped Indian basket, the iron gold pan, and the cradle, which were used to expedite the process of separation of gold and sediment, were soon in evidence. The cradle (or rocker as it was often called proved to be inefficient because of the loss of many of the small particles, and was soon improved. The new development was the Long Tom, an elongated cradle in which transverse cleats arrested these small gold particles. Soon, however, the Long Tom was superseded by sluices of various types.

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Booming or gouging was the next innovation in mining technique. This consisted of merely letting water do the work of clearing away the sediment. A dam was built and the water diverted through the area which was being mined; the water carried the lighter elements downstream, leaving the gold-bearing ore easily accessible to be worked by one of the other methods of placer mining. The success of this procedure soon brought about the introduction of hydraulic mining—the use of water under pressure. It is claimed that water was used in this manner at Yankee Jim's in 1852. Perhaps more definite is the assertion that in the same year Anthony Chabot used the hydraulic method without a nozzle at Buckeye Hill, near Nevada City. Hydraulic mining seems to have been a California innovation, and was first employed, complete with the nozzle which is generally associated with this type of mining, in 1853.

The idea of dredging gold was common, but early attempts resulted in failure. Characteristic is the example of an operation on the Yuba River in 1853 in which the dredge sank almost immediately. Despite many subsequent dredging endeavors, it was not until 1898 that the first real success was achieved. This was accomplished with a bucket elevator dredge used on the Feather River near Oroville.

The easily worked alluvial deposits of gold extracted by the early miners made mining look simple, and this fact added to the many stories of fabulous wealth lured thousands of men to the gold fields of California. Nevertheless the discovery of new placers did not await their coming. Not long after Marshall's discovery, John Bidwell, grantee of Rancho Chico, visited the Coloma site. Returning home to his rancho, he found gold at what became known as Bidwell's Bar on the Feather River. P. B. Reading also visited the discovery site, became convinced that there were similar indications on his land, and on his return to his home found some deposits on Clear Creek, which he worked with Indian labor. Success on Clear Creek led Reading to further finds on Trinity River, just as success on the Feather River stimulated discoveries on the Yuba. Before the end of 1848, finds of gold had become numerous and the gold area extended from the Tuolumne on the south to the Trinity on the north.

Men of mining experience sought the source vein or veins from which the alluvial deposits originated. The first such vein, which was of gold quartz, was discovered on Colonel John C. Frémont's Mariposa grant in August 1849. It was probably not until 1850 or 1851, that the term Mother Lode was first applied. At that time it was used to designate a vein worked at Nashville, twelve miles south of Placerville.

In the years following '48 and '49, more and more areas were opened and worked, and the gold production of California was immense. The significance of these discoveries, of the resulting rushes, and of the partial abandonment of the area is enormous. Thousands of men came by wagon, by ship and even by foot to become rich in the Golden State. Most of them desired to return home after striking it rich. Some did, but many remained in California to populate the new American acquisition. As a result of the gold rush, California became a state without going through the usual territorial status, since its population was sufficient for its entry into the union on equal terms with the other states. The nature of prospecting made exploration of the state complete and rapid, most portions being inspected in the hope of finding gold. The results of the influx of forty-niners caused the State to go through a turbulent, and oftentimes lawless, period of growing pains, but a period from which it emerged the most important state.

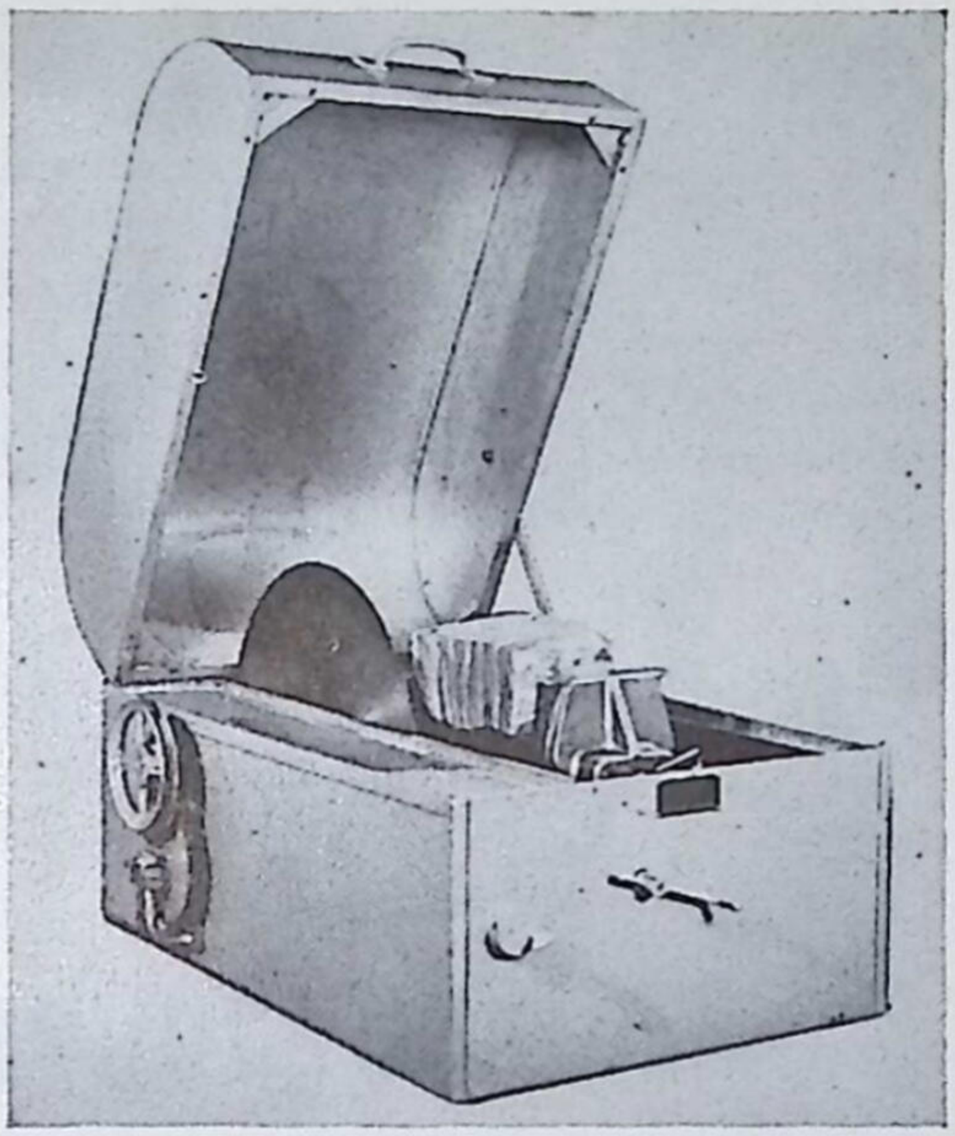
The California gold rush stimulated strikes in all parts of the world. Marshall's discovery was the direct stimulus for the important New South Wales find of 1851 and the resulting rush. In the general search for gold, a strike was made on the Fraser River in western Canada. This rush drew many fortune hunters. In 1859-60, the silver bonanza of the Comstock Lode was made by prospectors seeking gold. Additional gold fields were discovered in Colorado in 1859, and many of the miners were Californians. These gold rushes and subsequent strikes drew men away from California in considerable numbers, but began the process of filling the gaps of settlement between the Middle and Far West. Thus the discovery of gold not only hastened the development of one state, but also that of the whole West, either directly or indirectly.

The economic consequences and significance of the discovery of gold are equally great but harder to determine. Increased production in the United States, followed by

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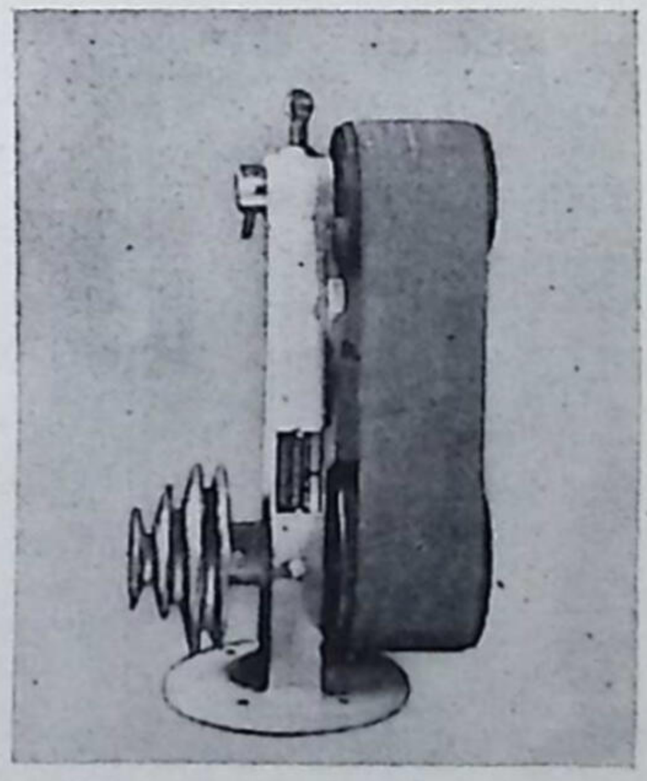
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GEM VILLAGE NEWS

Volume and Sale No. 3 — June, 1949

Colorado Gem Company — *(Established 15 Years)* — Bayfield, Colorado

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High on the Colorado Plateau a prospector was wending his way into almost inaccessible places. His primary thought was discovering a rich Uranium deposit. His dream was partially fulfilled when he sighted a yellowish green deposit in one of the arroyos. Yes, Uranium — fluorescent uranium that fluoresces a soft green — JOHANNITE and ZIPPEITE on ALUNOGEN. The Colorado Gem Co. has secured *all* the specimen material from this deposit and it is one of the rare ones that we bet you don't have. Beautiful greenish cast on pink base. Attractive in ordinary light and beautiful under fluorescent light.

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(GEM VILLAGE)

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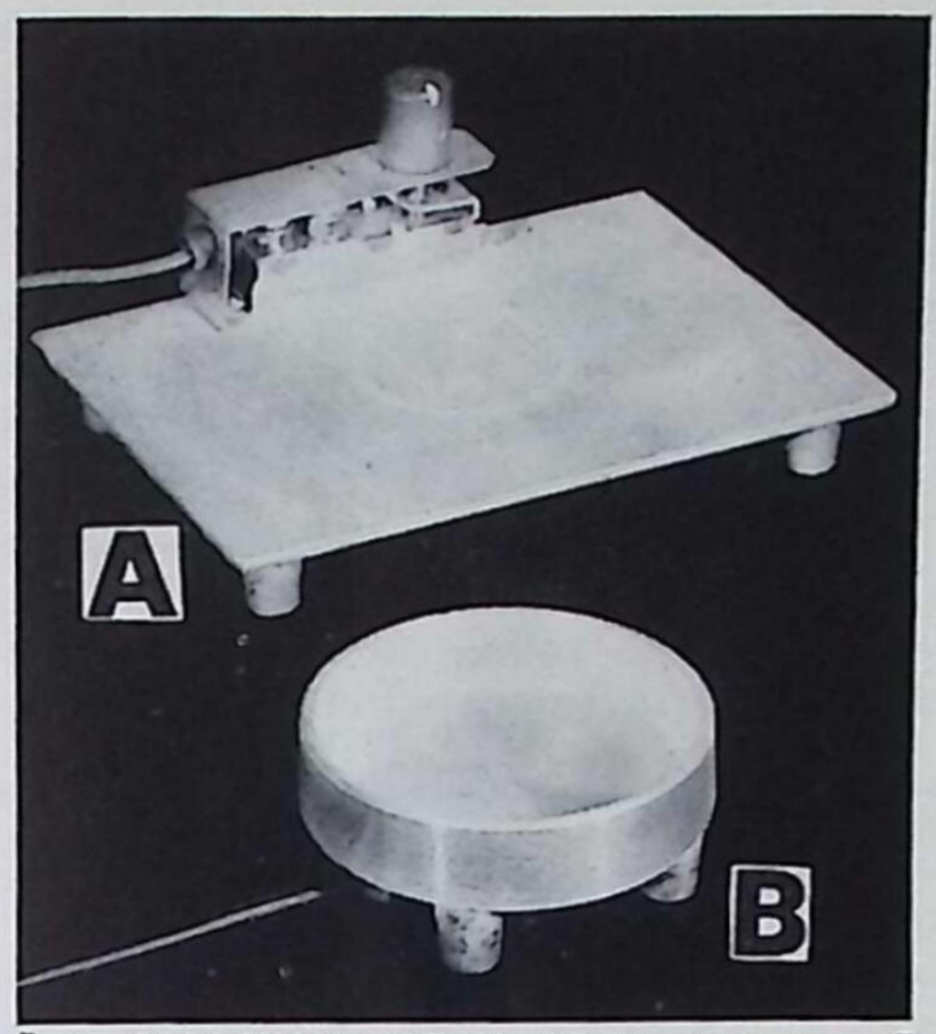
RICOLITE BUTTONS: Self shanks. Greens, Grays, yellows; with or without patterns. ½", 25c; ¾", 50c; 1", 65c; 1¼", 75c; 1¾", $1.50. Sewing lug back of button. *All buttons: in sets or singles.* Approvals on request. Buttons made to order.

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A smaller but very useful book of especial value to the beginner. Contains 32 plates with 282 small sketches of technique and design.

HAND MADE JEWELRY *by Louis Weiner*—$2.75

The outstanding feature of this book is the thoroughness with which it covers the field of hand-made jewelry. It is a complete source book, fully illustrated, of all the basic facts necessary to know in order to make a wide variety of ornamental and professionally-finished pieces of jewelry by hand. Careful and thorough instructions guide the amateur craftsman from the beginning of any number of projects, through the intricate processes of using the jeweler's saw, transferring designs on metal, soldering, pickling and annealing. Several techniques are offered for each job, providing a choice from which the technique best suited to the individual can be made.

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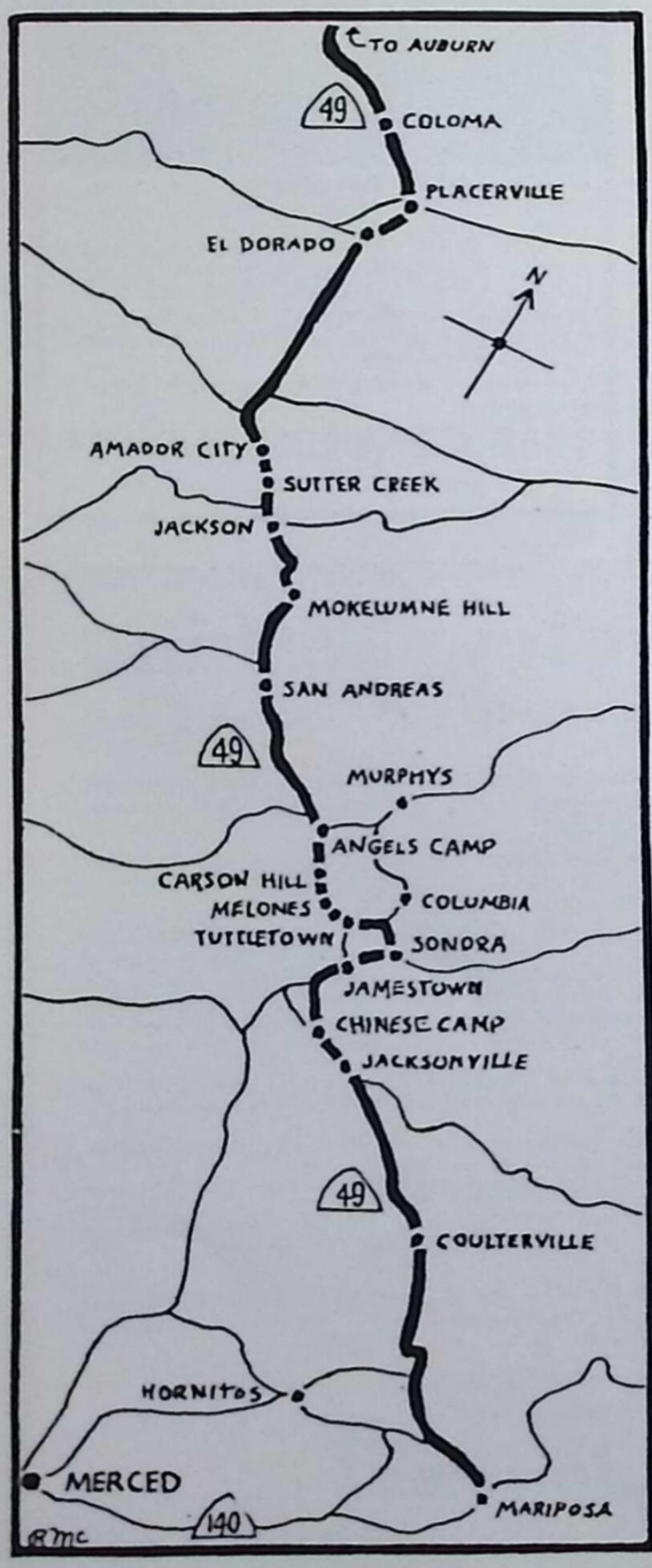
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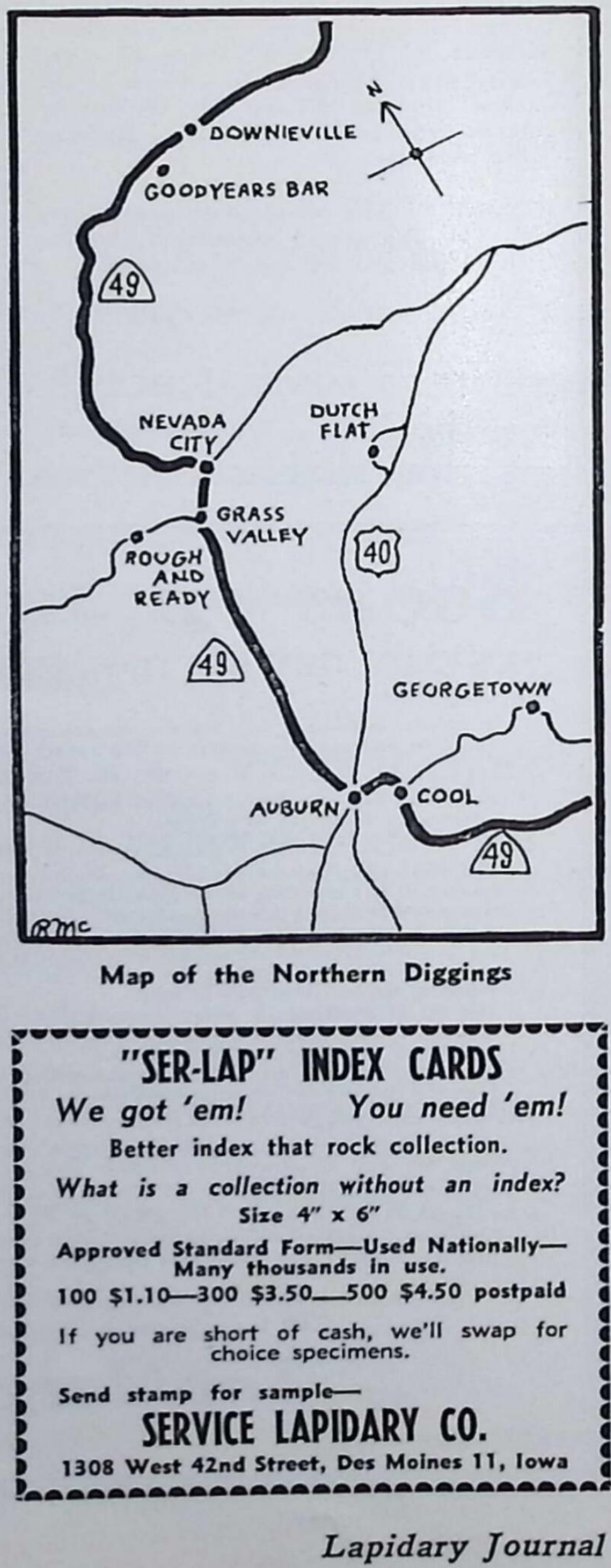
P.O. Box 1228 **Hollywood 28, Calif.**

increased foreign production resulting from the California gold rush, caused an increase of money in circulation. By 1865 in California alone $750,000,000 in gold had been mined, and this figure is considered a conservative estimate. In spite of the heavy increase of circulating gold, the much-feared serious inflation, which was predicted by economists, failed to materialize. True, in California, at the source of gold and where commodities were scarce, initial inflation was tremendous; but world inflation as a result of the California gold rush, and its successors, was slight. Estimates of inflation range from 5 percent to 15 percent. This low figure is explained by an existing world scarcity of money caused in part by increasing world population.

