



Opal

by

Charles H. Derby,

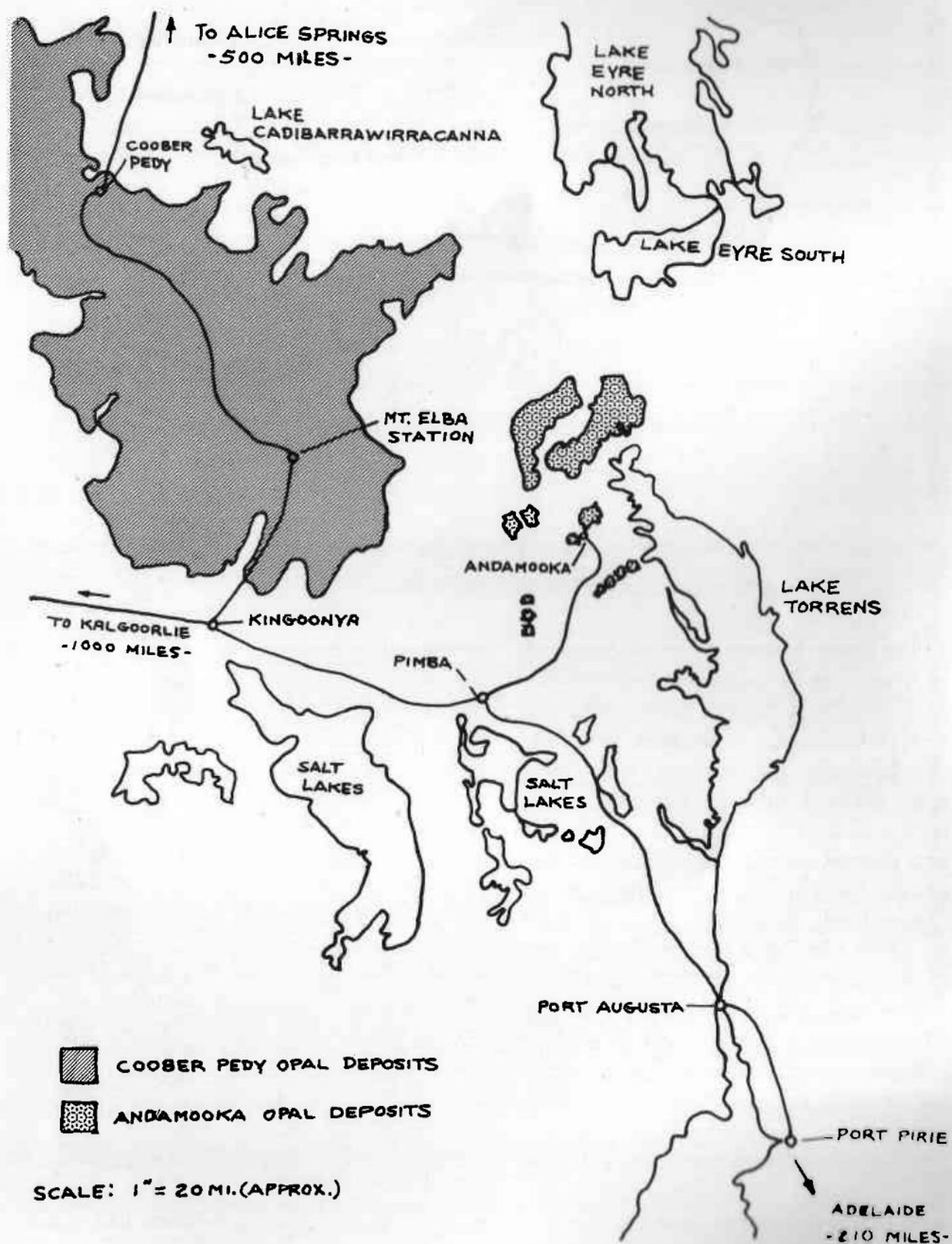
A visit to the main sources of precious opal today, Coober Pedy and the Andamooka deposits, in the northern areas of South Australia Province, Australia.

The early history of opal discovery in Australia is rather vague. At the time the Forty-Niners were venturing west to California, a German geologist, one Mingaye (or Menge) was struggling through inland wastes near Adelaide and discovered precious opal. The first precise records, in 1872, show Listowel Downs and Springsure, in Queensland, as sources. During 1880 to 1890, in New South Wales, the Lightning Ridge and White Cliffs rushes took place. 1890 marks the establishment of White Cliffs as a town and starts opal production as an industry. In 1905, the first commercial efforts were made at Lightning Ridge. Production for one 12-year period was valued at \$7,000,000. The United States has been the best buyer of opal.

