

A black and white photograph of a large industrial crane lifting a heavy, rectangular stone block. The crane's boom extends from the left side of the frame, supported by a complex system of cables and pulleys. The stone block is suspended in the air, and the background is a light, overcast sky. The crane's structure is made of dark metal, and the stone block is a uniform, dark color.

ROCK *of* AGES *Corporation*

Souvenir of your visit to
the World's largest Quar-
riers and Manufacturers
of Family Monuments



BARRE, VERMONT

Rock of Ages Granite Comes From the World's Largest Quarry

How Did Rock of Ages Come to be Here?

- To get the real story of this quarry geologists tell us we must turn the clock back twenty million years. Glass-like volcanic matter then was thrust up from the bowels of the earth. Through millions of years of cooling, it was subjected to titanic opposite pressures. Nature's forces are greater than man has ever developed . . . thus Rock of Ages was formed like lustrous diamonds by the irresistible pressure of the earth's formation against volcanic matter.

How Old is the Quarry?

- This Rock of Ages quarry is now over 57 years old . . . and is one of the oldest monumental granite quarries in the world. You say 57 years is not a long time . . . even in this country? That is right . . . some of the real old industries are over a century old. The answer in this case is . . . steam power. Until the invention of steam power, and certain modern machinery, this extremely hard substance could not be unearthed in any quantity. Big pieces could not be broken away from the mass . . . let alone be lifted or transported down the steep hill to town. Sculptors were unable to carve it because they lacked the hard-steel cutting tools that we have today. Fifty-seven years is really a long time in hard granite quarrying.

Probably when visiting the older cemeteries you have noticed memorials made of softer stone. You probably observed that some of these stones were actually weathering away and the lettering becoming unreadable. This stone was used because men were able to quarry it in the olden days when granite resisted them. The difference between Rock of Ages and this type of softer stone is this: Soft stones result from millions of years of accumulating particle deposits. They are known as **SEDIMENTARY STONES**. Rock of Ages is a fused material, known as **"IGNEOUS ROCK."**

How Long Will This Quarry Last?

- No man knows the exact answer to that question. We do know that as far down as our diamond-pointed hollow exploratory drills have gone . . . and we have drilled not only down 250 feet but sideways in all directions . . . there is still Rock of Ages. Some geologists believe that this material is found in the center of the earth. There is an endless supply of it. This quarry is valued at several millions of dollars. Probably it will prove to be worth much more than that as the decades roll by.

There is Only One Rock of Ages

- Nowhere else is there a memorial material exactly like Rock of Ages . . . none so dense and fine in grain, none so resistant to the ravages of time, none so hard and clear textured. Through the years since monumental craftsmen discovered that Rock of Ages yields such beautiful and lasting memorials many other memorial materials have been introduced but none has won away the craftsmen's preference for Rock of Ages.

At the Quarry Hole

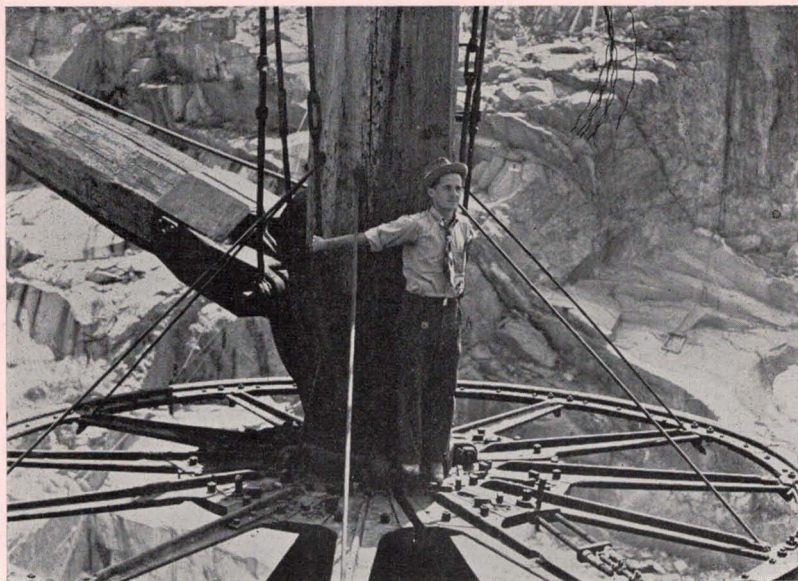
- Standing at the brink of a man-made canyon 1,200 feet above sea level, you see now the largest quarry for monumental material in the world. Its depth this summer is equal to the height of a 27-story building. It was 318 feet from the highest point around the quarry to the greatest depth in the hole when the last measurement was made. It is about a quarter of a mile between the farthest ends of the quarry opening and the opening is about 40 acres in area. The total Rock of Ages property is several hundred acres and material for many generations is available.