Other important results of the gold rush were that it opened the era of modern mining; hastened the colonization of the West and the suppression and partial elimination of the Indian; accelerated the expansion of the agricultural frontier by the need for a food supply in the gold area; and speeded the linking of the East and West.



Map of the Mother Lode



Map of the Northern Diggings

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◆ How To Test Old Gold

By HOOVER & STRONG, Inc
Refiners, Buffalo 1, N. Y.

The purpose of this article is to outline satisfactory methods and to point out precautions by which "phoney" articles can be detected. An early lesson of how the gold buyer can be fooled is learned from Shakespeare, who wrote, "All that glitters is not gold," probably because he got stung buying gold at one time or another in his colorful career. Another lesson is gained from the classic fiasco of Capt. Christopher Newport who in 1608 sailed a cargo of "fool's gold" from Virginia to England.



Every refiner and assayer at times receives complaints from clients who feel that they were "gypped" when settlement was made for shipments of their scrap. Assuming that the refiner is honest and accurate, it can generally be shown that the client's testing methods were inadequate to determine the true value of the gold or other scrap. That is why an article of this kind will prove useful.

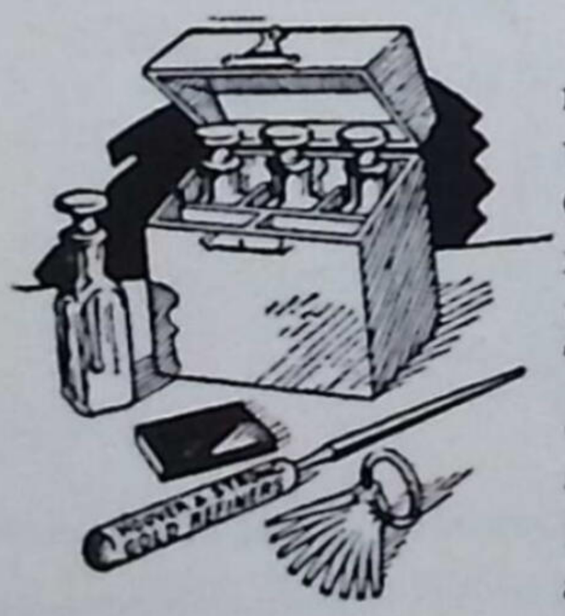
TESTING EQUIPMENT

For equipment, if you do not already have it, you should get a regular testing set like the one illustrated. This contains three acid bottles, a touchstone and a set of standard needles. The bottles are equipped with glass rods which extend from the ground glass stoppers and are used as droppers. In addition you will need another acid bottle, a balance or scale, a sharp three-cornered file, a supply of acids and a graduate. A separate set of needles for white gold and green gold can also be obtained. The testing set, acid bottles and scales can be obtained from a jeweler's supply house. Only chemically pure (C.P.) acids should be used. Acid can be obtained from most drug stores. But for economy and safe-keeping it is best to buy standard 1 lb. bottles of C.P. nitric and C.P. hydrochloric acids from a chemical supply house, as the standard bottles are equipped with ground glass stoppers and are appropriately labeled. A 100 cc. graduate can also be obtained from a chemical supply house.

PREPARATION OF ACIDS

Bottle No. 1 is half filled with C.P. nitric acid. For bottle No. 2, make up a solution of one part hydrochloric acid and nine parts distilled water, using the graduate to measure. Half fill the bottle and pour the remaining solution into a clean bottle for future use. Bottle No. 3 is half filled with C. P. hydrochloric acid. For bottle No. 4 (the extra bottle) prepare a solution of one part C. P. nitric acid and one part distilled water. The acid in bottles 1, 2 and 3 should be changed about once a week; in bottle 4 about once a month. Do not make mixtures of nitric and hydrochloric acids, as such mixtures decompose rapidly.

NITRIC ACID



When C. P. nitric acid is applied to old gold, it will not affect 14K or better. 10K will turn dark in time. 8K will show bubbles after about 15 or 30 seconds, and on 6K or lower the acid will boil. Brass and copper cause nitric acid to boil green. Silver is indicated by the appearance of a dull gray color when nitric acid is applied. To make doubly certain, add a little dilute hydrochloric acid (from bottle No. 2) to the nitric. If the article is silver a curdy or milky white substance (silver chloride) is formed. A somewhat similar white substance (tin oxide) appears on pewter when nitric acid alone is applied.

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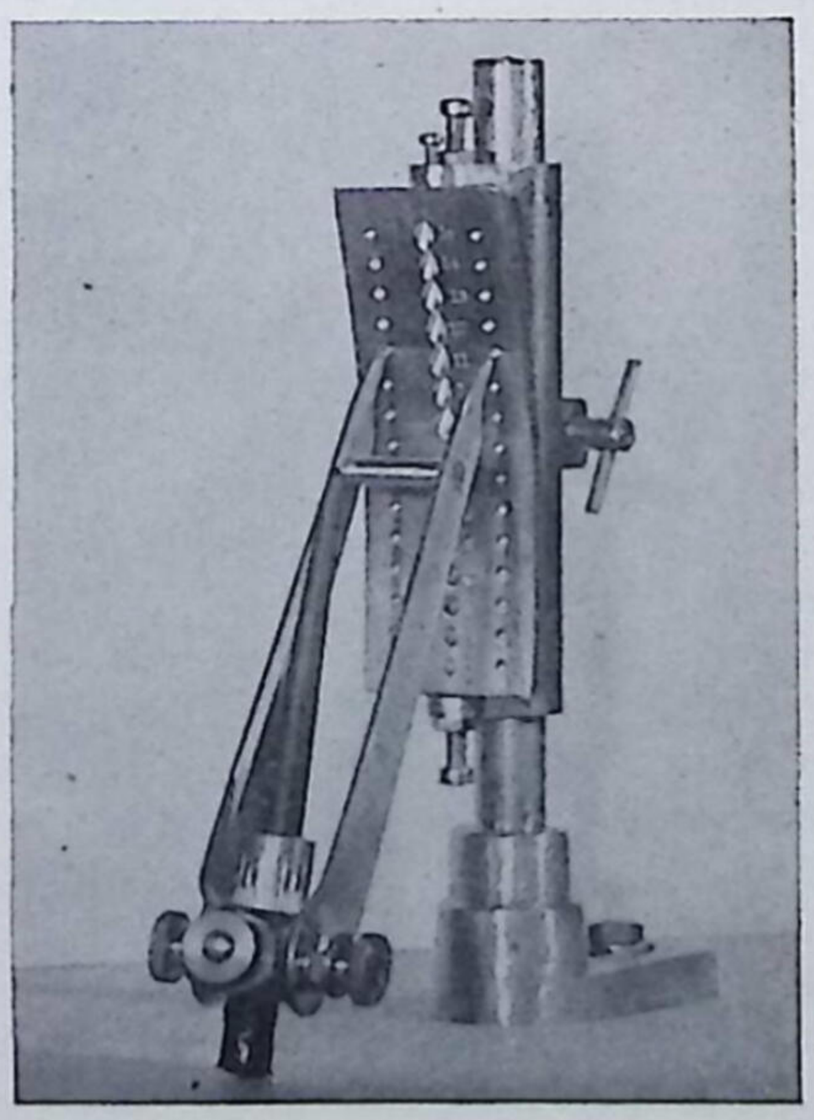
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FILLED AND PLATED SCRAP

If you are well acquainted with jewelry, you can probably tell solid from filled stuff by weight and color alone. Solid gold, for example, is much heavier than filled. But if there is any question, use your file. File a *deep* notch and apply nitric acid. If the article is filled, the acid will boil instantly, turning greener than a snake's eyes. If the notch turns gray, the article is probably filled with silver. To verify this, add a drop of dilute hydrochloric acid from bottle No. 2. If a curdy white substance is formed, silver is the filling material. Some articles are filled with low karat gold. This can be discovered by placing nitric acid on the file mark. The low grade filling material will turn dark or bubble while the surface will appear a better quality.



"Snake-Eyes"

Electroplated material generally bears too little gold to justify refining, the layer of gold being about 1/10,000 inch thick. This can usually be detected by appearance. But when in doubt, apply nitric acid after scratching lightly with the end of your file. If the acid turns green on a light scratch, the article is electroplated—not filled.

DETERMINING THE KARAT

When you are satisfied beyond a doubt that an article is solid gold, it should be tested on the touchstone to determine the karat. The touchstone test is based on certain chemical reactions. Pure gold is not soluble in nitric acid, but is soluble in aqua regia (a mixture of nitric and hydrochloric acids). Jewelry is made of gold alloys, that is, gold mixed with copper, silver, zinc, nickel and other metals. When rubbed on the touchstone the mark so obtained is a finely divided sample of the article. When nitric acid is applied, the other metals are dissolved to a certain extent. But the gold remains on the stone; or in the case of low grade material such as 6K or 8K, the finely divided particles of gold become suspended in the acid and appear to have been dissolved.

Rub the article on the touchstone, leaving a heavy clear mark. The testing needles are tipped with gold alloys of standard karats. Select a needle you believe to be the same quality as the article you are testing. Rub the needle on the stone alongside the other mark, taking care to make marks of about the same kind. In this, and in all subsequent tests, compare the reaction from the needle mark with the reaction from the article being tested. Repeat with different needles, until the same results are obtained from both the needle and the article.

THE TESTS

Apply nitric acid from bottle No. 1 to the marks on the stone. If 6K or 8K, the marks will disappear. 10K will turn dark, while 14K and better will remain unaffected.

If the object appears to be 10K or lower, rub it on the stone again, together with the 6, 8 and 10K needles, and apply dilute nitric from bottle No. 4. 6K will disappear, 8K will turn dark, but 10K will not be noticeably affected.

If the object seems to be better than 10K when tested with C. P. nitric acid, it is necessary to add dilute hydrochloric acid from bottle No. 2 to the nitric acid on the stone. If the article is about 14K, the mark will disappear rapidly; if 16K the mark will darken. An article better than 16K will not be affected. Now if you think it is better than 18K, make a new mark on the touchstone with the article, and also with the 18 karat and better quality needles. Then apply nitric acid, and add C. P. hydrochloric acid from bottle No. 3. Both marks will probably disappear, but the lower grade will fade out more rapidly.



In any of the tests using hydrochloric acid, keep an eagle eye open for traces of silver. Silver is present in yellow and green golds, and traces of silver chloride generally remain on the stone. This can be mistaken for the gold mark. Also, the presence of a large

KARAT GOLDS

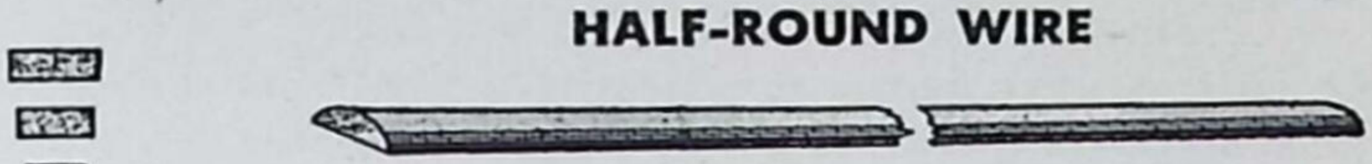
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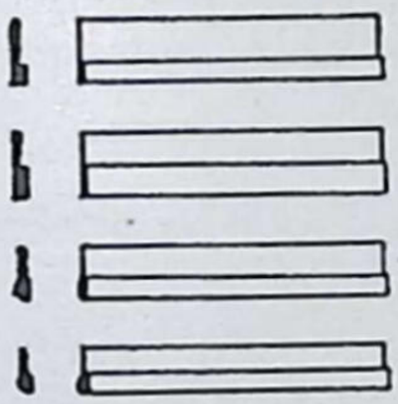
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amount of silver in a gold alloy increases its nobility . . . that is, it causes it to look better on the stone when nitric is applied, than it would otherwise. Silver, however, as stated before, turns to silver chloride (a curdy or milk-white substance) when dilute hydrochloric is added to the nitric, and leaves a white precipitate on the stone. If it is a curdy precipitate, the article contains a large amount of silver and is probably from 2 to 4 karats lower than it has tested otherwise.

VARIOUS GOLDS

GREEN. We repeat, much silver in an alloy might cause it to appear better than its actual quality. A high silver content is found in green gold, and very often in watch cases.

RED. But it must not be forgotten that a comparatively *small* amount of silver might make an alloy appear *lower* in quality than it really is. Red gold, for example, contains very little silver (as compared with yellow gold—which we take as the standard—and with green gold), and its touchstone test will make it appear lower in quality than it actually is.

WHITE. White gold contains no silver. This causes 10K to appear very poor in a touchstone test (reacts like 8K yellow gold); 14K turns dark and the mark disappears when dilute hydrochloric is added to the nitric. 18K appears bluish white under nitric acid, and is not immediately removed by the addition of dilute hydrochloric acid. For more exact testing use standard white gold testing needles.

PLATINUM AND PALLADIUM. Platinum is not soluble in cold aqua regia—a mixture of nitric and hydrochloric acids. Palladium is soluble both in aqua regia and in plain nitric acid. In either case, with palladium, the acid turns orange color. A sure way therefore to distinguish palladium (or a gold-palladium alloy) from platinum is to place a drop of nitric acid on the article itself. If it is made of fairly pure palladium the acid will bubble slightly and turn orange color, and the article will darken. If it is a gold-palladium alloy, it will probably be necessary to add hydrochloric to the nitric before the orange color appears.

CLEANING STONE

To clean your stone, place nitric acid on each gold mark and add hydrochloric from bottle No. 3. Then rinse off with water, and dry with a cloth. To keep the stone black and prevent scratching, place a little "3 in 1" oil on the surface and rub off with a cloth until the stone appears dry. Gold marks can also be removed by wetting the stone and rubbing with charcoal.

WATCH OUT FOR THESE THINGS!

Until a few years ago we had no stamping laws, and some manufacturers view them lightly even now. Under the stamping laws jewelry may be shaded to some extent legally. This tolerance must be given because soldering necessarily lowers the karat.



Our experience, taking all karats, shows that jewelry averages from ½ to 1 karat below its apparent quality.

WATCH CASES. We have assayed, for example, a great many watch cases stamped "Warranted 14K-585 Fine U. S. Assay," bearing trademarks of reputable manufacturers. These cases actually average about 13K, giving the quality mark about the same significance as the name "Elite" on a Greek restaurant.

The chances are, the fabricators started with 14K gold, but managed to flow in enough low grade solder to bring the karat down to the legal minimum.

STAMPING TRICKS

A common trick noted more often on "18K" cases than with the other grades, but particularly on the heavy hunting cases, was to stamp the lids "18K." When tested, the lids test 18K all right, but the centers test 14K, making an average of about 16K.

FILLED "CENTER"

Very often, too, a gold case will have a filled center. Again there are many gold cases on the market stamped "18" that are actually 8K. They will test higher than 8K on the touchstone because of their high silver content; but are readily recog-

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Dozen lots ..... .35c each
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Single gems .....$1.00 each
Dozen lots ..... .50c each
Any material except corundum.
Star Sapphire and Star Rubies $15.00 each

WHOLESALE FACET CUTTING
Expert work guaranteed. Ask for our price list on facet cutting on all materials.

JEWELRY REPAIR SERVICE
Reasonable charges for repairing, sizing, redesigning, renewing, resetting and matching gems. Repolishing and recutting gems. Any type of jewelry.

CABOCHONS

Montana Agate	19x25 m.m.....	.85c each
Montana Agate	14x24 m.m.....	.85c each
Montana Agate	15x24 m.m.....	.85c each
Montana Agate	9x16 m.m.....	.75c each
Montana Agate	9x18 m.m.....	.75c each
Montana Agate	13x18 m.m.....	.75c each

TIGER EYE AGATE

Gold or Cherry	8x16 m.m.....	.75c each
Gold or Cherry	9x16 m.m.....	.75c each
Gold or Cherry	9x18 m.m.....	.75c each
Gold or Cherry	13x18 m.m.....	.75c each
Gold or Cherry	12x20 m.m.....	.75c each

GEM CHRYSOCOLLA. Some with Malachite inclusions. 8x16 to 8x22 m.m. .....$1.00 each
PETRIFIED WOOD. 8x16 to 14x24 m.m. ..... .90c each
CABOCHONS of Obsidian, Palm Root, Amethyst, New Mexican, Etc. 8x16 to 10x20 m.m. .70c each
RED PLUME AGATE. A few choice cabochons 14x24 to 19x25 m.m. .....$5.00 each

Material prices do not include Federal tax or postage.