Twentieth-century Australia not only

is making outstanding contributions to our world of science, it is also giving us outstanding and fabulous discoveries in the gem world. In 1915, and later in 1930, two new sources of precious opal were discovered. Today, these deposits, at Coober Pedy and Andamooka, eclipse all others, and supply more than 95% of the world production of precious opal. Lightning Ridge and White Cliffs remain but dazzling and romantic names. Records show a mere \$2000 for a recent year's production. These facts should not be construed to mean that the opal deposits have been depleted or worked out. The simple facts are that cruel drouths, lack of supplies and primitive living conditions in the above-mentioned locations make other areas more desirable to work and live in.

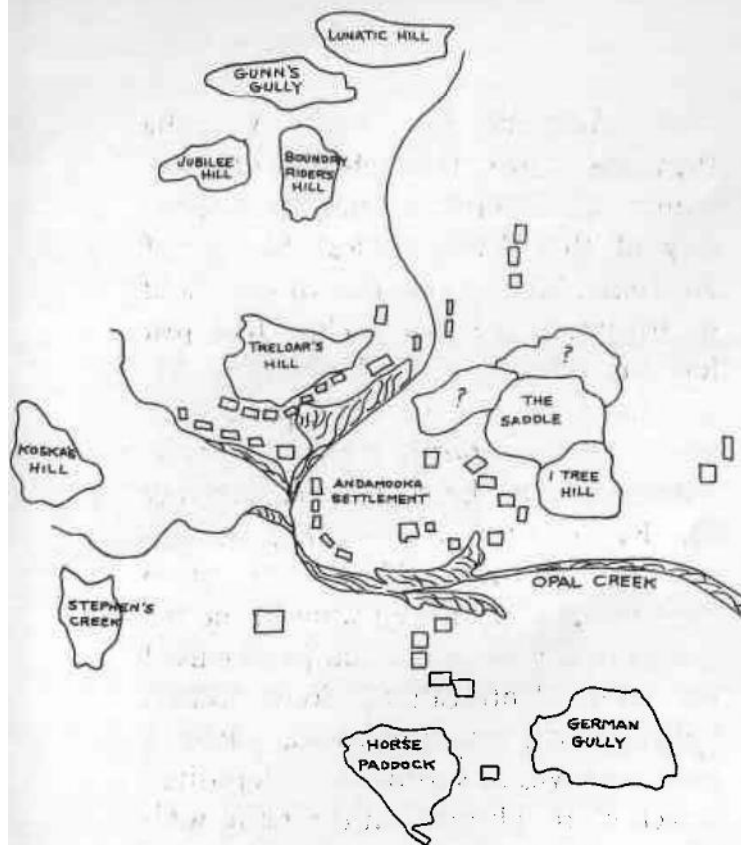
Sydney, the point of entry into Aus-



tralia by air, is a modern giant, an industrial city spreading out for miles and tucked into the scenic splendors of the middle-east coast. The first crispness of fall was in the air (this was April) and one was dazzled by the cleanness of everything. Here I met Mr. Hinkley, a kindly old opal dealer. I was privileged to wander through his vast collections and ask questions. Opal such as one never dreams of lay exposed row after row on deep shelves; boxes of the flaming beauty came out one after the other, and it seemed to me that they were better and better. Doublets, solid cabochons and then rough were shown me, each a mass of scintillating, multi-colored fire. Here and there were huge boulders covered with paper-thin shells of opal. These have no gem value, but certainly make a wonderful display.

The next person I was able to see was Percy Marks II. He is the son of the incomparable opal buyer, Percy Marks, who after years of struggle, brought the fabulous collection of black opal to the Franco-British Exposition (London, 1908), thereby establishing his unparalleled reputation. In the author's opinion, the Marks collection is still the best in the world. Velvet-lined cases contain opal that, when exposed to light, jump to life. The beauty displayed defies adequate description, ever changing with new colors. Mr. Max Walker, publisher of the Australian Jewelry Magazine, similar to our *Jewelers' Circular-Keystone*, introduced me to the gemological people here. He armed me with letters of introduction to jewelers and gemologists in other cities, which not only made the trip more pleasant but filled it with information.