It's An Open Book to the Quarry Engineers

- What looks to you like a maze of booms, cranes, and a dangerously deep pit is an open book to the quarry engineers. The quarry is like a gigantic stubborn servant to them. She *hates* to yield up the precious Rock of Ages . . . and sometimes she performs like a naughty child; some of her actions are unpredictable. For the most part, however, the quarry engineers have the quarry well in hand and the quarrying operations are carried out as planned years in advance. Those shelves you see down to the left were charted months ago. Look down at the floor of the quarry and you will notice how it has been marked off and cuts made. This was all planned many months ago. Hollow core drills, shaped like a pipe . . . with diamond points, are used in exploring new sections. The core is drawn out from the hollow center of the drill and thus the engineers know approximately what to expect as the work in the quarry goes lower and lower or spreads outward.

Why This Quarrying is Difficult and Costly

- This great Rock of Ages quarry is different from other quarries. The formation is different. The material is different. In other monumental quarries the material generally is found in layers or strata. In this Rock of



Some idea of the mammoth size of the Rock of Ages quarry can be obtained from this close-up of one of the gigantic derrick masts—At a distance they seem like toothpicks extended in the air—Here the man is dwarfed by the immensity of one of the great masts

Ages quarry it is found in titanic boulders, the outlines of which are most irregular. It is the unpredictable irregularity of the outlines of these boulders that makes for costly quarrying. This material weighs more, is more dense in grain, darker in color, harder, and it takes more time, more power, to release it from the earth. However, Rock of Ages is a superior material and is well worth the extra cost involved.

Why Don't We Quarry Where it is Easier?

- That is a good question. Why do we stay in this particular spot when Rock of Ages owns hundreds more acres around here where perhaps the layer formation exists? We quarry here because this quarry yields the premium material. Memorial craftsmen like this material the best. People can see the difference in grain, color and beauty. Geologists say that this quarry is at the very heart of the prehistoric volcanic eruption which re-

sulted in all the quarries on Barre Hill. From this quarry comes the *only* Rock of Ages . . . there is nothing exactly like it anywhere in the world.

Drilling the Gigantic Blocks of Rock of Ages

- What was probably the largest single block of stone on record anywhere in the world was separated in one solid mass in this quarry. It was 200



Using the most modern of air-driven quarrying tools workmen put in drill holes which will eventually free another huge piece of Rock of Ages material

feet long, 80 feet wide, and 24 feet thick. Its estimated weight was 65,000,000 pounds and when cut up and lifted out in pieces it filled 1,728 railroad cars. The largest single block ever taken out of this quarry weighed 69 tons. The average block will weigh around 25 tons.

Now focus your attention on the quarrymen who are drilling. Notice the big drill . . . called a channel bar . . . which they use and along which they drill a series of holes.

It will take two men, a drill operator and a helper, about 2 months of patient work to channel and break out a block of Rock of Ages 30 feet long, 30 feet wide and 15 feet high. It will take an additional month to separate this huge block into smaller saw blocks of a size which may be efficiently sawed into slabs from which finished memorials will be manufactured. These saw blocks are lifted to the top of the quarry by the derricks.