WHOLESALE **RETAIL**

THE STETSONS

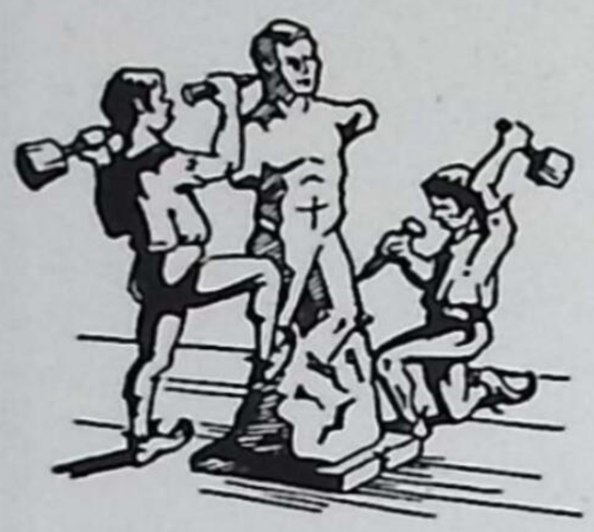
Gem Cutting and Jewelry Manufacturing

2550 Ridgeway Dr. **Phone G7-5371** **National City, California**

nized by placing a drop of nitric acid on the case itself, which will turn dark and bubble.

HIGH KARAT CASE FILLED WITH LOW KARAT

Occasionally you will run across a high karat case that is filled with low karat gold. This can be detected by filing and applying nitric acid, as explained above in testing filled scrap.



GOLDS SWEATED TOGETHER

Sometimes cases are made of two sheets of gold sweated together, the outer layer being high quality, while the inside of the case is low grade gold.

"OLD-TIMERS NOT AFRAID TO USE GOLD?"

It seems to be a common notion that the old-timers weren't afraid to use gold. Let us add right here that they weren't afraid to chisel, either. In fact, Benvenuto Cellini, sometimes called the greatest jeweler of all time, was also a famous sculptor. So you can see "chiseling" was done even in the 16th century.

CHAINS



Chains vary a great deal from apparent quality, but in general can be expected to assay at least one karat lower. There is a certain type of chain often encountered that looks like the one shown to the left. These chains often have a core of silver or silver solder; and while they are stamped 14K, they may assay as low as 8K. To test for the silver core, file a link three-quarters through and apply nitric acid. A round or oval gray spot indicating silver may appear in the center of the cross-section. If it doesn't, apply dilute hydrochloric acid from bottle No. 2. If the silver core is actually there, the curdy white formation will appear.

Even when chains have a good yellow color, and do not have high silver content, they assay definitely *under* what they are marked. Some stamped 10K will really assay only 8K. And "14K" chains will assay 11K, or 11½K, or 12K—but very rarely as high as 13K.

PHONEY KARAT MARKS

Never believe a karat mark unless it is accompanied by a reputable trademark, and sometimes, as suggested, not even then. There are a great many wedding rings, for instance, stamped "18K" that are actually only 14K; and many stamped "14K" that are 10K or lower. And there are wedding rings stamped "18K" that are filled, and others that are just plain brass. The latter, like the trees, often turn green in the spring.

Watch out for articles composed of different metals, like cuff links. Usually the top and bottom are gold, but the connecting bar is brass. Articles like lockets often have a brass plate soldered inside for reinforcement.

DENTAL SCRAP, ETC.

We have cited certain types of shaded articles just for illustration. About every kind of jewelry has been shaded to some extent. If you are buying old gold you cannot overtax your vigilance for gyp merchandise. Even dental bridgework is sometimes slugged with copper rivets or silver slugs, which are laid in the center and covered with solder. Often the solder over the surface has been eroded away and the slugging is visible. When you come across a bridge that is twice as heavy as it ought to be, it is best to cut it in two and test it for slugs.

Button Backs

The New Sterling Silver accessory that turns your cabochons into buttons

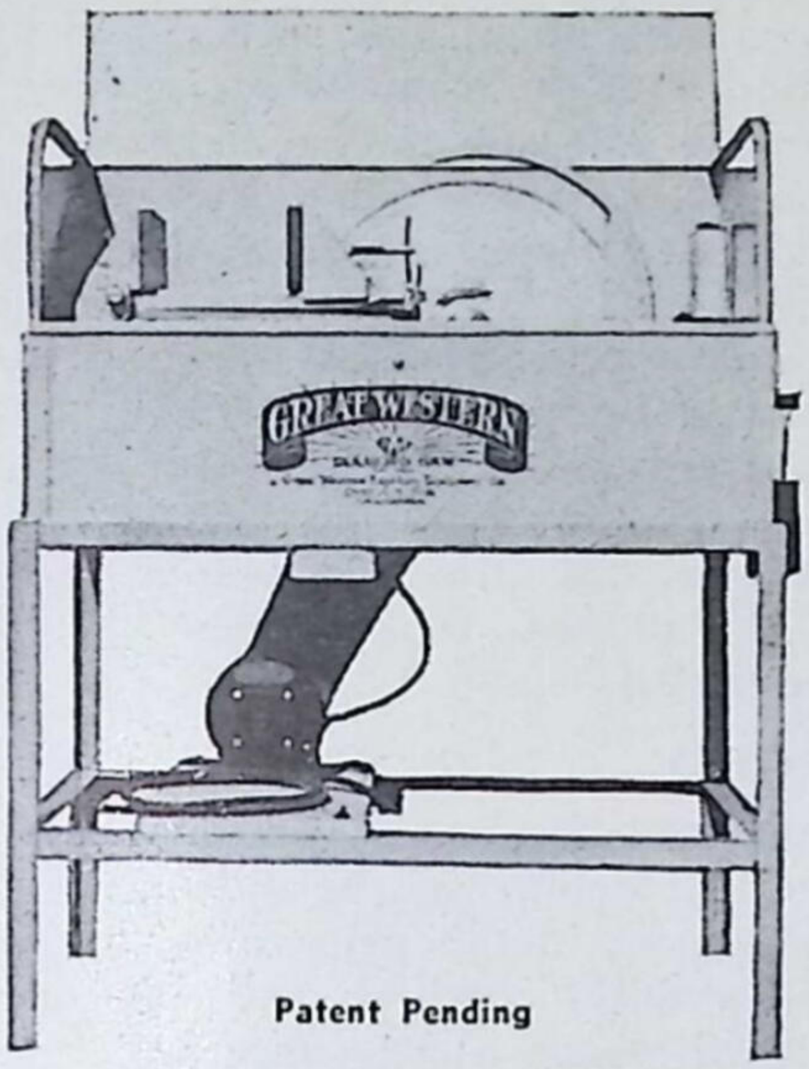
See the midde spread of

GORDON'S

Exchange—

Good Agate, rough or slabs, Opals and Antique Jewelry to exchange for good postage stamps, U.S. or Foreign. Accumulation of stamps or old letters wanted. Tell me what you have or send on approval with your cash valuation. DR. RALPH E. MUELLER, 3701 Valentine Road, Kansas City 2, Mo.

Great Western Hydraulic Controlled Diamond Saws



Patent Pending

The carriage on the Great Western Saws is controlled by an hydraulic cylinder which makes the smoothest cuts and gets the maximum wear from saw blades — no forcing, — no binding.

Vise has 8" opening with 4" cross-feed for slabbing, 1" arbor shaft takes 16" or 18" blade. The rigid frame makes it quiet and smooth running. Double hinge cover exposes front and top when open.

Price Complete $195.00 — price subject to change without notice.
Including 16" blade, stand, belt guard, motor mount and pulleys. F.O.B. San Diego, Calif. Shipping weight 275 lbs. Crating charge $4.00 extra.

GREAT WESTERN LAPIDARY EQUIPMENT CO.

P.O. Box 444, 740 Hilltop Drive, Chula Vista, California

SILICON CARBIDE GRINDING WHEELS

We do not stock wheels. To do so would require that we carry a tremendous inventory. We offer over three hundred sizes and types of wheels, and make up each wheel as ordered. Our customers appreciate our ability to make up exactly the wheel for their particular needs. Let us solve your grinding wheel problems. We ship about ten days after receipt of order. Following are listed most popular sizes and types. Write for price on any wheel not listed.

Grit sizes are in four price groups, specified as "A" coarse-60-80-100-120 or 180. "B" medium-220-240 or 280. "C" fine 320 or 400. "D" 500 or 600.

Thickness in inches		Diameter in inches 6	7	8	10	12
½	A	$2.91	$3.20	$3.85		
	B	3.08	3.45	4.18	Illinois	
	C	3.25	3.73	4.52	purchasers add	
	D	3.41	3.87	4.68	2% sales tax	
¾	A	3.10	3.80	4.57		
	B	3.37	4.14	4.96	Prices F.O.B.	
	C	3.65	4.48	5.35	Franklin Park, Ill.	
	D	3.80	4.63	5.55		
1	A	3.54	4.35	5.30	$ 7.48	$ 9.55
	B	3.85	4.51	5.78	8.14	10.38
	C	4.15	4.90	6.24	8.80	11.22
	D	4.31	5.28	6.47	9.10	11.63
1½	A	4.70	5.81	7.08	10.31	13.66
	B	5.00	6.31	7.70	11.20	14.85
	C	5.50	6.82	8.32	12.03	16.04
	D	5.70	7.06	8.62	12.55	16.63

ARBOR HOLE furnished in size desired. PLEASE SPECIFY.

2753 HAWTHORNE STREET "Guild" **FRANKLIN PARK, ILLINOIS**

GRADES OF DENTAL GOLD

The popular notion is that all dental gold is from 18K to 22K. But while it is true that a dentist starts with 22K to make a crown, he reinforces the crown with about 15K solder, and fills in the bridge section with the same solder. Solder as low as 10K is used for bridgework.



"Heavy Bridgework"

Ready-made "backings" (to which porcelain "facings" or front teeth are attached) are usually of low-grade material and decrease the value of bridgework. "Tail-pieces" soldered to clasps to hold them in rubber are often low-grade gold or German silver. Bridgework without crowns can generally be figured at 14K or 15K. With crowns, from 16K to 18K. Crowns average about 20K. Cast removable bridgework may vary from 14K to 18K; inlays from 14K to 24K. Dental wires and bars usually run from 14K to 17K. Bars are sometimes filled.

A PARTING WORD

When you are ready to sell your gold, by all means sell it on assay to a reputable refiner. Many so-called "refiners" have their entire factory in the side office, let us say, of their uncle's tailor shop. Since the advances in the price of gold, such operators have sprung up like mushrooms. Their refining methods and equipment, if any, are crude and faulty by comparison with those of older concerns.

Here is why these "mushroom" operators are almost sure to "gyp" you. They are not equipped to buy gold scrap scientifically on assay, and must buy either on the basis of the hit-or-miss results achieved from their "refining," or else on "estimate." Even under the most favorable conditions, estimating is, as the word implies, inexact. These "mushroom" operators, forced to rely on the estimate method, and being often inexperienced to boot, cannot judge accurately the precious metal content of your scrap. If they judge the wrong way, they run the risk of losing money. To avoid this, they are naturally impelled, when buying scrap, to grade material down as far as possible and to allow too much actual weight to the stones, brass, porcelain teeth, etc., in your scrap. You, of course, are the loser.



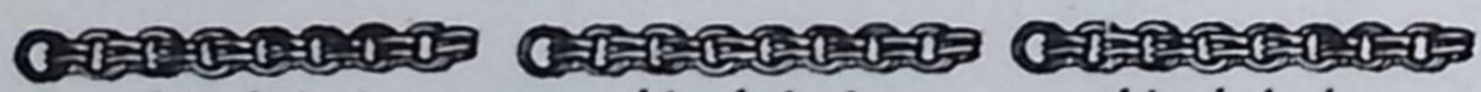
The authors, of course, need not do this. When a reputable refiner assays your scrap, he knows its precise value and can pay you what it's worth. This is regularly a higher figure than the estimator can afford to pay, for the latter has to protect himself against the risk of his own faulty judgment.

The estimator is also at a great handicap when it comes to buying filled scrap. For this cannot be estimated with any degree of accuracy. It should, whenever offered in a justifiable quantity, be refined or assayed. Only the experienced firm can do either of these correctly.

Studying it from every angle, we think you will agree that you should look to the established refiner, assayer and smelter for worth-while returns on your scrap.

PICTURES THAT WILL HELP YOU IN APPRAISING CHAINS

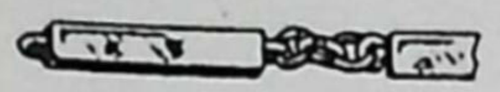
The following three chains look just alike, but



this chain is 12.5K | this chain is 11.8K | this chain is 8.7K

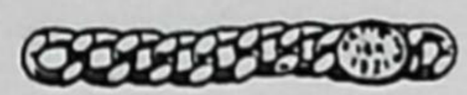
If you were to sell these chains on appraisal you might be paid for 8½K on all of them. But if you sold them on assay to a reputable refiner you would receive actual value.

Opposite we show some of the various types of chains which we receive as scrap together with facts and figures we believe will be very useful to you.



Tests 14K on touchstone
Actually 14K by assay

1



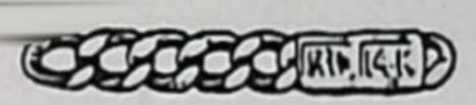
Stamped 14K-1921
Actually 13.2K by assay

6



Tests 14K on touchstone
Actually 12.4K by assay

11



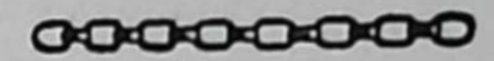
Stamped 14K
Actually 11.7K by assay

16



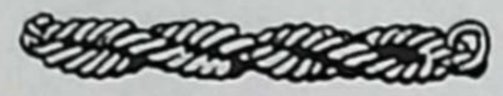
Tests 10K on touchstone
Actually 9.7K by assay

21



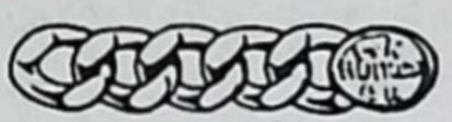
Tests 10K on touchstone
Actually 8.8K by assay

26



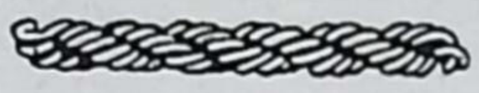
Tests 14K on touchstone
Actually 13.9K by assay

2



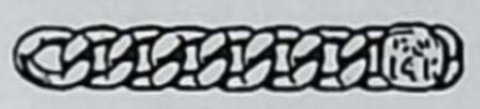
Stamped 14K-1918
Actually 13 1K by assay

7



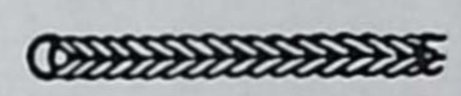
Tests 14K on touchstone
Actually 12.3K by assay

12



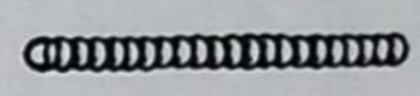
Stamped 14K
Actually 11.5K by assay

17



Tests 10K on touchstone
Actually 9.6K by assay

22



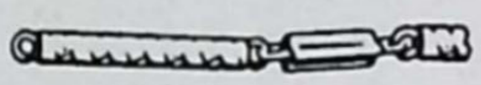
Tests 8 to 10K on touchstone
Actually 8.5K by assay
(High Silver)

27



Stamped 14K
Actually 13.6K by assay

3



Tests 14K on touchstone
Actually 12 8K by assay

8



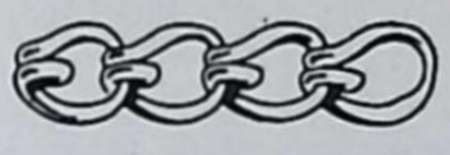
Tests 14K on touchstone
Actually 12.2K by assay

13



Tests 14K on touchstone
Actually 11.5K by assay

18



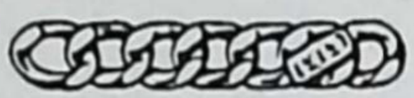
Tests 10K on touchstone
Actually 9.5K by assay

23



Stamped 9C
Actually 8.5K by assay

28



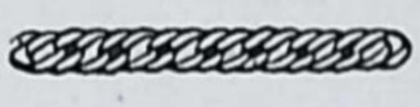
Stamped 14K-1919
Actually 13.6K by assay

4



Tests 14K on touchstone
Actually 12.5K by assay

9



Tests 14K on touchstone
Actually 11.9K by assay

14



Stamped 14K
Actually 11.1K by assay

19



Tests 10K on touchstone
Actually 9.4K by assay

24



Tests 8 to 10K on touchstone
Actually 7.4K by assay

29



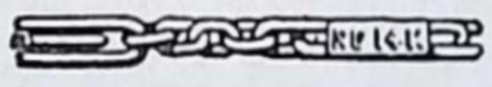
Tests 14K on touchstone
Actually 13.2K by assay

5



Tests 14K on touchstone
Actualfy 12.4K by assay

10



Stamped 14K
Actually 11,8K by assay

15



Tests 10K on touchstone
Actually 9.9K by assay

20



Tests 10K on touchstone
Actually 9.2K by assay

25



Tests 8K on touchstone
Actually 6.1K by assay

30

◆ Why Not Work in Gold?

By THEODORE ITTNER

Of Theodore's Jewelers, Box 292, Glendale, Calif.

Most amateur jewelry enthusiasts have found it difficult to visualize any medium of precious metal other than Sterling Silver for the projects of their hobby in hand wrought jewelry. Gold in its various Karat alloys has been neglected to a great extent by these craftsmen. Several factors have been aggravating this situation, three of which the writer would like to tabulate and discuss in this article.

1. Lack of understanding of the methods and techniques in the use of Karat Gold.

2. Cost of Gold as a jewelry medium in comparsion with Sterling Silver.

3. Difficulty of procuring gold in various required forms necessary in hand wrought pieces.

These reasons are all valid enough to discourage some folks, but let us consider them one at a time and see by eliminating them as deterrent factors, whether the end result of using this precious metal will justify the added effort and expense needed to acquire the necessities.

Problem No. 1 Karat Golds are NOT any more difficult to handle in making jewelry than is Sterling Silver. As a matter of fact Gold has some characteristics which actually make it *easier* to work with.

The same techniques of forming, soldering, pickling and finishing and polishing are used as in the case of Silver. Gold is even more malleable and ductile than Sterling Silver. This permits a wider range of workability and greater strength in slender sections which allows broader thought and feeling for form and grace of line and the use of a minimum of metal.

Karat gold has the faculty of being a much poorer couductor of heat than Silver which will be found to be a great advantage in making successive earlier ones. The warm beauty of well finished Gold jewelry is well known to all and requires no plugging by the author.

Problem No. 2. There is no doubt (and far be it from this writer to misinform any one) that the original cost of Karat Gold for jewelry is by comparison somewhat more than Sterling Silver. We can however cancel this item with the compared value of the finished piece in view of the fact that it will not only be a great deal more pleasure to the craftsman but will also have the added intrinsic value as a gift or a salable item.

