

Gold!

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In tiny, microscopic quantities it lay waiting beneath the Pacific. Deep under the seabed it sat, trapped in the fragile layers of crust covering the vast, molten interior. The Earth revolved, as it has from the beginning, and in doing so, the hot fluid interior moved, driving the frozen crustal plates into each other, forcing one to rise above the other. Subduction the geologists call it. As the plates ground against each other, earthquakes fractured the frozen crust and the molten heart of the planet burst to the surface in fiery, bubbly, underwater explosions. The volcanoes grew and finally reached out above the surface of the sea to become islands. Men arrived and gave them names; Indonesia, New Guinea, Solomons, Fiji, New Zealand and Vanuatu.

Some volcanoes aged and grew tired. Many could no longer belch flames but like tired dragons, could only belch out steam. Yet the steam was rich! For below the surface, cool acidic groundwater leached the gold and other minerals upwards from the rocks while superheated magmatic, chlorine rich water took it from below. As the volcanoes continued to cool, the overlying rocks also cooled and shrunk and cracks developed. And through these cracks—faults—the superheated mineral rich water forced its way to the surface to form hot springs.

Close to the surface, silicas had slowly been deposited around the cracks, gradually narrowing them and eventually constricting the flow. This constriction caused backpressure, allowing the super-heated magmatic waters to rise from great depths without boiling. Every so often the pressure was so great, the liquid would burst through the constriction—geysers—and the sudden drop of pressure deep below caused the water there to boil—instantly. Here, down in the boiling zone, the gold, along with other minerals, escaped from the water and lay down. A precipitate was formed. A simple process, really, like the white scaly build-up called calcium precipitate seen inside old kettles.

It happened time and time again, irregularly but repetitively. The shrinkage cracks cause by the general cooling of the area and the fracture zones caused by hydraulic pressures were the new home of this relatively concentrated gold. Eventually the whole system cooled and froze into solid rock.

And the gold waited.

The rains came, and the wind too. In many places they eroded away much of the earth overlying the gold. Sometimes the gold, too, was carried far away. Then man discovered the precious yellow metal. He sank shallow mine shafts, reaped it from the surface or mined it far from the source, where the water had carried it. For years he took it from the earth, mining all the countries upthrust eons before. All except one—Vanuatu.

Geologists have long known that certain gold deposits could be found near ancient, fossil volcanoes. They also knew that the hot springs of dying volcanoes were rich in dissolved precious metals. But it was not until the late 1970's, with the price of gold shooting upwards, that these and other keys were fitted together and the theory of epithermal (association with superheated water) gold deposits was formulated.

So the geologists traipsed across old volcanoes and hot springs and discovered new gold deposits, confirming the general theory and developing guidelines that could be used in exploration. Then the Lahir mine in New Guinea was discovered, signalling the beginning of a latter day gold rush.

Old, abandoned mines were re-examined and new ones, never before properly investigated for gold were converged upon like ants to honey. Geologists swarmed across the Pacific's ring of fire, the volcano belt. Profitable gold mines grew in every country they visited.

But one was missed—Vanuatu.

Then the trickle started, and the trickle turned to a gush so that by 1985 a dozen companies had geologists traipsing over Vanuatu's jungle shrouded mountains. On face value all they had to find - under millennia of accreted soil a verdant tropical growth - were extinct volcanic caldera (large craters) and hot springs systems. But not every system necessarily has gold. And not all gold deposits can be economically mined.

Each potential area had to be thoroughly investigated. Methodical, painstaking and by no stretch of the imagination romantic work. Roads simply do not exist in most areas and even helicopters need a little gap in the jungle to land! If gold was to be found, it meant looking for concentrated quantities in streams, or locating hydrothermally altered rocks, then following the float trail up creek beds. Where the trail ended it could be reasonably assumed that a viable area lay somewhere out from and below this point. The tried and tested method of panning for gold was also used and soil samples taken. But epithermal gold cannot be seen with the naked eye, so collected samples had to be sent back to Australia for analysis.

For most exploration companies this meant a delay of weeks. But one Australian company, United Resources, proved efficient in finding and laying claim to the most promising locations. They sent a specifically designed and equipped research vessel to Vanuatu. Samples could be tested and the results known within hours. If the area looked promising, their onboard helicopter could transport someone to Vila to take out an exploration license.

Generally, the Vanuatu government granted exploration licenses to large, well funded companies without difficulties or delays.

After a license was obtained more detailed analysis and further exploration had to be done. To begin with, this meant looking for whole areas of hydrothermally altered rock formations. In any one area, that could involve the hand removal of tons of topsoil—just to find a rock—let alone the right type!

Hundreds of small holes needed to be drilled to discover the extent and depth of potential gold deposits. And holes cost money; hundreds of dollars per meter. And each hole may have to go down as much as 300 metres.

So the local company formed by United Resources, Vanuatu Gold, dug some holes, in Malekula and Santo and located 2 areas that had apparently economic gold deposits. As it turned out, both are part of the oldest volcanic system. The other companies gave up their exploration licenses, for no other areas appeared viable.

But of course a handful of holes was not enough. To continue exploration and begin mining, the company would float shares on the stock market.

Ah, the excitement! The gold was there, just a little more time to establish exactly where! It was all set, everything in place, shares would be floated the very next week!
And then the Australian Stock Market crashed.

Time has passed, leases have lapsed and geologists with new companies are gradually returning. The helicopter waits patiently in a riverbed, or on a ridgeline while men, traipsing rivers and jungles, go looking, looking, always looking.

And still the gold waits.