The special steel used in these drills is very hard. Even so, it must be resharpened often, since a drill will cut only about 2 feet without becoming dull. First a short drill is placed in the channel bar and a shallow hole drilled. Then a longer drill is substituted. This process is repeated until

finally a 30-foot drill may be in use. And . . . just think of it . . . one of these holes is drilled from 1½ to 2½ inches along the line laid out by the quarry engineer. After the line of these holes is completed the portion of Rock of Ages remaining between the holes is cut away by another type of drill used on the same channel bar.

No Blasting

- Usually the stone is released from the mass by cutting away the material joining the holes. When the stone still remains fast after the cores have been completely cut a very mild charge of ordinary black powder might be used to free the mass. Dynamite, which is explosive and shattering in its effect, is used only to remove rock which is obviously not memorial material. Ninety percent of all Rock of Ages is very carefully released from the quarry by the drilling process without the use of explosives of any kind. This prevents injury to the beauty and texture of the material.

Removing Crews Follow the Drillers

- Notice that the drilling machines . . . or channel bars . . . operate in one section while the actual removal of blocks of Rock of Ages is in another section which has already been drilled. The crews follow each other around. This is a part of the planning. Notice that the removal crews also clean



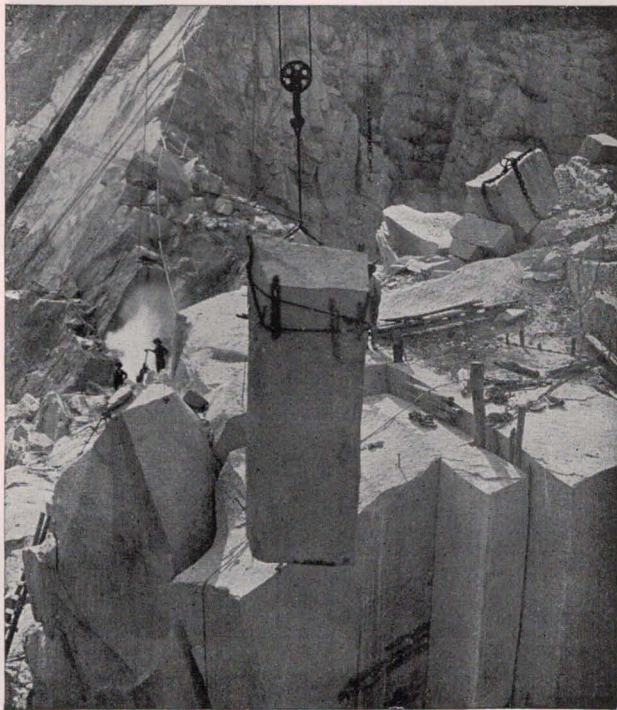
Huge blocks of Rock of Ages granite are stored temporarily at the quarry's edge awaiting their turn to go to the memorial finishing shops

up the waste material as much as possible. See the men filling the huge steel pans with waste. This waste is pulled to the surface and loaded on dump cars and transported to the grout piles or dumps for final disposal.

Now the Derrick Swings Into Action

● Now, for a change after looking down into the hole, look overhead at the network of cables. The masts of our 10 derricks extend 115 feet into the air and are three feet in diameter at the base. They are made from solid pieces of Oregon fir, which is found only in the far Western forests. Steel derricks are used in quarrying operations in some parts of the country, and often in construction work, but here quarry officials prefer the wooden derricks because of their greater flexibility.

This hoisting equipment is as important to the quarry operations as drilling. Look closely and notice that the derricks are located at convenient intervals, so that there is a derrick handy to every part of the quarry. Notice the signal man with every derrick that you see in operation today. There he is, at the very brink of the quarry, working as "contact man" between the men in the hole and the derrick operator. He gives signals by means of hand-waving, or by whistle. You will hear the whistle blow from time to time. His signals are understood by all the quarrymen in the hole. If you will



One of the most fascinating sights of a lifetime is to see a granite block leave the quarry hole—here it is, large, majestic, weighing thousands of pounds—from the quarry brink it looks like a pebble dangling listlessly in space

watch closely you will also notice that he, in turn, gets signals from the man in charge of chaining the stone at the bottom of the hole. From the time the stone leaves the bottom of the hole, however, the signal man alone is responsible for giving the correct signals to the derrick operator, who cannot see the stone until after it comes over the brink of the hole. Even when the stone is in full view of the derrick operator he must continue to honor the signals of the signal man until the stone is safely placed in the quarry yard.