The actual metal content from a monetary point of view in the average Sterling Silver finger ring would be somewhat less than a dollar. The same piece in 10 karat Gold would probably contain not more than five dollars worth of metal. In the case of 14 karat Gold the cost would be about 25 percent more.

A misconception of the actual cost value of Gold rings is probably traceable to the price tag attached to such items in catalogs and jewelry stores. These price tags must also contain such forgotten items as labor in manufacture, advertising, rent, fixtures and profits as well as the original cost of the item in terms of metal, etc. The case cited here is typical of any item of jewelry and other allied wares.

Problem No. 3 We will agree that it is somewhat difficult at this time to procure Karat Golds in such forms and quantities needed by the beginner. Most dealers in precious metals are naturally used to sales of much larger quantity than the average amateur might be inclined to order. For that reason it is usual for dealers to add a rolling or service fee to the cost of small orders. The metal itself is a U. S. Standard and does not permit a profit mark up as in other lines of merchandise.

Our best advice to those who would try this interesting medium in their hobby would be to buy enough metal for a quantity of projects rather than a single effort so as to allow the dealer a reasonable return for his efforts and investment. Carefully save all scraps,

GUIDE STONE GAUGES

In standard millimeter sizes

FOR FACETED STONES AND CABOCHONS

Standard Oval Guide	$2.50
Standard Brooch and Ring Form Oval Guide	2.50
Standard Square Guide	3.00
Standard Cross and Heart Guide	2.00
Standard Brilliant Guide for facefers	3.50

See them with the better dealers everywhere or write to

GEORGE T. DAVEY

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TEXAS AGATE. Only the finest colors and pattems selected. No two slabs alike and all are excellent gem quality. 1 lb. slabs only **$5.00 postpaid.**

CANAL ZONE AGATE & JASPER. A rainbow of colors and the only way we know to give you most of them in a single pound. Big slabs and small—all finest gem quality. 1 lb. mixed slabs—**$4.50 postpaid.**

ONLY THE BEST

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New Book

EARLY CALIFORNIA GOLD RUSH DAYS

Authentic stories and experiences of a 49'er as told by his daughter,

Annie Keeler Williams

See an abstract of this interesting book on Page 80 of this magazine.

Price — $1.50

★ ★ ★

NEW EQUIPMENT

HIGHLAND PARK COMBINATION UNIT — Model E-3

Cabochon machine, consisting of 8" saw with stone guide and lucite shield. Arbor with hooded grinding wheels and splash pan. End of the arbor covered for sanding and polishing buffs. Includes 8" diamond blade, 2 - 8x1" grinding wheels, 1 - 8" leather buff and 1 - 8" snap rim sanding disc. Mounted on metal base 13" x 24".

Complete (less motor) — **$89.50**

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S-T Gem & Mineral Shop

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Jean and Bill Kuhn SUnland 9358

DON'T WASTE YOUR PRECIOUS MATERIAL!

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Streamliner

SLITTING SAW

$29.50

F.O.B. SAN DIEGO

Including Blade

2½% Sales Tax in Califomia

Write for Information

HYATT LAPIDARY EQUIPMENT CO.

Box 366, Dept. J San Diego 5, California

snips AND filings as these can later be reconverted into workable metal if not adulterated by foreign matter such as Silver, Lead or Iron filings.

Most good hobby supply houses have rolling mills and will roll gold for you for a slight service charge. A very few forms will be found adequate for most projects such as rings, pins, pendants, bracelets, ear-rings and so on.

In anticipation of some of the questions which might be troubling you we will answer a few that seem to be stumbling blocks for most beginners.

Question: What kind of Gold to use?
Answer: Either 10 karat or 14 karat yellow gold. White can be used but is brittle and difficult to work.
Q. What kind of solder to use?
A. Use Gold solder of *the same karat as the gold.*
Q. What kind of flux to use?
A. Use same type of flux used in silver work.
Q. Where can I get Karat Gold?
A. Any good jewelry or hobby supply house should have it. If not then try the refiners. Inquire where you procure your silver.
Q. How can I save filings?
A. Rig up a tray under your work table which will pull out and cover your lap. This will catch all filings from the bench pin.
Q. How can I convert filings and scraps to use.
A. If kept clean and free from foreign matter they can be melted into an ingot and rolled out into sheet stock again.
Q. What polishing mediums to use?
A. Same type as for silver—tripoli and jeweler's rouge with a good final degreasing and wash out.

Well—how about it? Why not make your next project in GOLD?

"Cab" Cutters Specials

Ladies'—Sterling silver ring mounting.
Floral decoration.
Bezel shape Navette
6x18 m.m.

$1.00 Each plus tax

Gents'—Sterling Ring
Aristocrat model.
Oval Bezel
12x22 m.m.

$2.00 Each plus tax

Send for Literature

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Jewelers to the Craftsman
P.O. BOX 292 GLENDALE, CALIF.

GEM CUTTING
by J. Daniel Willems
Order Through Your Dealer or Direct
3298 Duroc Bldg. Peoria 3, Illinois
THE MANUAL ARTS PRESS

FIRE OPAL - MEXICO

10	small pieces—average ½"-¾"	$1.00
5	larger—average ¾"-1"	1.00
6	still larger—1"-2" or over	2.00
1	small vial clear fire opal	1.50
50	rough mixed Mexican Opals, including honey, cherry, etc., average 1"	1.50

ALL 5 LOTS POSTPAID—$6.00

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1851	75,938,232
1852	81,294,700
1853	67,613,487
1854	69,433,931
1855	55,485,395
1856	57,509,411
1857	43,628,172
1858	46,591,140
1859	45,846,599
1860	44,095,163
1861	41,884,995
1862	38,854,668
1863	23,501,736
1864	24,071,423
1865	17,903,858
1866	17,123,867
1867	18,265,452
1868	17,555,867
1869	18,229,044
1870	17,458,133
1871	17,447,885
1872	15,482,194
1873	15,091,210
1874	17,264,836
1875	16,876,009
1876	15,610,723
1877	16,501,268
1878	18,839,141
1879	19,626,654
1880	20,030,761
1881	19,223,155
1882	17,146,416
1883	24,316,873
1884	13,600,000
1885	12,066,044
1886	14,716,506
1887	13,588,614
1888	12,750,000
1889	11,212,913
1890	12,309,793
1891	12,728,869
1892	12,571,900
1893	12,538,780
1894	13,863,282
1895	15,334,317
1896	17,181,562
1897	15,871,401
1898	15,906,478
1899	15,336,031
1900	15,863,355
1901	16,989,044
1902	16,910,320
1903	16,300,653
1904	18,635,676
1905	18,898,545
1906	18,732,452
1907	16,727,928
1908	18,761,559
1909	20,237,870
1910	19,715,440
1911	19,738,908
1912	19,713,478
1913	20,406,958
1914	20,653,496
1915	22,442,296
1916	21,410,741
1917	20,087,504
1918	16,528,953
1919	16,695,955
1920	14,311,043
1921	15,704,822
1922	14,670,346
1923	13,379,013
1924	13,150,175
1925	13,065,330
1926	11,923,481
1927	11,671,018
1928	10,785,315
1929	8,526,703
1930	9,451,162
1931	10,814,162
1932	11,765,726
1933	15,683,075
(Price per ounce advanced from $20.67 to $35.01)	
1934	24,500,000
1935	31,165,050
1936	37,710,470
1937	41,110,230
1938	45,889,515
1939	50,234,240
1940	50,948,485
1941	49,307,755
1942	29,679,895
(Most mines shut down by the government as a war manpower saving.)	
1943	5,191,480
1944	4,108,055
1945	5,177,830
1946	12,488,840
1947	15,099,525
1948	14,647,150

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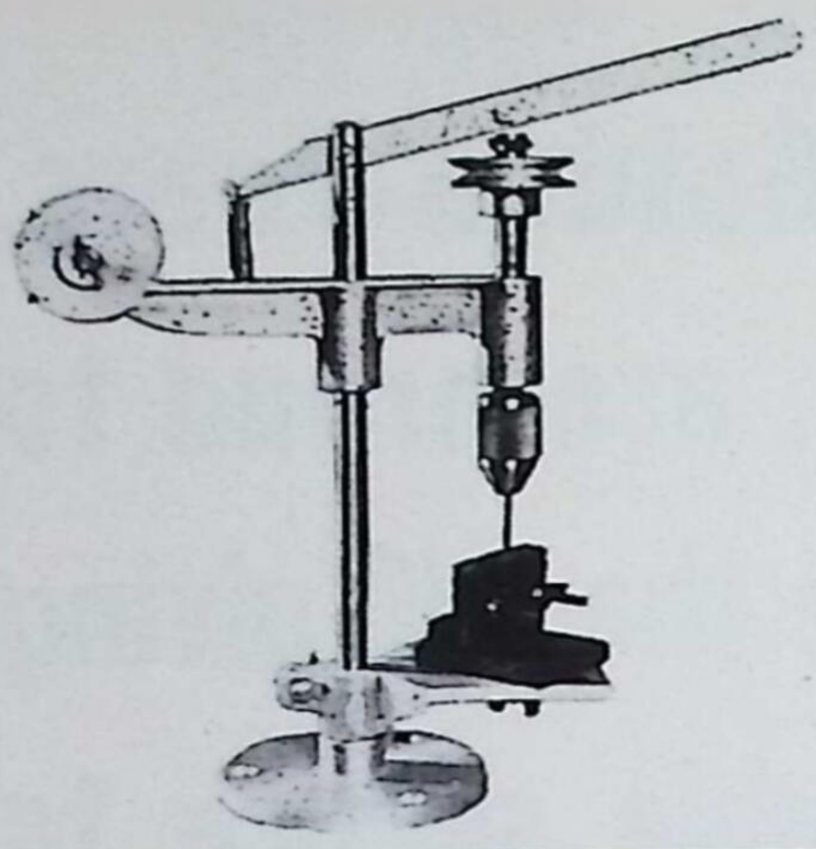
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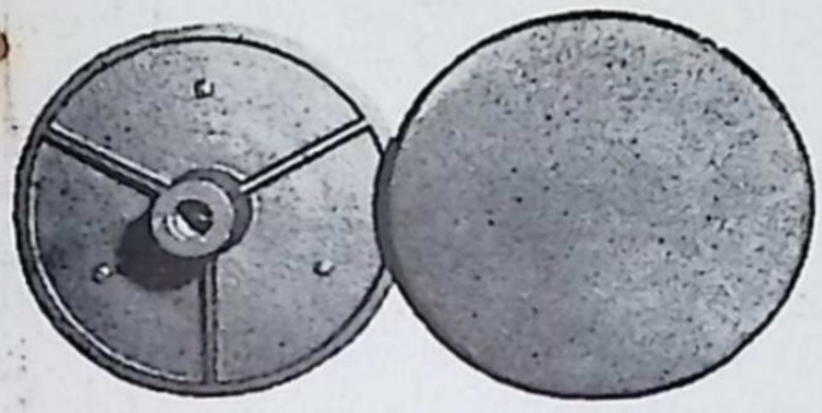
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The Scissors Cut — A Novel Style of Facet Cutting

By J. DANIEL WILLEMS, M.D.
Author of "Gem Cutting"
20 N. Wacker Dr., Chicago 6
Member Chicago Rocks & Minerals Society

The two basic styles of facet cuts are 1. the round brilliant, and 2. the rectangular step cut. The foundation upon which the facets are built in each style is the girdle. In the brilliant cut the girdle is a curve; in the step cut it is a series of straight lines. From these two basic styles there have been derived many variations, some of which are mixtures of the two.

Facets adaptable to a curved girdle, round the circle, can be any number, odd or even, although the usual number is eight or a multiple of eight. It should be no more difficult to produce seven or ten, or any other number within reason. As many facets as there is adequate room for upon the girdle can actually be placed there. The size or minuteness and hence the number of the facets is limited only by the ability of the individual cutter to cut them.

Facets adaptable to the straight-line girdle of the step cut are definitely limited in number. There are as many facets resting their bases upon the girdle as there are straight lines. This is usually four or eight, but any number is possible, providing only that that number corresponds exactly with that of the straight lines of the girdle, or in other words, with the number of the sides of the stone.

Continuing this line of reasoning, it becomes clear that, generally speaking, the facets of a step cut are much larger in size and, naturally, less in number. Also, the facets are arranged in steps or series instead of in groups. It is the accepted opinion that this style of cutting lends itself particularly well to those stones which are endowed with rich and striking colors, while the brilliant style is favored for those stones where sparkle and brilliance are more desirable—the white or colorless stones, and the lighter colors.

To fit in somewhere between these two basic types of cuts there has long been used a style which is a combination of the two others. It has some features of both and, therefore, is quite popular with the deeper colored stones as well as the lighter ones. This is the scissors cut, sometimes also called the square-brilliant cut. All of the facets are triangles with the exception of the two end facets at the culet, which are four-sided. The facets are arranged in groups of four at the ends and sides, where the stone has sharp corners. Where it has cut-corners, as in the eight-sided rectangle, there is placed a single triangular facet from girdle to table on the crown, and from girdle to culet on the pavilion.

Briefly the directions for cutting are as follows:

1. Rough out a rectangular shape, preferably with the corners cut to make the stone eight-sided. (See Figure 1).
2. Cut the side facets of the crown, first one then the one opposite. Then cut the end facets. Use the angles prescribed for the main facets for the material you are cutting. Then proceed in the same way cutting the corner facets. (See Figure 2).
3. Cut the right supporting facet (also called the wing facet) on the right This is done by reducing the angle by 7 or 8 degrees on the jamb peg. The exact amount of reduction must be judged as the cutting proceeds. In a shallow crown this angle may have to be less; in a deep crown more. At the same time the gem must be turned on the central axis one or two divisions. Thus the cutting will take down the upper right hand corner along a line from the lower right hand corner to a point near the upper left hand corner. (See Figure 3).
4. Now cut the left supporting facet,

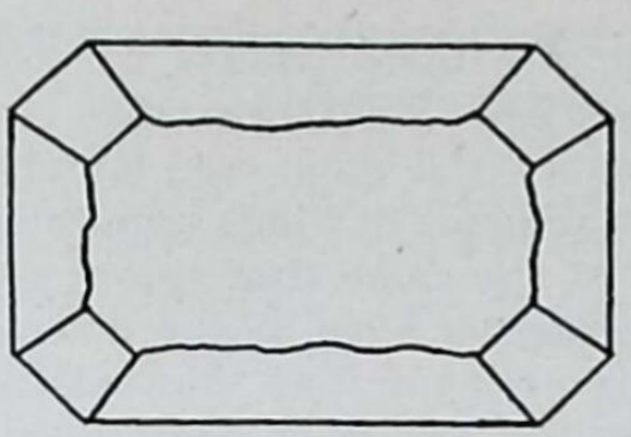


Fig. 1

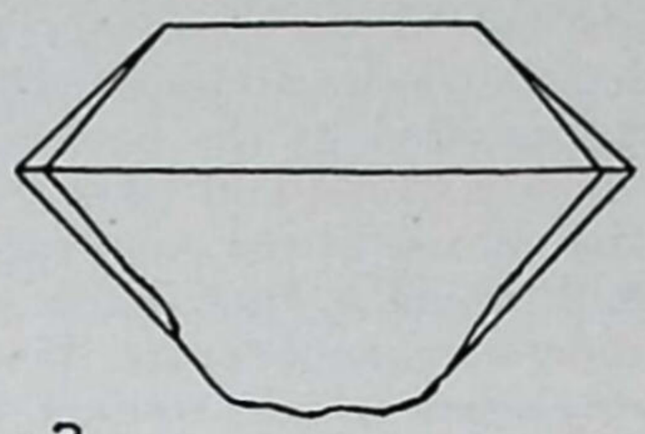


Fig. 2

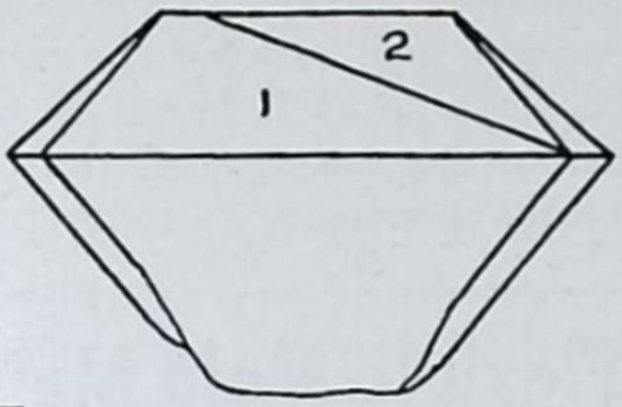


Fig. 3

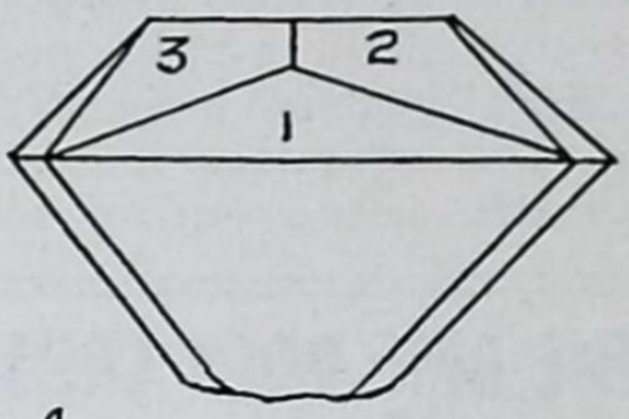


Fig. 4

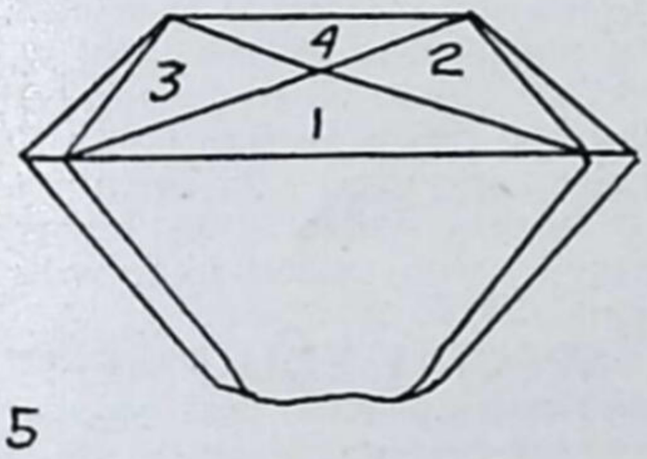


Fig. 5

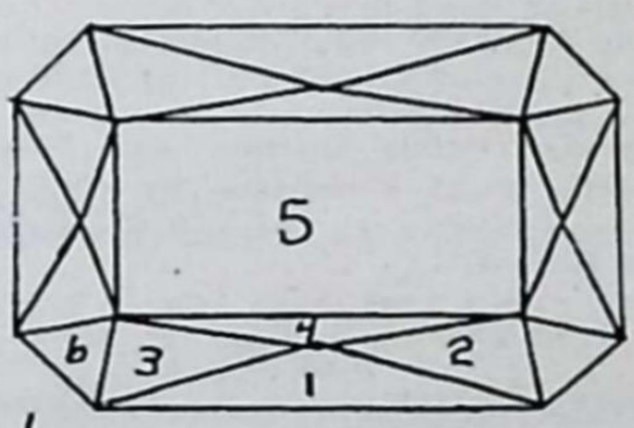


Fig. 6

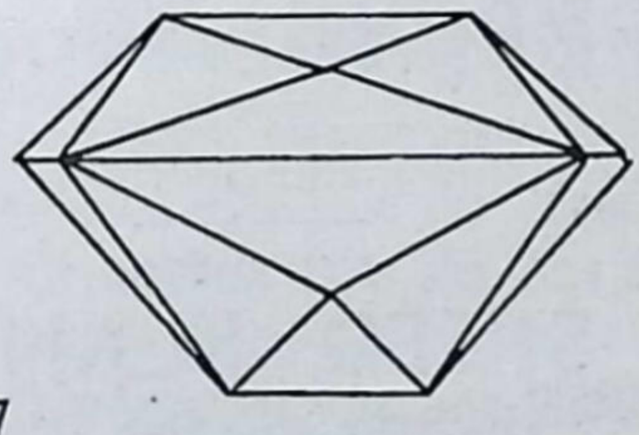


Fig. 7

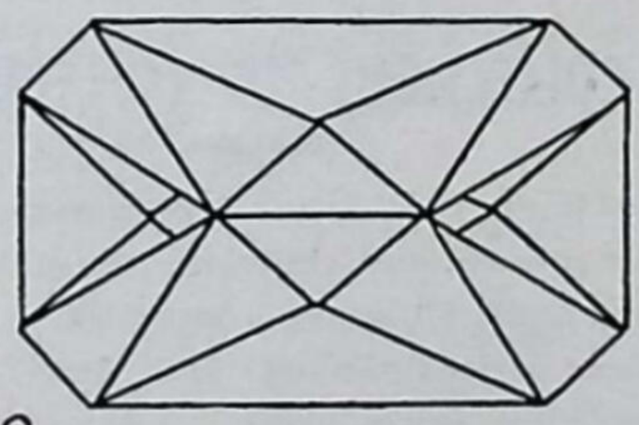


Fig. 8

using the same angles as before. Notice that as the left facet takes shape there will appear a straight line between the two supporting facets. This line should be at the exact center of the crown and should be at the peak of the main facet. (See Figure 4).