At Adelaide, in South Australia Province, I met, through one of these letters, Mr. P. Grove-Jones, local secretary of the Gemmological Society of Australia. We began to talk of opal, and he informed me that a chap had just left his office for the University. He was from the Andamooka Opal Fields, about 400 miles north. Leaving quickly, I proceeded to the University and met Mr. Reg Harvey, director of gemological training there. While waiting to meet the opal man, Reg showed me the museum as well as the equipment used for gem identification. Soon Robert Giltrap came into the room, where a gem class was in session, and deposited a sack of rough opal on the table with the generous words, "Help yourselves boys." We were then introduced, and in the conversation he asked me, "Why don't you come on up to the opal fields?" Thinking that he was joking, I said, "Sure thing." Later, at the suggestion of Mr. Harvey, I visited the office of Mr. Wollaston, also the son of one of the fabulous pioneers of the opal field, who in the last century followed for years the movements of the Ghans, Mohammedan traders who travelled with camel trains, trading throughout the area. It was he who lost his mate from thirst while on a trek, yet they were less than one-half mile from water. Mr. Wollaston told me that Gilley (Robert Giltrap) had come by and told him of a stroke of luck in his finding an American to take back to the fields. At the time, no American had visited the fields. While in the office, Wollaston showed me a magnificent necklace of round jelly-opal beads. Clear-honey color, graduated, and of magnificent size, these came out of the



THE ANDAMOOKA OPAL FIELDS

box glowing with a wonderful play of color. They were to have been presented to the Queen on her recent tour; however, the Government felt that a single strand would not be adequate. A search was under way to try and locate additional beads for a second strand; then, at Andamooka an opal of staggering size and beauty was found. This gem was polished and fashioned into a glittering necklace and matching earrings. The pendant of opal has been redesigned into a brooch and is worn on the Ribbon of the Garter as a part of the Royal Regalia. Weighing 205 carats, the stone has been called the *Andamooka Opal*.

Andamooka, meaning "no-name area," is a waste of red sand and low rolling hills, but two fresh-water lakes and underground water made it possible to establish a sheep station there in the late 1800's. It was while repairing

a dam about thirty miles north of the homestead that two boundary riders discovered opal, in 1930. Three years later, some hardy souls began the first diggings. Mr. Alan Treloar, the first digger, did well. He was able to gouge out better than \$5000 worth of fine opal on the first try. Word went out and more gougers (opal miners) were attracted from White Cliffs and the Ridge. Most of the early diggers were part-time shearers, boundary riders, and bushmen (itinerant laborers), who came in between jobs, if they had enough money to buy the tools and a packet of food. Life was indeed rough in the early days, since they were isolated from all civilization. Soon, however, the continued good finds made it possible to establish a settlement at the diggings.

Today, Andamooka is a tiny but progressive settlement. There is one store that is well supplied with necessities, a post office with a weekly mail service, telephone connections, and a pedal-generator radio station on the Broken Hill and Alice Springs hookup. They also have the service of the flying doctor, who can, in about an hour, come to the landing strip. The strip was built by a series of "working bees," where everyone, including the few black aborigines, came out to help. A new school, housing the infirmary, has been built since my visit. Water is pumped from a Government-drilled deep bore and is adequate for the present population. Firewood is there for the taking, but it must be hauled more than ten miles. There is no timber in the area, and all wood of this kind must be imported and is very expensive. Houses in the town are unique. The first operation of



Looking west over the roof of a typical gougher's house. Note windmill for water and lights. School house in distance is the old one, now rebuilt. White snowlike deposits on hills are the dumps of old mines. Behind the house is the old horse-paddock area. At right are the diggings of Stephen's Creek. The twig shelter on the left is to protect the two cars owned by these miners.

construction is to dig an open trench as long as you wish the house to be, running into the side of a hill. By using stones, the end is walled in and a door of sorts is hung. The roof, made of dead and dry trunks of the wattle bush, is then covered with layers of tough grass and clay and the earth is then scraped back to finish the job. These roofs are usually rainproof, and although the rainfall is less than six inches a year, sudden downpours bring great amounts of water in a few moments. Wind-breaks are made to shelter the door openings, as well as the tiny efforts in gardening. Tomatoes will ripen throughout the entire year. Today, there are a few houses above the ground, but they have clung to the insulating methods of using stone, clay plaster and thatch for comfort.