At the Quarry Brink, Again

- Notice the network of big and little pipes running all over the quarry property, down the steep sides of the hole, and out into the bottom of the quarry . . . like a city water system. These pipes carry compressed air to operate the huge channel bars. Two giant compressors furnishing 7,000 cubic feet of compressed air per minute are in constant operation to furnish the necessary power for drilling. It requires 1,300 horsepower to operate these compressors. Perhaps you have been wondering about that still pool of water down there. There is a great deal of seepage in the quarry and pumps must be in almost constant operation to keep the floor of the quarry clear for quarrying. In the spring season when there is much more surface water entering the quarry the pumps are in operation continuously, each pumping 500 gallons a minute. On this side the ladders used by the men in descending into the quarry are easily seen. From a distance they look small and rickety. Actually they are very heavy and substantial.

In the Quarry Yard

- All around the top of the quarry are small stations where the workmen break up the larger blocks into special smaller sizes as ordered by the company's manufacturing plants. These blocks are being cut into rough shapes. The foreman of this department can pick out the best cut for a particular piece of granite. Granite has a grain just like wood, and it must be cut with the grain or directly across it. It takes an expert to know which way the grain runs, but this man has been cutting granite for years and it is an open book to him. He marks off the best cut in blue paint. Then another man drills holes three inches apart and two and a half to three inches deep all around that line. Notice the rubber cap over the end of the drill. Water comes through that cap and keeps the dust down. After the holes are drilled another man puts small steel wedges into each of these holes and pounds them evenly until the piece cracks. If the piece had been cut diagonally across the grain, they would get just a chip instead of the almost perfect cut you see.

Waste Piles

- As we go along you will notice the huge piles of waste material . . . resembling rough pyramids . . . you have probably noticed them all around the quarry. The material in these piles is called "grout" . . . it is waste material



Not all material taken out of the quarries is usable—Out of the finest in memorial granite Rock of Ages selects the finest—For every foot of Rock of Ages which finds its way eventually into a finished memorial, four feet are discarded as being below the Rock of Ages high standard of quality in the rigid method of selecting only the finest material for memorials—Here is a “grout hill” of discarded granite—Notice the two men near the foot of the “hill”

from the standpoint of material for Rock of Ages memorials. FOUR-FIFTHS of all material taken from this quarry is grout . . . unusable as a memorial material for one reason or another. Occasionally this grout is sold for roadbuilding and for filler or ballast on railroad lines . . . but because of transportation costs the market is very small. Here it must remain as mute evidence of the careful selection which is made before memorial material may be called Rock of Ages. Incidentally there are two miles of private railroad tracks around this quarry with several locomotives in operation as they are needed. They are mostly used transporting grout to grout piles which you cannot see from here and which now cover many, many acres of what once was woodland. These tracks here connect with one of the steepest standard gauge railroad grades and lines east of the Rocky Mountains . . . the Barre and Chelsea Railroad . . . which transports all the granite carried by rail from here to the manufacturing plants in Barre. Now, much of the granite is transported by truck . . . but automotive trucks cannot, of course, carry the larger pieces.

Here on the left, just before we reach the derrick house, is the Company's first office . . . erected about 1880. You will notice that time, the elements, and quarry operations have dealt with it rather severely. Quarry history, however, has been recorded in this little office. It was here that records were kept on the largest quarry block ever moved from the mass, figures on which were previously given.