5. Lastly cut the table facet. This is done by setting the instrument back to the setting of the main facet, but at a higher angle on the jamb peg than any of the preceding three facets. Cut this facet down to the point where the right and left corners meet the points of the corner facets in a single point. When this is repeated all around the crown the table will be a rectangle with sharp 90 degree corners, and each side as well as each end will have a group of four triangular facets which meet in a single point. All four facets slope away from this point. (See Figure 5).

6. Repeat this process on the other side and the two ends to finish the crown. The top now shows the grouping of the facets. (See Figure 6).

7. The last operation is a repetition of the procedure on the crown as it is

adapted to the pavilion, excepting that the angles are those required for the pavilion by the particular stone which is being cut. (See Figure 7).

8. The cutting of the culet facets at the ends needs a little extra care and understanding because these are the only ones which are not triangles. These facets must not be overcut, so that the points at the culet will remain sharp. (See Figure 8).

This style of cut is highly popular with professional cutters, especially for synthetics. One advantage of this cut is the fact that in each group of four facets, there are three planes of reflection and refraction. This is equal to three straight facets in the step cut, which are much more difficult to place upon a small stone, and at the same time, more easily lost to the observer's eye because they are necessarily very narrow. The scissors arrangement also makes a more pleasing design.

The resourceful cutter will immediately see that the pavilion offers opportunities for variation in the facets, especially on the corners and around the culet. For instance, four small facets can easily be added to the culet, and there are other variations possible.

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Sawing—First cut a cube, then saw all corners off at about a 45 degree angle. With care you can make 12 to 16 saw cuts and that saves a lot of grinding.

Materials and size of cubes—Make the showy and larger size spheres of softer materials such as obsidian, opalized wood, onyx, etc. Grinding difficulties increase rapidly when the sphere gets larger than two inches. In grinding any stone of considerable weight use a heavy solid rest in front of the grinding wheel to support the stone. The best time saver of all is to grind your sphere as closely as possible to a truly spherical shape on the grinding wheel before going to the pipe cutters. This takes some practice and training the eye to recognize the high spots.

Grinding on pipes—The vertical running shaft of a flat lap unit was found best. Most flat lap units are set to run entirely too slow, especially for sphere cutting. Change the motor drive pulley and get a speed of 600 to 750 r.p.m. This makes all the difference in the world on the cutting speed. The sphere should very shortly start to rotate freely in the upper and lower pipes and if it sets stationary in the lower pipe and merely rotates along with the lower pipe no cutting action takes place on the lower pipe's cutting edge. One of my friends made the error of letting a piece of obsidian remain stationary on the lower pipe and did a lot of grinding with the upper pipe and after many hours' work his sphere looked something like a football. Use 100 grit for the rough cutting until a perfectly spherical shape is obtained and all grinding wheel marks are removed and the sphere is freely rotating in every direction. Keep the grit mixture fairly thick. Powdered soap is useful on the 100 grit to hold it on the cutting edges. Crumpled newspapers make excellent padding inside the pipes to form a semicircle to hold the grit in place. I find that just three grades of grit are best—100 grit for rough shaping, 220 grit for smoothing and 400 grit for finish grinding on the pipes. Use pipes somewhat smaller than your sphere.

Sanding—The 400 grit grinding (which should not take over 15 minutes) leaves a surface that can be easily sanded with a drum sander using 220 grit sanding cloth. If the sphere being worked is too small to hold by hand to the sander it should be mounted on a good sized dop stick after which about three fourths of the sphere can be sanded and polished. Then remove the dop and either finish sanding and polishing by hand or redop if necessary.

Polishing—Best done with a strip of the green felt that is used on billiard tables. Cut a piece large enough so it can be fastened on the outside of the pipe with a circle of wire which can be tightened with pliers after the sphere forms a semi-circle in the felt inside the pipe. In my opinion tin oxide is still the best polishing agent if you can get it.

A collection of gemstone spheres makes a display that stands out above most all other types of work.

I recently took a rough piece of opalized wood and in just three hours did a complete job from sawing to polishing on a 3″ sphere. The rough shaping was done with a 60 grit soft bond wheel running dry. My grinder is set up near an open door with a blower to remove the dust. I believe a 3″ sphere of agate would take two or three times as long as the opalized wood on the rough shaping on the grinding wheel.

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◆ How to Determine An Optical Axis With Polaroid

By LOU WHITE
7531 Riverton Ave., Sun Valley, Calif.
Member San Fernando Mineral & Gem Society

Many a lapidary will testify that of all his display pieces, the ones receiving the most appreciation are his star quartz gems. The main difficulty involved in making these is in getting the crystal oriented so that the star shows properly with its legs evenly spaced all around. The usual method is to first cut the rough stone into a sphere. After wetting the sphere with oil, or some other liquid with a similar refractive index, it is then viewed by transmitted light from a fairly strong point source until the point of the star is located in such a position that the legs are evenly spaced and of equal length.

The alternative of this method, we have been told, is to buy a petrographical instrument containing nicol prisms, precision optics, etc., at a cost exceeding that of many entire lapidary outfits. The author has put together a unit which will serve the purpose of orientation, at a cost of less than three dollars.

The principle involved is the optical reaction of the quartz crystal to polarized light. Since the true point of the star in the finished gem coincides with the optical axis it is only necessary to cut the flat bottom of the stone at an angle of 90° to this axis and the star will be perfectly oriented, whether the gem is cut round or elliptical. Polarized light is variously affected in passing through a crystalline substance according to its direction in relation to the optical axis. If a uniaxial crystal (quartz) is viewed by transmitted light between two polarizing discs its optical group can be determined as well as its axis. If the quartz crystal is rotated to the light it will go four times light and four times dark in one revolution. If it is viewed exactly parallel with the axis a spectacular display of colors may be noted. Ordinary white light is broken up into the spectral colors so that one sees a beautiful band of colors resembling a miniature rainbow. If a specimen is properly prepared (*i.e.*, a quite small polished sphere), the interference figure for quartz takes the form of a cross superimposed on concentric circles. However, in orienting a rough crystal, all that is necessary is to find a band or flash of color.

The set-up for observing this phenomena can be very crude and still work satisfactorily. The writer's outfit consists of two apple boxes nailed together with a spot light bulb, such as is used in lighting store window displays, mounted directly underneath a hole approximately 3/8", cut in the top of the box. On the under side of this hole is fastened a piece of polaroid. The rest of the equipment consists of a pair of polaroid goggles (these can be purchased at most war surplus stores), and a small glass dish with a smooth bottom.

In placing the polaroid piece under the hole in the box it is necessary to place it so that as you sit in your position at the end of the box its extinction angle will be at right angles to that of the goggles. In other words, as you look down at the hole from directly above it, turn the polaroid to where the light is most nearly extinguished. Since polaroid does not completely polarize light you cannot completely extinguish it but it will turn a dark purple. The goggles must always be approximately at this angle when you are working. Make sure that there is no strain set up in the polaroid piece in the box. It may be taped to the under side of the box. *Caution:* Do not go away and leave the light on as it may set fire to the polaroid or box.

The glass dish is filled with the refractive liquid (oil, glycerine, kerosene). The closer its refractive index to quartz the better. Adjust the goggles, place the dish over the hole, immerse the stone and rotate it in a horizontal plane. If the axis is nearly perpendicular you will get very little extinction. If the axis is at

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right angles to the light the extinction phases are very pronounced, so that if you find a plane where the extinction phase is very definite you will know that the stone must be turned approximately 90° perpendicularly. When a spot is found where extinction does not seem to occur you are getting close to the optical axis and the stone must be moved slowly and carefully. When the color is noted take the stone to your cutting wheel, without moving it about in the fingers, and make a flat cut on the exact bottom of it; this is a little difficult to do and you may find that it will take several attempts. Then return the stone to the oil, turn it over and repeat the process.

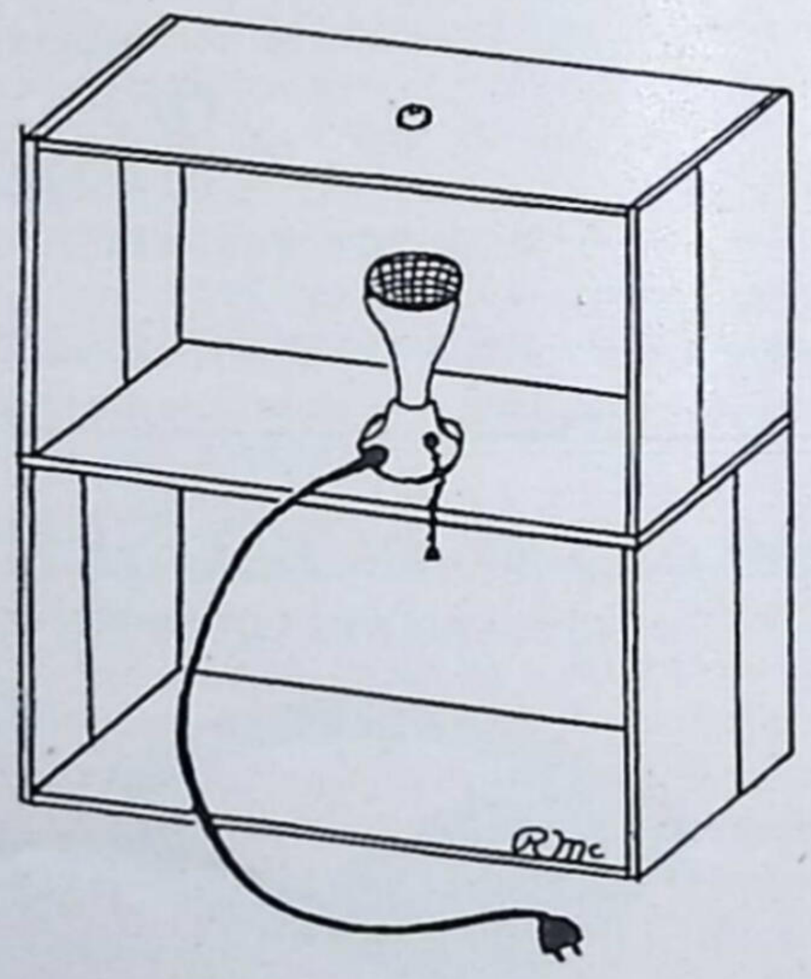
After you get two fairly parallel cuts it is no longer necessary to immerse the stone, merely wet it with the liquid. The light will now be refracted by jagged points or uneven surfaces. It is necessary to make the final viewing through two n e a r l y parallel surfaces. Some pieces need not be immersed but merely wet with the liquid and an occasional small one does not even need to be wet.

In the large pieces, where extinction can be noted but no color seen, a slice may be sawed off at nearly right angles to where greatest extinction occurs. This small section is easily oriented and by fitting it back in its original position, the axis of the large piece is established.

Many refinements will suggest themselves to the craftsman, such as home-made nicol prisms, a simple condensing lens to converge the light to a point in the specimen, a rotating stage, a small removable pocket microscope (penscope) etc.

A short study of the optical identification of gem materials will reveal many fascinating applications of such a unit, which is within the reach of all.

(NOTE: For further information on orienting stars see "Preparation of Star Quartz," page 124, October, 1947, *Lapidary Journal.)*



Apple box arrangement described in foregoing article. A much smaller, but just as effective unit, may be built with any materials at hand.

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◆ The Campfire and the Question

By MORA M. BROWN
6450 Palm Ave., Riverside, Calif.
Member Orange Belt Mineralogical Society

From the blazing campfire grew a tumble-weed of light with a new moon hanging at its edge. Its glow dimmed the stars, silvered the leaning ironwood trees, gilded the faces of the "rock-hounds" sitting in a circle.

It had been a good day for digging geodes in the Chocolate Mountains. It was a good evening in the wash where we were camped. Now, warmed with food, fire and companionship, we were in the peaceful mood of those who have made their friendship with the desert—a mood noticed most at night because it grows in stillness. That, I believe, is why we all seemed ready for the question that came out quietly from somewhere:

"Why do we love this loneliness—what is the desert's lure?"

You can't fling out your arms and begin to orate on such a question. You begin instead to ponder, to grope in your thought, and you can't find words to tell your feeling.

A tall and serious young housewife spoke first. She had spent her whole day at the Howser geode bed digging and climbing in her search for good rock specimens and desert insects.

"For me," she said, "I believe it is the desert's vastness, the fact that no matter where I've been or where I go countless new horizons keep me always hopeful that I will be the discoverer of new rock fields or a strange desert insect . . . . But,"—she paused as if listening—"it isn't only that . . . because it does something to me . . . inside . . . especially at night when it is still . . . I guess I can't quite say . . ."

She s h o o k her head, and turned thoughtful eyes to the golden fire.

The auburn haired woman, who spent her desert hours with one eye out for rocks and both eyes out for photographs, said with quiet slowness, "I think it is that the desert offers me so much unusual beauty . . . Do you watch for desert oddities? Have you noticed how blue and bold the far off mountains are against the canyon mists? Have you noticed a sunlit smoke tree against a shaded cliff, or watched while clouds spilled their black-ink shadows on the hills? . . . . . These are the things that lure me, these and cloudy sunsets with the sky aflame.

"And yet . . . when my camera is laid aside, and there's nothing here but dark and quietness . . . Well, I guess I just don't know . . ."

The campfire had waned, and the round faced Doctor rose to feed it. Sparks leaped at the dropping logs and flame tongues licked the ironwood. The Doctor stood there, hands in pockets, head down. He was an ardent rock-hound. He was as ardent in his search for Indian artifacts.

"I believe, for me, it is the feel of timelessness," he began. "How long have these geodes been buried here? When did desert people leave these Indian trails? Trails, shards, hidden metates, and sometimes an old, old ruin holding in its broken heart the things that made a home—a dead fire, pottery jars and cooking ware, even pottery dolls . . .

"Desert dwellers have almost made the change from bronze to white, but the desert refuses to yield its rocks and sand and the strange growth nature gave it. It stays as unconquered as its stars . . . The stars . . . and night . . . I guess it's more than timelessness," he said, and sat down to put the question to his thoughts.

The next voice came from a friendly stranger whose wheezy little car had rolled in with the dusk, a brown and leathered desert man. His hair and beard were gray and thick, his hands heavy, his eyes fearless and far-seeing.

"I been around the desert over sixty years," he said. "Been comin' an' goin' where I want because out here I'm free. I've hunted lost mines, the Lost Dutchman, the Lost Pegleg, others, too. Never found one though, but I've staked claims of my own. Made money, spent it all. But the old desert's always give me a

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"Towns an' clatter haven't got anything for me. Let folks do their grabbin', fight their wars, tear around like wild. I'm a-livin' the pace that'll keep my gears from strippin' . . . Yep, just livin' an' dyin' on the desert is lure enough for me."

He had no questions. He needed no sympathy. He had his own good earth.

The clear-eyed woman who studied minerals and Indian lore as well as desert flowers took up her part of the weaving. "Besides the amazing beauty and variety of stones, I think I find my satisfaction in the annual miracle. Summer comes, seeds ripen and fall to lie dormant one year or ten . . . until rains rightly spaced with sun and warmth revive them. Then the desert wears a Joseph's coat of color . . .

"I recall an April trip to Cronise Lake. We inspected every flowering area we passed to count the different kinds of flowers—owl's clover, tidy-tips, gilia, chicory, desert dandelion, coreopsis, dock . . . . Without including shrub or cactus we counted forty-three varieties. And the desert lily, thick that year, was loveliest of all.

"But out there on the dunes at night, with the stars twinkling so close I seemed to hear them click, there came a mood that never reaches me in town . . .a letting go . . . a peace . . . I can't quite say . . ."

For all her desert love, she could not find the words to say it all.

Not so the young Captain. He was a new rock-hound not yet tainted with selectivity. To him every geode was wonderful, the bigger the better. Every piece of agate was material for a gem. Every unreached hillside was a rock-hound's El Dorado. He and the small blond wife beside him were one in desert seeking.

"Gosh," he said, "the desert's got everything. You're pale, you get brown. You're cold, you get warm. You're tired, you get rest. You're fed up with the whole gosh-awful deal, and you get peace.

"Sure we come out here after rocks, and we pack plenty home,—we'd hate to go back empty handed—but it's the coming out that's got the finding beat . . That right, honey?"

"Right." she answered softly.