My introduction and coming out to Andamooka was an adventure. Gilley asked me when we went to get his new

jeep, "Can you drive? I can't." Later, after leaving all traffic behind and in the comparative safety of the open road he said, "Well, it's now or never. Show me." He soon found the gas pedal and we were off in a swirl of dust, going from side to side and faster and faster. Fortunately, he soon got the feel of it and things began to slow down. The last part of that trip was made in the wee hours of the night, and certainly his guardian angel was hovering there, or maybe his private leprechaun rode the hood, since he was from County Cork. We made it! No house was in sight, but the piercing blast of his horn brought glows in doorways and flashlights guided running friends with greetings of welcome. In our jammed-full cargo there were several gallons of wine and a new accordion. Soon a fire was blazing, tea was on, and many friends gathered to whoop in a welcome. I must add that the tea was for

me. They soon retired to other houses to keep the party rolling, leaving me to fall into Gilley's bed exhausted.

I awoke to the warmth of the fire and a ball of ten cats rolled on the foot of the bed. They took one look and, not seeing Gilley, fled. Looking out of the long, low window, six panes in a row, I saw I was at ground level under a steep eave. The landscape was one bleak sheet of low-rolling hills, with heaps of snow-white tailings attesting to the efforts of many former gougers. How many dreams and hopes vanished at the bottoms of these holes? Yet, they kept putting down new ones, and as often as not would strike opal within a few feet and come out screaming with joy. This was Andamooka, and I was to be a part of it for a few weeks.

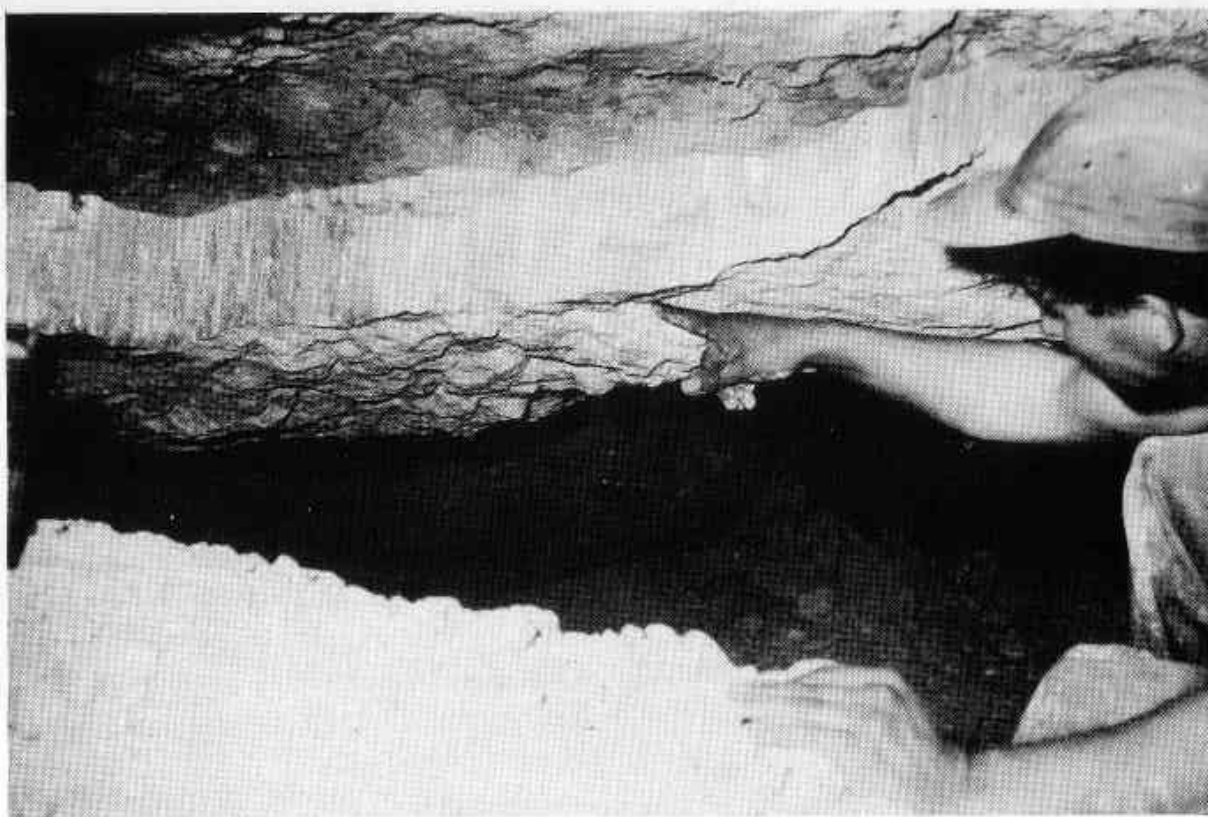
The first question to be answered was where to live. Gilley needed his house and his bed. This was resolved in the

