

## Letters From Africa

Johannesburg, October 27, 1982

Dear Ones,

Being on a mission requires lots of faith so I have thought a lot about it. A favorite scripture on faith is found in Alma 32:21 "...faith is not to have a perfect knowledge of things; therefore if you have faith ye hope for things which are not seen which are true."

Knowledge and faith are often talked about together. Knowledge is important and we should acquire all of it that we can. Knowledge has advantages and disadvantages. It is based on repeated past experience and observation and brings a sense of security into our lives, but knowledge is only good when it is used wisely. With the knowledge that man has, he could probably destroy the world.

Faith also has advantages and disadvantages. It is possible to have faith in a bad idea or incorrect principle. Also, faith is difficult to explain to others because it is more a matter of feeling. But faith is geared to the future while knowledge is geared to the past. Faith is adventurous; knowledge is not.

As you know, faith (in the Lord Jesus Christ) is the first principle of the gospel. However faith is important in all aspects of life. There is no progress without faith. Scientists and engineers use faith all the time in their everyday work. Note that I just used the word work. The scriptures tell us that faith without works is dead. This is true for every day living as well as for religion. Many people, for example, engineers do not use the word faith in connection with their work but say that they have a hunch or a feeling or intuition. However, these words are close in meaning to the word faith.

Let me tell you how a geologist, Dr. Gavin Lamont, discovered diamonds in the Kalahari desert in the country of Botswana. The great Kalahari desert is located between the Orange and Zambezi rivers, covers about 20,000 square miles and is inhabited by only a few Bushmen. Botswana, a hot, dry country, poorly suited for agriculture, borders South Africa on the northwest.

I need to digress for a moment to tell you about diamond "pipes", the place where diamonds originate. A pipe is a special kind of lava flow. Hot, molten rock of unusual chemical composition which was deep in the earth was caused to flow upwards and intrude into and through the earth's crust. It then cooled and became solid. Near the surface of the earth, the pipe is usually shaped like a carrot. The material in the pipe has a blue-green color and is called kimberlite. Diamonds occur in the kimberlite but only sparsely—about one part diamond (by weight) to 30 million parts of kimberlite. It is harder to find diamond in kimberlite than to find the proverbial needle in a haystack.

Now, back to the story. Dr. Lamont had a hunch (faith) based on his knowledge of geology, that there were some diamond pipes buried under the sands of the Kalahari. The sand in this desert varies from about 300 to 5000 feet deep. Three hundred feet of sand over a diamond pipe would certainly hide it very well. But 5,000 feet? How could you

ever find it. Fortunately, Dr. Lamont's faith indicated that some pipes might be near one edge of the desert where the sand was only 300 feet deep. Sometimes mining engineers drill into the earth with core drills which bring up cylindrical samples of underground rock. This rock is then examined to see if it contains gold, zinc, copper or other substances of interest. Well, so why not drill some holes? Three hundred feet of sand would be easy to drill through and maybe we should bring up a core of kimberlite from just below the sand.

Unfortunately, there is a catch to this approach. Diamond pipes have only a small area—sometimes only one acre.

You would have to drill thousands of holes spaced close together to be certain that you would drill into a pipe. The cost and time involved in such a drilling project would be out of this world.

But Dr. Lamont thought of an ingenious way to locate the pipes that he felt were somewhere below the sand. He started thinking about ants. Yes, ants! More specifically, he started thinking about white ants or termites. He suspected that these ants had inhabited the Kalihari desert for thousands of years. During this period of time as many ants as there are grains of sand in the desert may have lived there. African ants are social insects and seem to have a high degree of intelligence. The African white ants tunnel into the ground to the depth of the water table to obtain water to irrigate their vegetable gardens (small fungi that they grow in the ant hill galleries) and to maintain a proper humidity in the ant hill. On our trip from Harare Zimbabwe we saw ant hills that were twenty feet high.

In the Kalihari, the sun beats down unmercifully from a sky that never rains. The ants survive because of their tunnels to the water table. But the water table here is 300 feet below the surface at the bottom of the sand. Could ants possibly dig holes that deep? No one thought so. But Dr. Lamont had faith that they could not possibly survive in any other way.

If the ants had once made a hill over a diamond pipe, and had tunneled straight down to the top of that pipe, they would have brought grains of kimberlite to the surface. There are two tell-tale sand-like mineral grains found in kimberlite that indicate that diamonds are probably present. One mineral grain is an iron silicate named ilmenite, the other is pyrope garnet.

Dr. Lamont had faith that the astronomical number of ants that had inhabited this desert area for thousands of years would, in that time period, have built an ant hill over every square yard of this region. Consequently it would only be necessary to sample the sand on the surface of the desert on a grid with intervals about 30 feet apart. If the tell-tale indicators were high in number in a region of the grid, there should be a pipe below.

Sampling crews were organized. They covered 450 square miles per month for many months. Thousands and thousands of sand samples were analyzed for ilmenite and pyrope concentration. What was the result of this faith and these works? Three important diamond pipes were discov-