The campfire had dwindled to sighs and embers, and from the unanswered darkness came the owl-like whimper of a desert fox. We left the question there.

Later, with my face to the stars, I wondered what I would have called the desert's lure. I loved the springtimes, the freedom, distances and trails. Especially I liked the sunsets when clouds put up their bars. But above all else I loved just being there. Yet I, too, felt that there was more . . . but words eluded me.

But in the firelit circle the night before one slender dark-eyed woman had not spoken. It was her first night on the desert since her husband had passed away. She had come bringing courage and the will to carry on the hobby he had loved. But loneliness came, too—the loneliness that, in all the nights since he had gone, had held her eyelids open and her body tense.

"Last night, though," she told me simply the next morning, "I found the essence of the desert's call . . . I don't mean interests like rocks or trails or flowers. I don't mean people, mysticism or psychology. I just know that a great peace filled my heart, relaxed my body, closed my eyes. I slept the whole night through . . . I don't care what others call it, I know that it was God."

What had the others called it? Vastness, beauty, timelessness. Freedom, rhythm, stars. Yet they were only pathways to the Power they typified. And this one woman, more heart-hungry than the rest, traveled to the end of all these pathways and found in desert silence the infinitude and tenderness of God.

Yes, that could be the answer to the question.

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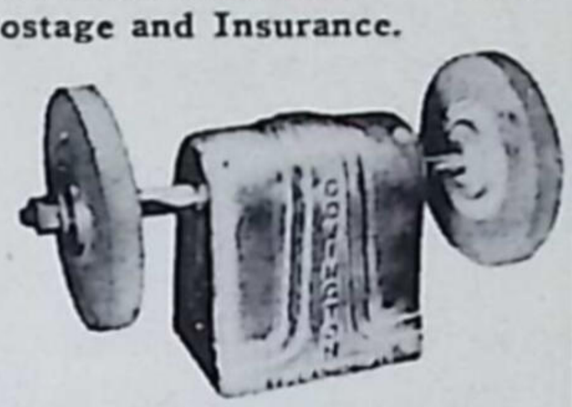


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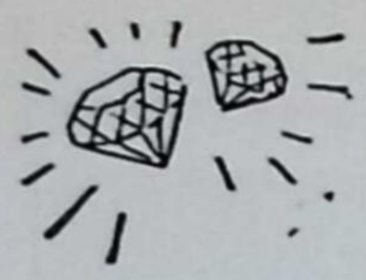
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Personal Facets

By LELANDE QUICK

Some years ago Nellie Glover of Tracy, California wrote and asked us for advice on how to start gem cutting. We wrote to her and published the reply in *Desert Magazine*, April, 1946. We have sent out more than 500 reprints of the letter to people who asked for it. They are now gone and we may republish it in an early issue of the *Journal* if enough people request us to do so.

We never heard from Nellie Glover again until recently, when she wrote—"I have intended writing you many times since I wrote that dumb letter in April, 1946. First I want to thank you from the bottom of my heart for your kind letter and advice. I have learned a lot since writing you before but I have a lot of fun and am anxious to learn. After reading another letter in December *Desert Magazine* and finding some one else as dumb as I was I feel better. I bought several books on gem cutting, got a machine and used my ¼ H. P. motor and a lot of grits, powder, etc. With your letter before me I sat down to work. I wore my fingernails down as well as the stones and got my hair full of grit and oil and made a fine mess. My friends looked at me with pity and backed out of my shop — BUT NO MORE! They all hint that they would "just love a pin or ring out of my agate and petrified wood." I have trouble making both sides of a stone the same thickness and alike. I do not know anyone interested in gem cutting and I am sure I would learn faster if I could see it done."

Yes, Nellie, you could learn a lot faster if you could see it done. But you will never have the fun again that you have enjoyed by turning out your lopsided cabochons by trial and error. The best cooking I have ever eaten was done by cooks who never saw a cooking school. That kind of a cook does something to food that is usually magic. It's like the experience a friend of mine had in Biloxi, Miss. where someone offered to take him for some real grub. He was frankly disappointed when the place was just an ordinary restaurant run by a colored woman who made beef stew. But he never tasted such stew in his life and he felt guilty about underrating the place. He asked the mammy just how she made the stew. She said she didn't really know, that she "just fixed the taters and fixed the meat and then she threw herse'f right into it."

I think that people who just throw themselves right into it have the most fun cutting gems. That is the way all of us had to do when we first started writing about it in August, 1942. We have been experiencing this lately in faceting. After acquiring nice shiny foolproof equipment we set out to facet. We selected the biggest piece of smoky quartz in our collection of material and started in. "No, no", said an old timer, "you should do a small stone first." "How come?" we replied skeptically, "it's no more work to do a big stone than a small one—and we hate small stones." We found out, after some three months, four days and ten minutes, that an 80 carat emerald cut gem does take a little time and presents many problems. We still haven't done much faceting because of lack of time but what we have done has been fun because we're finding things out for ourself.

It has been our experience that the *Journal's* greatest booster and the steadiest amateur lapidary, who maintains his enthusiasm through the years, is the fellow at the wide spots in the road who never attended a society meeting in his life and who knows no one else who is doing gem cutting. Look at Harry Howard and Grant Waite! The society man who attends society meetings regularly soon learns the quirks fast, readily becomes accomplished, produces a lot of stones in a short time— and then looks for a camera club. In our case we spend so much time writing about gem cutting, and reviewing what others write about it, that we have no time left to cut anything. Somewhat like the preacher who is so busy burying, baptizing and marrying folks that he hasn't time to

say his own prayers or to "practice what he preaches."

The thing we have been trying to impress upon people all these years is that gem cutting is NOT difficult, is not necessarily expensive, is very rewarding because it enables people to revive their Yankee instincts and ingenuity by doing something with their hands. We just hope it never becomes TOO easy. What fun is there, or what pride of accomplishment, in preparing a chocolate cake in a few minutes with a package of cake mix? We want gem cutting to "taste good" and it has tasted good to Nellie Glover.

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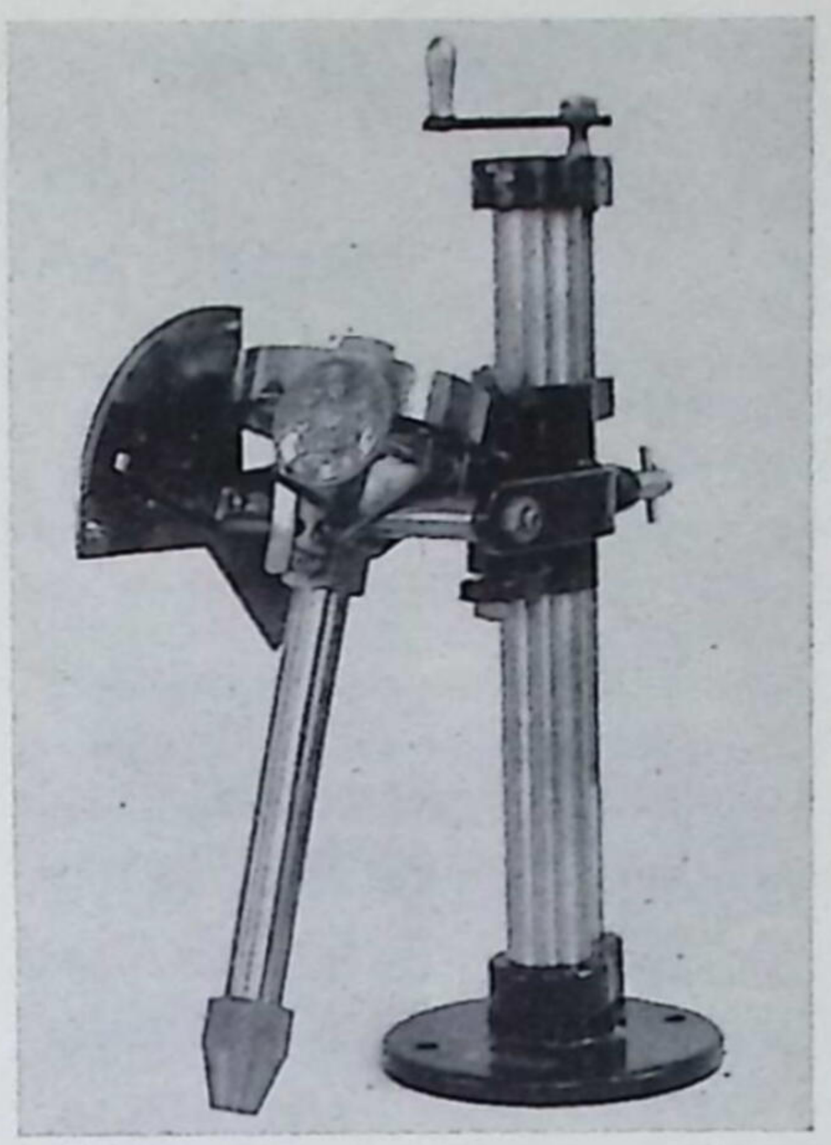
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Song For California

BY ROBERT TESMER
Member Cleveland Lapidary Society

"Hey, there's gold in California",
  Was the saying years ago;
While a nation packed its baggage
  And went west to join the show.

Men came on with boot and thunder,
  Threw their fortunes in the race;
Oh how many dreams have vanished
  Since that "find" at Sutter's place!

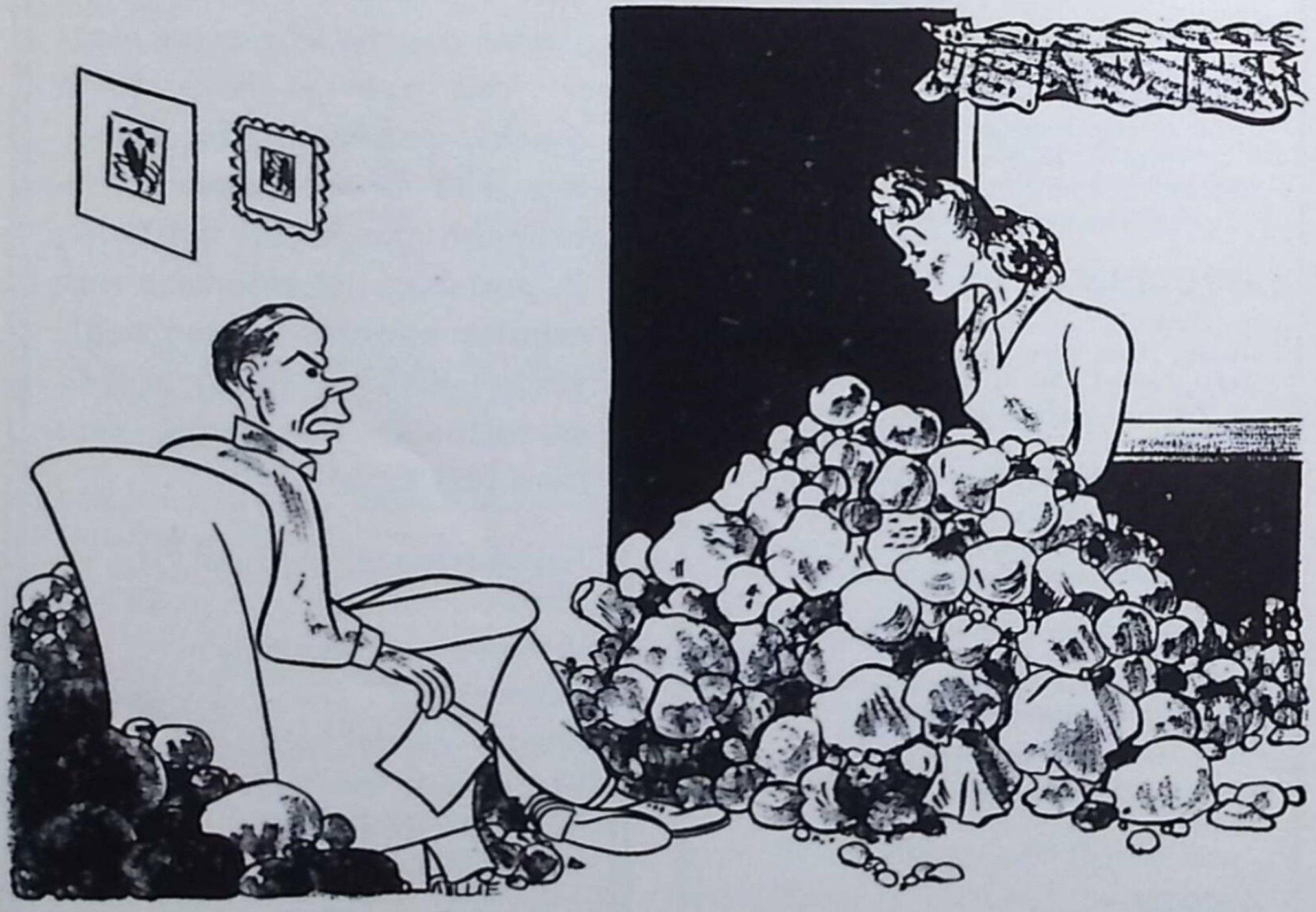
Years have slowed the miners' panning,
  Rust has made the mine-car creak.
(See the miners wearing nylons
  While the burro eyes a jeep).

Modern miners after jasper
  Try to make the kunzite pay;
Hope to strike a seam of agate
  And some jade in Monterey.

Up near 'Frisco, down to Barstow,
  Through the mountains and the sand,
Pass the miners, watching closely
For a fragment of the land.

Men were good to California—
  Staked a claim and placed their trust;
God gave life to California—
  With a little yellow dust.

—Robert Tesmer



Why didn't you tell me the KIND OF ROCKS your relatives owned before they stayed with us during the Convention? I thought they had DOUGH!

The Oat Meal Betty Gals

By GOLDIE MONTAITH
Box 685, San Bernardino, Calif.

This advice I dispense solely to you gals who are dabbling around the edge of lapidary work like a small boy in early spring, tentatively testing the ole swimmin' hole with winter-white toes. My sincere advice is to *dive right in.* Now, I know you hate to soil your hands, but forget them if you aspire to really cut a stone. Of course you can carry the idea too far. I forgot my hands and came to with my little finger mashed as flat as a duck's foot. I truly got lost in my work, or that is my finger did.

I have found that it is impossible to cut and grind a stone while posing the hands like Lady Astor-Post sipping her afternoon tea. Yes, you can wear rubber gloves. But that's kind of like learning to swim with your shoes on. If any of you gals know any way to grind and polish a stone without getting the hands soiled please let me know. I assure you that when you finally yield to the fascination of rocks and cutting your whole personal appearance will have been forgotten. Perhaps too sadly so. Strike a happy medium. Don't be too meticulous — but don't so far forget that you look as if you said to yourself, "well, clothes and hair, I am going to town, if you want to go along hang on." Prepare yourself in advance for the sight that will meet your eyes upon your first glance into the mirror just after buffing a stone. What an inexperienced hand and a thin mixture of tin oxide can accomplish! But, why are you dawdling before the mirror? *Are* you, or are you *not* going to forget that glamour angle? You cannot get all of your coons up one tree.

I got into this mess when I asked my man for a piece of jewelry. As a consequence he came home with a saw, two grinding wheels, two mandrels and a three pound chunk of Aventurine. Then madames, 'twas but a matter of diligence, trial and error and about four years time, until I was decked in jewelry. Thus the modern adoring male has only to furnish "my lady" with the mere rudiments of adornment. These she can whip into shape herself. You can, now, decide whether it pays to show interest or aptitude for cutting a gem. Sometimes, I wonder who is milking my cow. Then too, looking at it from the husband's side, he may economize by buying that piece of jewelry for the "little woman" in the first plac. (I am afraid to ask for a new watch.)

When on field trips you may find what seems like forbidden territory. But do not be discouraged or get angry when you see a sign that reads, PRIVATE, NO ROCK HOUNDS ALLOWED. Just sit down and give it some thought. Don't draw hasty conclusions. Try reading it like this, PRIVATE? NO. ROCK HOUNDS ALLOWED. See, it's all in the way you look at it. Don't misinterpret road signs. When you come to a sign that reads DETOUR 18 MILES don't expect to find a French chateau on the other end.

Now, if you don't want to do anything but dabble around and keep your hands manicured and tell the old man how it should be done—just run along, sister, and get your new Carnegie cut, or try that new recipe for making Oat Meal Betty. We won't miss you. (whistle when the first batch is done. I still have to eat.)

Goldie.

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◆ Shop Helps

If you have found a useful short-cut in your shop send it in. We will give you credit. The most skilled craftsmen, as well as beginners, find this department useful.

One of our steadiest correspondents, who prefers strict anonymity, has given us a method of making "snake eyes." This is the name used by gem dealers and jewelers to designate tiny round stones used as eyes in animal and insect designs in gem tones. To the beginner particularly the thought of cutting a matching pair of garnet eyes, not to mention a dozen, is hopeless.

Here is an easy way. Get some tubing from a jewelry supply house. "Hinge wire" is usually too thin in the wall. Ask for clock and watch maker's "pivot bushing" tube of various sizes. It is made in both brass and nickel silver. Such tubing is made in 6″ lengths and is perfectly straight with thick walls but the hole is sufficiently large to off-set the dead center of a solid bar. Silver wire can be used but it is usually made in such lengths that it is coiled and difficult to straighten. Select a wire of the approximate size of the eye, reshape the end of a twist drill to the dome shape desired, be it thick or thin. Countersink the end of the wire or tube, cut off a piece about 1″ long, insert it in a drill chuck on a motor shaft. For a dop stick use a thin stiff stick such as a meat skewer or a stick from a candy sucker. Sharpen a point on it the size of the eye, dop the stone and grind. The principle is exactly the same as sphere grinding except that you have half a sphere on the end of a stick. For the smallest sizes use grit No. 320 to 400. No sanding is required on such material as opal, turquoise and other soft stones. Round matching stones of any size can be ground, dependent only on the sizes of procurable tubing.

* * *

Commander John Sinkankas of Norfolk, Va. offers some ideas for the investigator and experimenter. He writes—"One item of interest which has been bandied about by various lapidaries is this—'does a final polish on a stone result from a molecular flow or extremely fine abrasion?' I have this to offer on the subject for those who are inquisitive enough not to be content with mere results and who have the wherewithal to perform the following experiments.

Experiment ♯ 1—Take a *clean* and *unused* felt or leather buff. Weigh on extremely delicate scales a cabochon which is ready to polish and which is of non-water absorbing material. Mount the cab and then polish. Upon completion weigh the cab after it is thoroughly clean and note any difference in weight. Experiment ♯ 2—As before, except this time don't worry about the cab; scrape the buff (preferably leather), take the scrapings and analyze either chemically or optically for mineral residue. A mineral should be used which is lacking in silica to avoid the silica in leather from confusing the issue. If abrasion caused the polish the weight of the gem should be reduced. If the weight reduction is so small as to be undetected then chemical or optical analysis of the buff scrapings may reveal contamination by the mineral substance being polished. If both of these experiments fail then it should show that molecular flow does take place."