early afternoon. The Clarkes were at home, and after some talk agreed to have me in their summer house. It was a square room with jalousies all around and proved to be most comfortable. Mrs. Clarke is the local nurse and Mr. Clarke is the postmaster and also one of the best cutters of opal in Australia.

Early the next morning I finally met the opal gougers. The next-door neighbors, the Dunstons, are all gougers. They took me out to their claim. Here, about three miles north of the town, we came to the area known as Lunatic Hill. The whole area was potholed with the diggings and tailings, or mullock, dumps. Into this maze we drove carefully, coming to a stop near a new pile of waste. Two heads popped out of a nearby hole and I was introduced to the two young Van Brugges, boys from Holland who are trying their luck out here. A handmade wooden windlass

Mr. Van Brugge and his two sons at the top of their shaft. George Jr., has come to the top to rest. Tom has a bag of opal-bearing rough; his digging is on the left. If they have luck here, these two shafts will join at the bottom. Mr. Van Brugge was formerly with a diamond house in Holland, but has moved to Australia and is buying opal. He lives and has offices in Sydney. His circuit takes him through most of the other diggings; i.e., Lightning Ridge, White Cliffs, etc.





The bottom of a shaft in German Gully, showing wide seam of gypsum. The gouger points to the seam of opal that he is working. The *horizon* here is very easy to follow, since this seam of gypsum indicates the deposit of opal.

stood astride an oval hole about $2\frac{1}{2}$ x $4\frac{1}{2}$ feet in diameter. These shafts are designed and dug for digging comfort as well as for getting to the bottom of the hole when it gets deep. Into the walls of the smallest diameter they cut steps big enough to get a good foothold. In going down a shaft one sits into the hole, grasps the rope, and fits his feet into the side holes and goes down easily. Down the shaft you go, 20 to 30 feet, as the case may be. The deepest hole that I explored was over a hundred feet deep. One man stays on top to hand things up or down as needed. The gouger for the day goes down first, then comes his equipment; padded mats to lie on to gouge carefully if he strikes opal, the lamps, tools, picks and shovels, etc., and the bucket to haul up the waste materials. If they have reached a point and have mutually agreed to put in a blast, the caps, fuse and dynamite come down in a separate

pail. The Dunstun's shaft was not a big operation. The underground shaft belled out at the lower opening, big enough for a tall man to stand easily. Off at the end of the small tunnel and to the side they had begun to *open*. Opening means they had begun to explore along the *horizon* in the *hard band*, the gravels in which opal is found. The shaft is sunk and "bottomed" in these gravels, and then they "explore out" in all directions in an effort to find the opal seams. The story is often told of men working claims and leaving them after finding nothing at the bottom. Then some other chap arrives and begins to explore out and soon finds opal. That's the luck, they say. Today, some of the biggest and best finds of opal are in the pillars of old diggings. When the country rock was soft, these pillars were necessary in order to prevent cave-ins. Circulating air has now hardened the roof structure



At the bottom of the Dunston shaft, young Doug Dunston bores a hole into the face of the horizon to loosen the massive deposit to get at the opal below. The cavity below shows where they have carefully gouged up to the opal layer. Note that the charge is very small and will remove only the deposit above the cavity, not damaging the deposit, if there is one.

and it is safe and easy to gouge the opal out. It is easy mining, since they don't have to bring up any waste.

Mr. Dunstan, having decided that they had to blast, let me see and take photos of the operation. The first job was to bore a hole in the face of the upper horizon with a bit and auger. Then, using a partial stick of dynamite, his son set the fuse, tamped the hole and we scrambled out. The dull boom below told us it was over, and we lowered a hollow cloth tube into the shaft to ventilate it. The open flat top of the tube, stretched across a stick, faces into the wind and takes fresh air to the bottom of the shaft. After a time, we again went into the shaft to survey the results.

We began to scrape up the waste and send it to the top. Soon all was clean and clear, and by word signal Doug asked his father to come down and see the opened wall. Very carefully they began to gouge, and at the moment that the fine-headed pick struck the patch they knew they were near opal. Here all is caution, lest they break a wonderful stone. Going up and under the patch area they dig up to the gemstone so that it may be broken out. It was amazing to me to note how many old dentist's tools were in use for these operations. Chip . . . chip . . . careful . . . careful . . . plop! . . . and the stone falls into eager fingers. At once it is put into the mouth to be wet with the tongue and there is a line of fire! Not a word is said, but one feels tension and elation — they are on opal.

All finds are put into a cloth bag to be examined during the lunch hour or at the end of the day. A knife with a staunch, sharp blade is always a part of everyone's equipment, so they can "shell" a stone to see if it will show color. Nothing that indicates opal is thrown away until it has been carefully inspected. In spite of all the care used in sorting, some pieces get away. One of the great pastimes is *noodling*, or looking through old dumps; the aborigine is often too lazy to dig, but he finds some excellent opal in this way.

Most of the mining here is done in more or less the same manner. There were two new experiments being tried while I was on the field. One of these was a tractor operation. The procedure was to dig a trench with a digging arm. One man would be in the trench and watch for signs of the opal gravels, and by examining these he would know

Mr. Woods and his digging tractor, a new experiment in gouging for opal. In shallow deposits, he is able to dig a trench down to the horizon and, with his son, Bryan, following the arm, they can tell when they have reached the opal-bearing gravels. Further exploration is then made by hand.



if they should explore out in any direction. The second experiment was that of Mr. Frank Shulton, cutter-buyer from Sydney, who brought out a pneumatic hammer to explore the old areas of Koska's Hill. He was, in a matter of hours, able to gouge out the equivalent of two weeks of hand labor. It is debatable if his take is as good as hoped for, since by these methods he may shatter fine opal. In our many conversations, he did not divulge the answer; however, from photos taken of some of his fine opal, it seems he is doing alright.

The gouger, having found his opal, places it in a bag to be taken back to camp. Here it is scaled and cleaned. The first operation is to wash off all of the muck. By scaling he can look into the stone. He is adept in removing just enough to see into the stone and leaving the most possible weight. Most of the people today know how to *face* a stone and thus have a better return for the rough. After cleaning, scaling and nipping off the waste, these stones are saved until finally a parcel is made up.

When this day comes, the parcel is taken to the evaluator, where it is sorted



The evaluator looks over a packet. Notice that they have separated the opal into classes, etc. and have weighed each parcel. Papers indicate weights. Note cloth bag. This picture was posed by Mr. Dunstan and Old Bill Hallion.



Dick Clark, opal cutter and polisher, seated at his bench in the most complete workshop in Andamooka. The work turned out here is some of the world's finest. He is noted for his work on doublets and for making, matching, and creating designs in opal.

and carefully weighed. During these operations, much discussion takes place and they come to a minimum price. If the gouger listens to the advice of the evaluator, an old and experienced miner, he generally comes out with a better price. These packets are often brought to prospective buyers, who quote a higher price than that set by the evaluator, with the casual word that so and so is interested. The buyer contemplating a parcel again separates the opal, and by selection and weighing determines whether he can buy and still make a profit. If he decides to buy, he counteroffers until the buyer and seller reach an agreement. Usually, the gouger is paid in cash.

In the early days, the gouger seldom received a fair price or percentage of the true value of his finds. Today, however, the fields have many cutters and polishers and competition is keen among the buyers. My trip proved that there is a brisk demand for fine opal all over the world. Miners are riding the

crest of this wave of demand and are realizing better prices. Because of the secrecy necessary in these remote areas, it is hard to estimate the true value of the rough gems mined in the Andamooka area to date. A value of between three to four millions of dollars seems a good estimate.

Compared with other opal fields, those of Andamooka are tiny. The location of the deposits is from four miles north to four miles southeast of the post office. The widest point measures three and one-half miles across. This makes an area of approximately 27 square miles. Coober Pedy, by comparison, is a vast area more than 160 miles long and 60 miles wide.

At the invitation of Mr. Vin Wake, resident buyer, I was asked to join the party that was taking Mr. Manning, of the Manning Opal Corporation in New York, to Coober Pedy. It was most unusual, but at the time of our visit there were seven buyers on the fields. I sup-

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