Does any reader have time and inclination to do these experiments? If so we would like to publish the result. We're just an old Beilby man ourself. After all the work that's been done we'll accept the word of the top scientists about molecular flow just as we believe them when they tell us the atom bomb is rather powerful. But we wish some amateur would really try the above experiments — and report the results.

SHOW AND CONVENTION CALENDAR

June 11-12—San Fernando Valley Mineral & Gem Society Show.
Recreation Hall, North Hollywood Park, North Hollywood, California.

June 16-19 Inclusive—Riverside Chamber of Mines Gem and Mineral Exhibit.
Memorial Auditorium, Riverside, Calif.

June 24-25-26—American Federation of Mineralogical Societies and California Federation of Mineralogical Societies. Joint convention and gem and mineral show.
Fair Grounds, Sacramento, California.

July 4—Gem Village Rock Club Show.
Bayfield, Colo.

August 20-21—Glendale Gem and Lapidary Society Show.
Glendale Civic Auditorium, Glendale, Calif.

August 25-26-27—Rocky Mountain Federation of Mineralogical Societies Convention.
Albuquerque, N.M.

August 26-27-28—Midwest Federation of Geological Societies Convention.
Davenport, Iowa.

September 2-3-4—Northwest Federation of Mineralogical Societies Convention.
Eugene, Oregon.

September 24-25—Los Angeles Lapidary Society—Gem Show and picnic.
Montebello Stadium, Los Angeles. Details to be announced.

October 15-16—Hollywood Lapidary Society Show.
Details to be announced.

See the exhibit of the LAPIDARY JOURNAL at Sacramento

150 pieces of sterling silver tableware set with agate handles made by J. W. Anderson of Baltimore and described in the JOURNAL in Oct., 1947 (out of print). This will be described again in the August issue and additional technique will be given. Mr. Anderson will lecture on this work at Sacramento. Hear him.



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◆ Answers to Inquiries

NOTE—This department is one of the most important sections of the LAPIDARY JOURNAL. If you have problems write us about them. We will get the answer somewhere. And if you don't agree with an answer, give us your idea. A lively and useful Q and A department should become an encyclopedia of gem information through the years. Will you help?

Inquiry of Mrs. Ocie Randall, Fresno, Calif.

I would like to know if you know of a way to tell a real pearl from an imitation pearl.

Answer:

It is very difficult to tell a real pearl from an artificial pearl without the aid of the x-ray or by drilling a hole and examining the core through a powerful instrument. Simulated pearls are made so perfectly today that often the best methods defy detection of the real from the man-made. The best test available to the layman is the candling method used for eggs. Revolve the pearl slowly over a strong light. If the pearl is real it will have even color whereas a banding will show in most types of simulated pearls.

Inquiry of V. F. Tannich, Deming, N.M.

We are having trouble getting a polish on dumortierite. Levigated alumina, tin oxide and cerium oxide on a hard felt buff do not seem to work at all although the sanding job seems to be perfect. A lap seems to work better but still far from satisfactory. We are unable to get a satisfactory polish on synthetic ruby. The moment we touch Mexican opal to a hard felt buff the stone cracks in all directions. Can you help in these matters?

Answer:

Dumortierite is like lapis and lapis is like rhodonite. They are all difficult to polish and will not polish with a mirror finish like agate at all. They have almost no dispersion of light. Such materials (notably rhodonite) respond much better to high speed (but careful) sanding on on a well worn sanding cloth; one on which the grit has almost disappeared. The best prize winning rhodonite we have seen was never put on a polishing buff at all.

As for polishing synthetic corundum almost every faceter has a favorite method with many favoring Linde A or Damascus ruby powder. Advice we offered in October 1947 has never been disputed and it came from a top source. As that issue is now out of print we repeat the method. After grinding to shape on a No. 220 wheel sand on a new No. 220 cloth. This will do little but take down some of the roughness. Take cold rolled copper 1/8" thick or a little more and use on a horizontal lap using tripoli and water as a polishing agent. Heavy pressure must be used at all times and

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Prices F. O. B. Detroit on Wheels 10" or Larger

keep the stone rotating to avoid flat spots. Another method involves the use of diamond powders. A copper or brass lap charged with 40 micron grit will smooth it after grinding. Then use a hard leather lap with No. 2 or No. 4 micron diamond well rubbed in and drip a little water on the lap to keep it slightly moist. This is faster than the first method but more costly.

Now the thing that cracks opal is heat and nothing is hotter than a hard felt buff. Stick to very wet leather buffs. Remember that opals contain some times as much as 15% water and it is the hot water expansion that causes the cracks. This has unjustly given the opal a reputation for bad luck for people wear them while they wash their hands in very hot water or expose them to intense sunshine. They break and folks say they've "had hard luck." For some reason the Mexican opals seem more prone to crack when polishing. Use a wet leather buff and frequently touch the cheek with the gem. If it is hot to the cheek let it cool before proceeding. If you get it hot and then immediately work it on a wheel you have just soaked with cold water you can also expect it to crack.

Flower Agate

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◆ News of the Societies

LOS ANGELES LAPIDARY SOC. witnessed the film of Edward Swoboda's lengthy trip through the gem area of Brazil at its April meeting. Brazilian materials which Mr. Swoboda, local gem and mineral importer, brought back were on display and for sale. At the May meeting Dr. Austin Rogers of Stanford University delivered his widely given lecture on JADE. The Society elected Victor Gunderson as president. The annual picnic of the society will be combined with the annual show in September and will be held at Montebello Stadium. Full details will be announced in the next issue.

* * *

KERN COUNTY MINERAL SOC. (Bakersfield, Calif.) had a blackboard demonstration at the May meeting of the causes of moss, plume, fern and lace in agate. Ralph Dietz gave an interesting talk at the April meeting on the history of benitoite. A discussion on the polishing of tigereye was held which indicated that no matter "which way a person does it he should have been doing it the other way." (For complete cutting information see article HOW TO CUT TIGEREYE on Page 322, *Lapidary Journal*, December, 1948)

* * *

HOUSTON LAPIDARY SOC. (Texas) has grown to a membership of more than 40 in six months. We met their officers at San Antonio recently and we were amazed at the highly original work displayed by some of the members, an illustrated account of which will appear here very soon.

* * *

SAN FERNANDO VALLEY MINERAL & GEM SOC. (North Hollywood, Calif.) will hold their 6th annual show on Sat. June 11 from 1 to 10 and Sun. June 12 from 1 to 9 at North Hollywood Recreation Center. The society now has 160 members.

* * *

CHICAGO ROCKS & MINERALS SOC. recently heard Paul Elarde speak on "Fluoescence," accompanied by entertaining demonstrations of the phenomenon. He followed this with a fine article in the Society's PICK 'N DOP STICK. The society cleared $172 at its annual auction.

* * *

MARICOPA LAPIDARY SOC. (Phoenix, Ariz.) shows more honesty than most societies. They admit that their society field trips are always duds. At the last minute they entered a local hobby show (over strong protests) and stole it to the amazement of Phoenix highbrows who did not consider lapidary work an "art" or a "craft". It is reported that the ladies who exhibited their tatting became so bug-eyed at the display of gems that their dark glasses were not large enough to keep out the Arizona sunlight.

HOLLYWOOD LAPIDARY SOC. (Calif.) is fining each member 10c who appears at a meeting without an identification badge. The society now has 75 members. The FACETEERS of the Los Angeles Lapidary Soc. recently put on a fine faceting program for them.

* * *

MARQUETTE GEOLOGISTS ASS'N. (Chicago) recently heard Chief Wheeling Thunder give a lecture of the use of rocks and minerals by Indians.

* * *

GEM STONE COLLECTORS OF UTAH (Salt Lake) recently heard Al Buranek in an excellent talk on "Rutile: Man's Newest Achievement in Gems."

* * *

MIAMI MINERAL & GEM SOCIETY'S official address is now Box 241, Allapatah Station, Miami 42. This society should not be confused with the Florida Mineral & Gem Soc. whose address is 123 N. E. 60th St. Miami. Interested persons should contact either society of their choice for information about meetings.

* * *

STATE MINERAL SOC. of TEXAS held a highly successful show at San Antonio on April 23 & 24. Their dynamic leader J. J. Brown was railroaded into another term as the Editor, acting as chairman, asked for a unanimous vote. In addition to hearing the Editor speak on the "Third Largest Hobby" the visitors also heard Col. Fain White King in a very interesting talk on fluorite. Each guest received a fine fluorite specimen from the speaker. Talk about hospitality — those Texans actually allowed visiting Californians to take away four blue ribbons for lapidary work and engaged another to teach silvercraft to handicapped Texans. It was the friendliest show we ever attended.

* * *

SOUTH BAY LAPIDARY SOC. (Calif.) holds regular meetings at Clark Stadium, Hermosa Beach on the 1st Tue. of each month. Anyone in the Bay region of Los Angeles county is welcome to attend.

* * *

EL PASO MINERAL & GEM SOC. (Texas) put on a demonstration of cutting and polishing on the evening of March 31st and gave an exhibition of cut and polished stones, jewelry and mineral specimens. They did this for the Arts and Handicraft teachers of the El Paso Public Schools in conjunction with a week long conference of art teachers in which all phases of handicraft work was reviewed.

* * *

SAN JACINTO-HEMET ROCKHOUND CLUB (Calif.) started its third year with a film showing of all its past field trips to 40 members and guests.

* * *

COACHELLA VALLEY MINERAL SOC. (Calif.) has a fine idea to maintain interest. Each member has to bring a rock specimen for

a free grab bag. Each member goes home with a new rock. Any member failing to contribute to the evening rock pot is fined 25c.

Last year the society, in co-operation with the Coachella Valley Union High School, was instrumental in securing the necessary machinery for an adult class in lapidary work. They guaranteed the pupils and the setting up of the machinery and they purchased the equipment. The class consists of one hour of geology with two hours of lapidary work and at the present time it is the most popular and best attended of the night classes. This year registration was so great that they have two classes; one for beginners and one for the advanced pupils. The work shop is well equipped with all the necessary machinery for lapidary work, accommodating from 20 to 25 people. Because of popular demand two classes in jewelry making have been added. The teachers for jewelry making and lapidary work were taken from the society and are well qualified for the work. Since all classes are open to the public many new rockhounds have made their appearance and are delighted to find out just how much fun rocks can be.

* * *

SACRAMENTO MINERAL SOC. (Calif.) has installed window displays in 13 business houses to stir up local interest in the big June convention. Francis J. Sperisen, the well-known San Francisco lapidary, recently addressed the society on the subject of inclusions in gemstones.

* * *

IMPERIAL LAPIDARY GUILD (El Centro, Calif.) had an attendance of 1400 at their two-day show in April which included visitors from 18 states and 39 California communities. Exhibits were housed in new cases built by the society.

* * *

GEM CUTTERS GUILD (Los Angeles) expects to take the prize with their display of faceted material at the Sacramento show. Look for it—it's something!

* * *

COLORADO MINERAL SOC. (Denver) recently had a program that all societies could adopt with profit for it must have been a very interesting meeting. Pres. Richard Pearl called for a "Gadget Night." Any member who had a gadget he had devised or purchased for his mineral and gem hobby was invited to bring it and he was allowed five minutes to explain it and unlimited time after the meeting to demonstrate it. This is the best program idea we have heard of in a long time.

* * *

WISCONSIN GEOLOGICAL SOC. (Milwaukee) heard Mr. Forest Nagler at its April meeting give an accounting of "operations crossroad" (Bikini) accompanied by a picture of the experiment. He also demonstrated the Geiger counter. The best demonstration we have seen was by Lowell Gordon at San Antonio. He was looking for lead in the well known place but got nary a sounding anywhere until he tested the Editor at which the Geiger counter went wild. We had a lump of carnotite in our hip pocket.

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FEATHER RIVER GEM & MINERAL SOC. (Oroville, Calif.) will hold their second annual potluck picnic and show on June 19th. They have a member named John Gemsky which almost ties the name of the president of the San Antonio Lapidary Soc., Raymond Rock, and the *Journal's* telephone exchange—Granite.

* * *

MINERAL & GEM SOC. OF CASTRO VALLEY (Calif.) recently heard a talk on jade by Vice Pres. Breeden and made a field trip to Pescadero Beach for agate and jasper.

* * *

TACOMA AGATE CLUB recently fined any one who came to the meeting dressed up. They held a "hard times" meeting. Member Roy Merdian was burned out and every member brought rocks for him.

* * *

CLEVELAND LAPIDARY SOC. (Ohio) has increased their dues to $4.00 a year so they can afford good programs. All societies should do the same. We usually charge to speak and donate the proceeds to our own society. Many societies expect too much for nothing from outsiders. One society recently asked us to speak and said they were going to sell tickets. When we advised there would be a fee they backed off. We spoke free for another society and they charged us for our meal. Such abuse of good nature should be corrected.

* * *

MINERALOGICAL SOC. OF THE DISTRICT OF COLUMBIA (Washington) now has a lapidary section. At its first meeting on April 15th, 25 of the 143 members attended. The section meets at 7:30 in Room 43 of the National Museum on the third Friday and any one is welcome to attend. There will be no meeting following the June meeting until October.

* * *

OKLAHOMA MINERAL & GEM SOC. (Oklahoma City) had a "diamond" program in April. There was a discourse on diamonds in Arkansas by Hugh Miser and a sound film on "Diamonds In The Rough."

* * *

AKRON MINERAL SOC. (Ohio) was recently entertained by 200 slides of Dr. Walter Cook of mineral localities in the Southwest and of Carlsbad Caverns.

* * *

NAPA VALLEY ROCK & GEM CLUB (Calif.) has grown in two years from 10 to 40 members of whom 10 own lapidary equipment reports Edith Gardner, Sec. at Napa.

* * *

CURRY COUNTY MINERALOGICAL SOC. (Ore.) made their second annual field trip up the Rogue River on May 15. They charter a river boat and go upstream through the rapids for 35 miles to spots inaccessible by motor or when the rapids are low. No roads go into the area they prospect and they always find plenty of material at new spots.

* * *

WASHINGTON AGATE & MINERAL SOC. (Olympia) recently elected Ray C. Gruhlke as president. He was their first president when the society was organized in 1937 and the first vice-pres. of the Northwest Federation, later becoming Pres.

◆ New Societies

THE NORTHWESTERN MINERAL CLUB, Traverse City, Mich.

* * *

MADISON MINERAL & GEM CLUB, Madison, Ind.

* * *

BRAWLEY GEM & MINERAL SOC. (Cal.) was organized on March 19th by Roy Rand, local jeweler, with 75 residents attending. Rev. W. A. Ross was elected President. The Secretary is Chrystal (that's right!) Johnson.

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Gems From The Mail Bag

May I tell you how much your *Journal* means to me. It seems to improve with every issue and the first one I read was *good*. Being a shut-in the *Journal* makes me feel that I have contact with others in our mutual hobby and your advertisers have been most helpful and kind. *Warren W. Sheffield, Santa Clara, Calif.*

* * * *

I believe the *Lapidary Journal* is one of the best magazines of its type; splendid looking on the outside and good looking inside besides containing a high type of instructive material. *Mrs. Richard Fischer, Grand Junction, Colo.*

* * * *

I feel, as do many of my friends, that your magazine is the best of its type and of great help and interest to everyone interested in lapidary work. I even find that my wife finds interest in several articles in every issue. *Robert E. Downes, Jr., Sterling, Colo.*

* * * *

Ever since I sent in my original subscription in March, 1947 I have intended to write to you and express my appreciation and thanks to the man who recognized the need for just such a publication to help the amateur lapidary. I have watched the *Lapidary Journal* grow and have compared each new issue with the previous ones. It is amazing the wonderful strides you have made in make-up, size, art and the quality of the articles published. And all this in less than two years! I have recommended the *Journal* to dozens of people who are interested in amateur lapidary and to all those in the lapidary classes at the Buffalo Museum. *Walter A. Anderson, Gem and Mineral Section, Buffalo Museum of Natural Sciences.*

We are very pleased with the attitude of the many firms and persons we have shipped to. Of the thousands (yes, THOUSANDS) of approval shipments we have sent to total strangers we have not had one bad account. We do not believe you can find any group of persons whose integrity and honesty will measure up to the standards of the lapidary and mineral fraternity. I have not had my head above water since my first ad with you last August and we are honored to be able to have the privilege of advertising with a publication which caters to this group of people. *Robert O. Buck, Valley Springs, Calif.*

* * * *

A neighbor rockhound friend of mine couldn't stand it that I subscribed for the *Lapidary Journal* so his wife slipped me $2.00 on the side to order him a subscription also. *M. Brown, Winona, Minn.*

* * * *

It is my considered opinion that the educational value of your publication is worth many times the subscription rate and I want to congratulate the entire staff of your magazine for their effort on behalf of those for whom the magazine is published. *F. O. Soughton, Terrace Bay, Ontario, Canada.*

* * * *

I think very highly of the *Journal* and it is the best that I have encountered in the line. It is very intelligently prepared and edited and you deserve great credit for serving this field in this capacity. *R. C. Rowan, Seattle.*

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JAMES J. KEHOE

BIG FORK MONTANA

THE POOR NUT (ROCKNUT)

Elsie Robinson, Editor of "Pebbles," the bulletin of the Everett Rock and Gem Club (Wash.) recently printed this exchange of correspondence in the society's fine, and always interesting bulletin:

Dear Editor:

Since your husband is a rocknut I thought maybe you could tell me what to do about *my* husband. You see the trouble is he gets tired so easy—that is sometimes he does. He complains about his back aching, cramps in his legs, his feet hurt and he has that tired feeling most of the time. Now take that day last spring when he started to spade up the garden. He had not been working half an hour before he had an attack of exhaustion and collapsed on the back step and yelled to me to bring him a coke out of the refrigerator and that old Lap Journal he always reads. Do they call the thing a Lap journal because he holds it in his lap while he sits and snoozes every night after dinner? Well, now to get back to his health. Before he had finished that coke a character he calls "Charlie" came by. They talked for a while and he came in and grabbed some canned beans, some bread and some coffee, his sleeping bag and some dry socks. 'Don't worry about me any more Honey," he said. "I feel better and Charlie and I are going down to Salmon River for a couple of days."

Now Editor here is the funny part about his condition. He went down to this place and waded in the cold water for two days and slept on the cold ground in that thin sleeping bag, and when he got home Sunday night he just felt fine! He brought home about eighty pounds of rocks, told me that he had packed them about four miles through underbrush and mud—in several batches that is. Now this did not hurt him any but by the next Saturday he had that "exhaustion" so bad that he had to stay in bed till noon.

Then there was the time last July when I was trying to get him to put up a swing in the back yard for the kids. He had a sort of heat stroke. We put cold packs on his head and poured lots of ice water down his throat. He did not recover until this Earl Williams called up. Maybe you have heard of him. He is one of these rocknuts too. Well, Earl wanted us to go down to central Oregon with him and his family. We went and you would never believe how hot it was down there. I really suffered but my husband took a pick and shovel and started digging out there in that pouring sunshine. Every so often he would yell "Whoopee, I found another one!" and he would toss up a rock out of the pit he was digging. I thought about the heat stroke and attacks of exhaustion but I was just too near heat stroke myself to worry any more, so I lay down in the shade of the one little juniper tree and waited for night hoping that it would be cooler. For the whole week we were down there his health was fine but when we got home and he started to mend the back step, that has been loose for several years, it came over him again. I try to get him to go to the Doctor but this he will not do. Could you give me any advice?

Mrs. Old-Subscriber

Dear Mrs. Oldsubscriber: Do not worry any more about your husband's condition. It is not fatal. It is just one of the symptoms of "Rock-

itis." Some husbands who have it can not walk two blocks to the store to get a loaf of bread and a quart of milk, but can walk eight or ten miles over the roughest terrain carrying a little short of a ton of rock in the heat of the summer or the cold of winter.

You might try selling your davenport and all your upholstered chairs. I have heard this treatment recommended but I am not sure that it will work. It might lead to more rock-hunting trips and you would still have to do your own chores, and then you would not have any comfortable place to rest without actually going to bed. Some wives have been reported to show symptoms of this Rockitis too. When this occurs it is usually incurable and such couples often buy a trailer and go South. I hope I have been of some help to you.

Editor

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Stop by on your Sacramento trip.

◆ Gem News

L. A. Bennett likes to go into the back country to collect rare stones and mineral specimens—he's a "rock hound," only he has the edge over most of them when it comes to a conveyance.

Mr. Bennett bought himself a surplus ton-and-a-half-ton bomb carrier, fitted it with a plywood and steel body and with his four-wheel-drive car and its 300-foot cable winch he can go practically anywhere after his minerals. He can and does.

For instance, he has but recently completed a journey of 2023 miles through Arizona, New Mexico and southern California in search of minerals and other specimens. He can carry a ton of them at a time on his ex-bomb carrier and some of these minerals sell for as high as a dollar a pound to dealers.

If Bennett gets stuck in his bomb carrier he unreels the winch, which is synchronized with the low gear of the driving wheels, and pulls himself out. He can also use his winch to pull up stones which he wishes to add to his collection.

The bomb carrier on the highways will travel at a speed of about 38 miles an hour. Over rough terrain, of course, the rate may be diminished to a slow crawl.

"From "Pipefuls" by Jim Day, in the Bakersfield Californian.)

University of Southern California Plans Jade Display Gallery

An art gallery to house the Florence M. Quinn jade collection will be built this summer on the campus of the University of Southern California, President Fred D. Fagg Jr. announced recently.

The planned two-story gallery will permit exhibition of the valuable jade collection left SC by the late Mrs. Quinn in 1944. It has been in storage for lack of adequate display facilities.

The collection will be displayed on the first floor and offices of the Fine Arts Department will be located on the second. The gallery will adjoin the Fisher gallery.

J. J. Jewelcraft of Pasadena has just issued their very informative and well illustrated catalog of supplies for the lapidary and jewelry craftsman. See their ad on Page 160 and send for your copy now.

Lost Cave's Stacks of Gold Bars And Gems Hunted in New Mexico

A story of gold bars "stacked like cordwood" in a lost cave spurred a treasure search near Hot Springs, N. M. recently.

The tale—about a miner who stumbled on the cavern, found it filled with metal ingots and gems, subsequently lost it attempting to blast a larger entrance and then was killed—came to light with the extension of a prospector's permit.

Ms. Ova E. Noss, middle-aged widow of the slain miner, supplied most of the details. The Hot Springs woman is directing the hunt.

Mrs. Noss said her estranged husband, M. E. (Doc) Noss, continued a companion search until he was fatally shot March 5. His financial backer, Charlie Ryan of Alice, Tex., has been charged with murder.

The search centers in a rugged San Andres mountain area about 40 miles northeast of Hatch. Mrs. Noss' State permit to prospect there for another month was issued on April 5.

She told this story in answer to an Albuquerque Journal reporter's questions:

Her husband stumbled upon the entance to the cave during a 1937 deer hunt. It was a vertical hole with inscriptions, apparently Indian, carved in the walls. Noss descended several times. One day he worked his way into a big cave.

There were many, many bars stacked like cordwood. The bars were black and he thought they were pig iron. A closer inspection disclosed they were yellow under the black and appeared to be gold.

On other visits to the cave Noss found jewels, a crown encrusted with dozens of diamonds and a "pigeon blood" ruby, coins and old weapons.

After laborious exploration, Noss undertook to dynamite a wider shaft into the cavern. A slide sealed the passage.

War interruped his efforts to find a way back underground and in the meantime he and Mrs. Noss separated. Later Noss interested Ryan in a mining venture. When the two sought a prospecting permit in the locality, Mrs. Noss said they found she had already obtained one.

Ryan and Noss then pursued their search over tracts bordering that of Mrs. Noss on three sides.

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There was a gold rush to Catalina Island in April, 1863. The gold was localized in a very small area and the rush was short lived.

* * *

Hettie Green, long known as the "world's richest woman," made her stake of several millions in the old Eureka mine at Sutter's Creek. She shrewdly invested her money in New York real estate. This increased in value to the point where her fortune at her death was one of the greatest in the country.

* * *

John Studebaker, founder of the present automotive company, made his stake mining gold at Hangtown, now Placerville.

* * *

Nearly five times as much gold was mined in California in 1938 as in 1849—46 million as against 10 million dollars worth. The price per ounce was much greater in 1938 however.

* * *

The Bonanza nugget, found at Sonora in 1850, weighed 1500 ounces and brought $44,520. It was found in a quartz vein that yielded $360,000.

* * *

The Siamese Twin nuggets were two nuggets joined by a thread of gold. They were found by Franklin Smith in French Ravine in 1854 and weighed 604 and 180 ounces. They melted down into more than $15,000 worth of gold.

* * *

A cubic mile of seawater is said to contain ten million dollars worth of gold.

* * *

Nineteen million dollars worth of gold was recovered from three-fourths of a mile of ancient river channel in the early 50's. The channel was located between French Hill and Stockton Hill in Mokelumne Hill, Calaveras County.

* * *

John B. Stetson of hat fame got his stake by operating a store at Shaw's Flat near Sonora. He reported that his business frequently ran more than $5000 a day.

In 1853 Oliver Martin and his partner were working at Camp Corona when a flash flood washed the partner down the stream and he was drowned. Martin recovered the body and was digging a grave when he found a nugget weighing 1248 ounces which he sold for $22,500.

* * *

Cornelius Cole found a nugget weighing ten ounces in Georgetown Gulch in 1854. He recovered more than $12,000,000 in gold from the spot within a year.

* * *

The first piece of gold found by John W. Marshall at Sutter's mill on January 24th, 1848 is on exhibit in the Smithsonian Institution. It is worth about fifty cents.



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Fortune in Diamonds Aids Cadillac Output

A fortune in diamonds is bought by General Motors every year, according to Jack Symes, Cadillac dealer of Pasadena, Calif., who reports the GM diamond bill is almost $500,000 annually.

Being among the hardest substances known, the diamond is used to drill and grind metals that cannot be worked with less valuable materials, Symes explained. "Therefore," he said, "these precious gems aid in the production of Cadillac motorcars."

Hope Diamond Sold In Famed Collection

The jewel collection of the late Evalyn Walsh McLean, including the 100-carat "Star of the East" diamond, and the legendary Hope diamond of 44½ carats, has been purchased by Harry Winston, international known jewel merchant, it was announced on April 5th.

Winston said the purchase price was "more than $1,000,000."

Winston said the jewels will be delivered to him in New York. He said he is not superstitious about taking possession of the fabulous Hope diamond which carries with it a legend of murder, suicide, heartache and bankruptcy.

"As a matter of fact," he said, "I feel particularly happy."

Winston said he has no plans for the

immediate sale of the Hope diamond and that, for the first time in its history, the famous jewel will be put on public display throughout the country at museums and leading jewelers.



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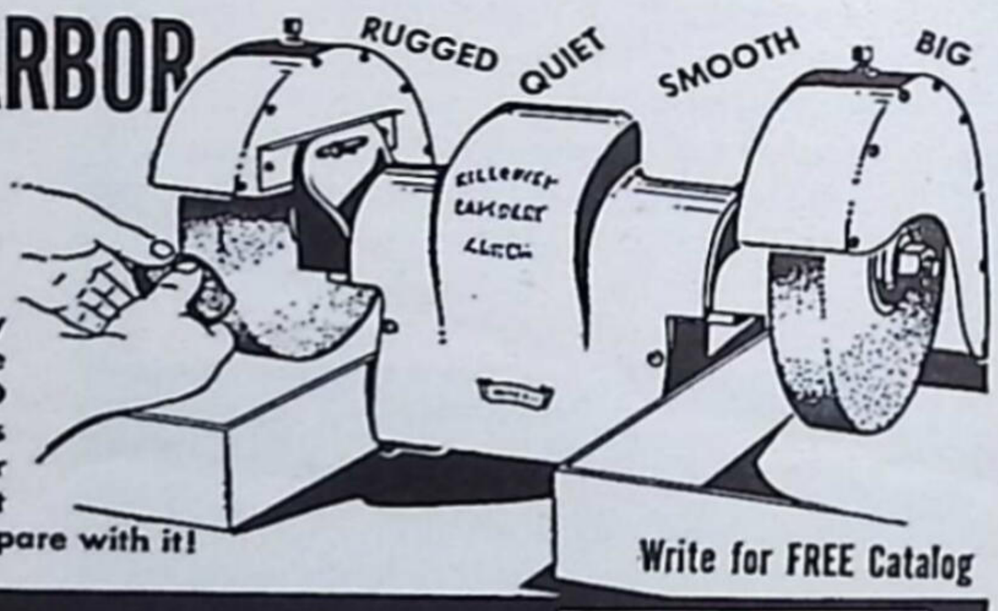
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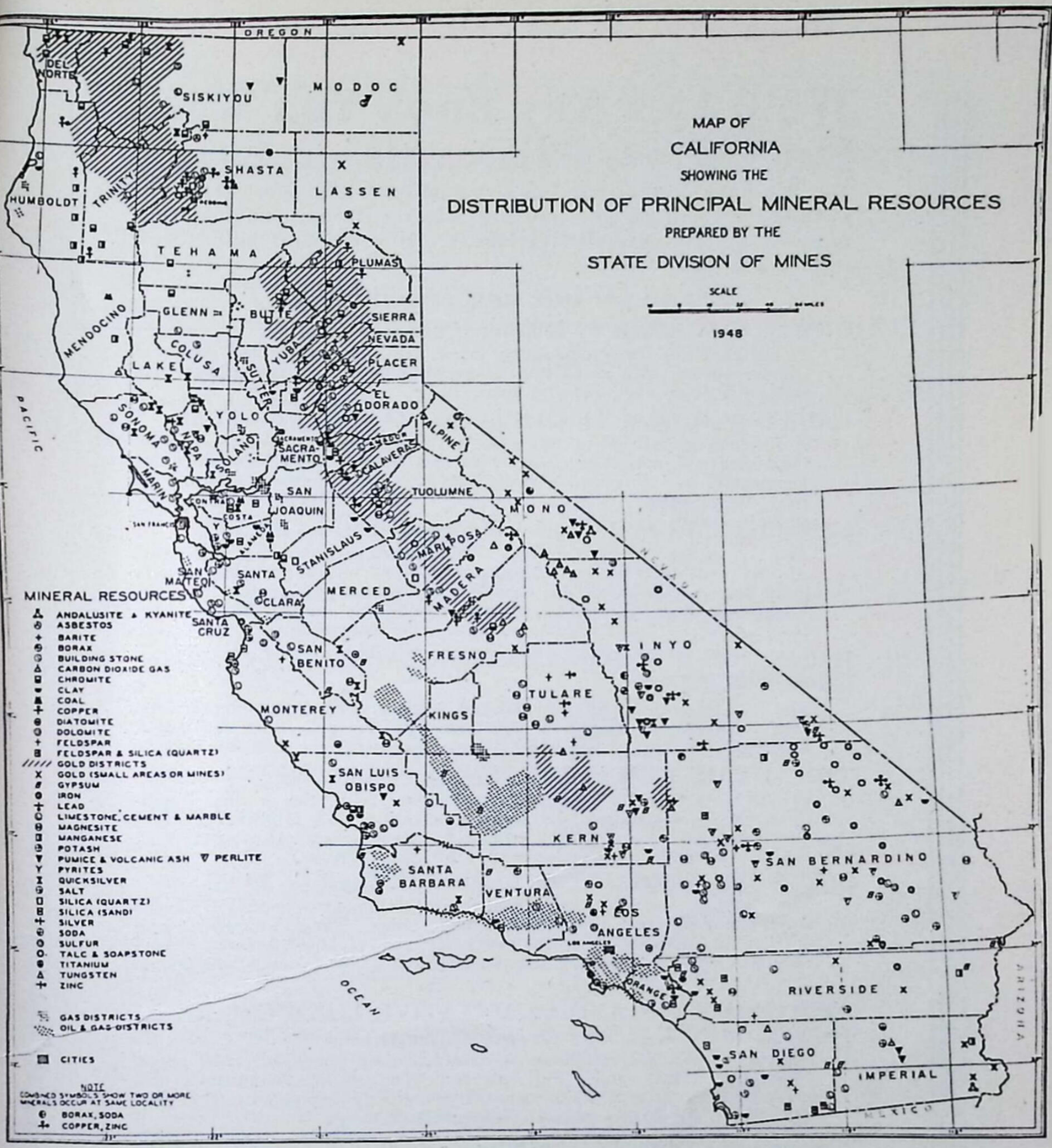
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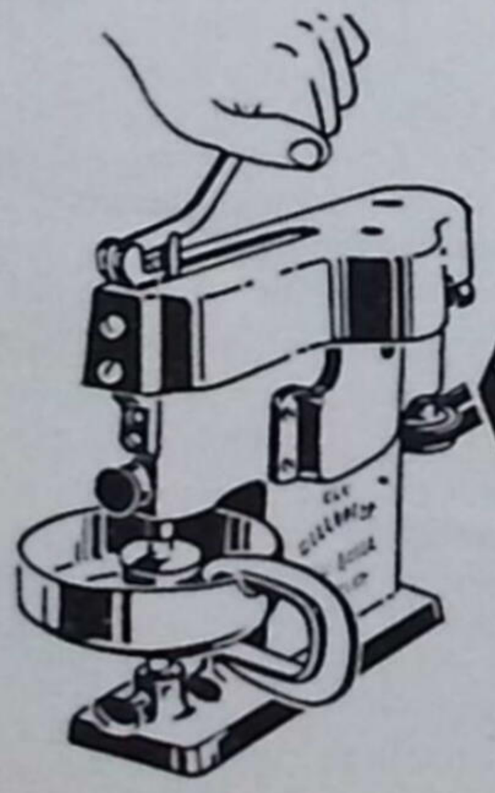
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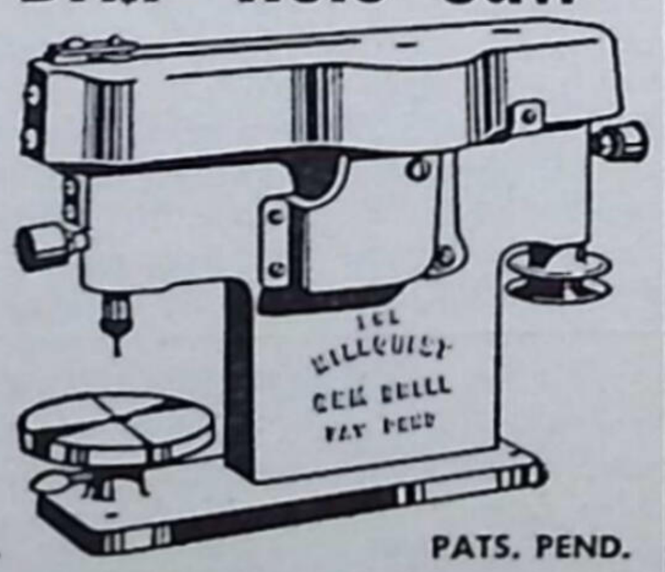


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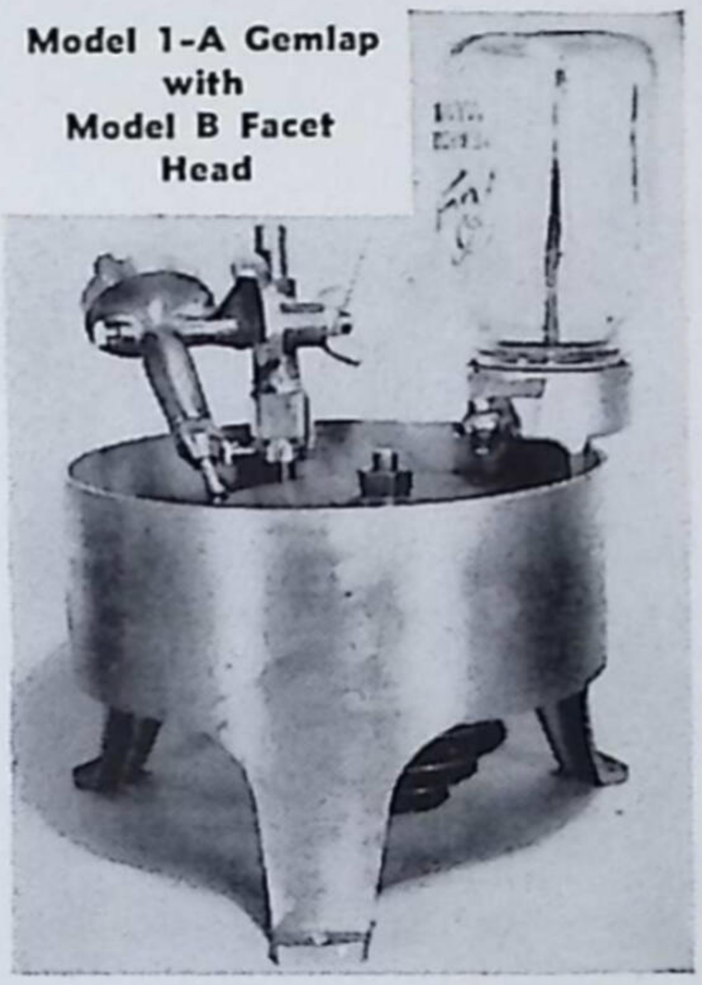
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