The Derricks

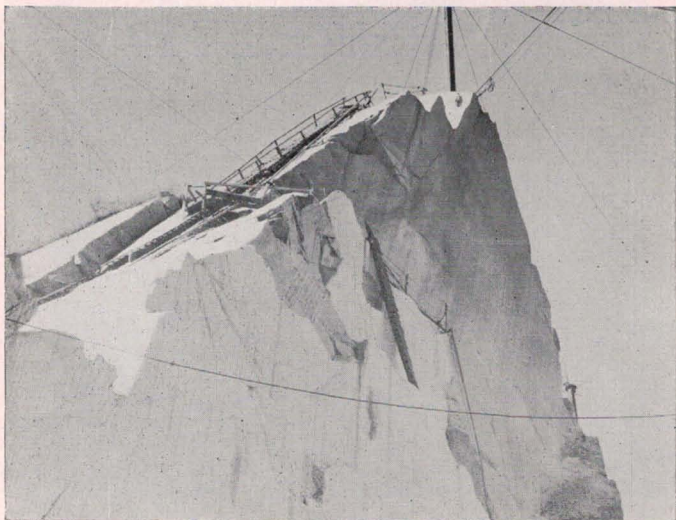
- Now let's look in at the inside machinery which makes those big derricks go. Each derrick has a control room or “engine house” (as it is called by quarrymen). The machinery in this house and the derrick cost about

\$20,000. We have 10 derricks standing and 4 others available for replacement so you can see that it really takes capital to make even a small start in the granite quarrying business. Each of these derricks will lift from 35 to 50 tons. Sixty-nine tons is the largest load ever lifted. Notice the steel cable or rope. They all are of great strength but even so they must be replaced frequently. They vary in diameter from $\frac{3}{4}$ inch to $1\frac{1}{2}$ inches. For safety's sake they are replaced two or more times per year, depending upon the amount of usage they receive. Some are replaced more frequently.

Leaving the Quarry

- Notice the little pond on the left of the railroad tracks. Pond lilies grow here in abundance. The water is warm and shallow. It is the water which is pumped out of the quarry hole. Years ago, when compressed air was made by steam power, water from this little pond was used in the boilers. With electrical compressors, however, it is now just a convenient spot for pond lilies.

The granite building across the pond is the compressor building. Two electrically-operated machines do the work of compressing the air used in the quarry. The larger compressor absorbs 5,000 cubic feet of air per minute and is operated by an 800 horsepower motor. It takes power . . . tremendous power . . . to drive those drills you saw at the quarry.



Viewed from the 300-foot depth of the hole the 115-foot derrick looks fragile—here is a solid pinnacle of Rock of Ages granite

At the Rock of Ages Display Piece

- On this display piece are shown some of the most beautiful ornamental and lettering results of Rock of Ages sculpture and carving. This is a real example of skilled craftsmanship.

First, please notice the perfect, high polish. It is as smooth as glass and the surface is perfectly sealed. Polishing Rock of Ages is a slow process but no effort is spared to see that pit marks are avoided and that the final, resultant polished surface is perfect. Rock of Ages memorials are truly "living memorials" because in the cemetery they catch and mirror the movement of the surrounding trees, shrubbery and landscape. Instead of a still and motionless block of stone they become "living tributes" to those whom they memorialize.

In the center you see the well-known Rock of Ages trade-mark seal. A small replica of this seal about the size of a 25-cent piece is etched inconspicuously into all parts of all genuine Rock of Ages Memorials. A larger seal is on the other side of this show piece. This seal, when it appears upon a memorial, is our signature of a perfect Rock of Ages memorial.

Line Carving

- At the extreme left is an example of contrasting finishes obtained by Rock of Ages craftsmen in an intricate combination of screen carving and line carving. In this particular case the designer and sculptor chose to portray a cathedral window.

Incised Letters

- The preference of most people today is for these beautifully outlined or sunken letters. Generally they are a simple classic letter like the words, "ROCK OF AGES" as shown here.

Relief Carving

- Around the center of this tablet are ornamental roses and other symbols done in sharp relief carving. Floral symbols like the rose, the lily and the hollyhock and many others have a real meaning. The rose, for instance, is an expression of simplicity, love, and family devotion. It is known as the flower of the Blessed Virgin, symbolic of divine love and spiritual bliss.

Lettering on Screen Background

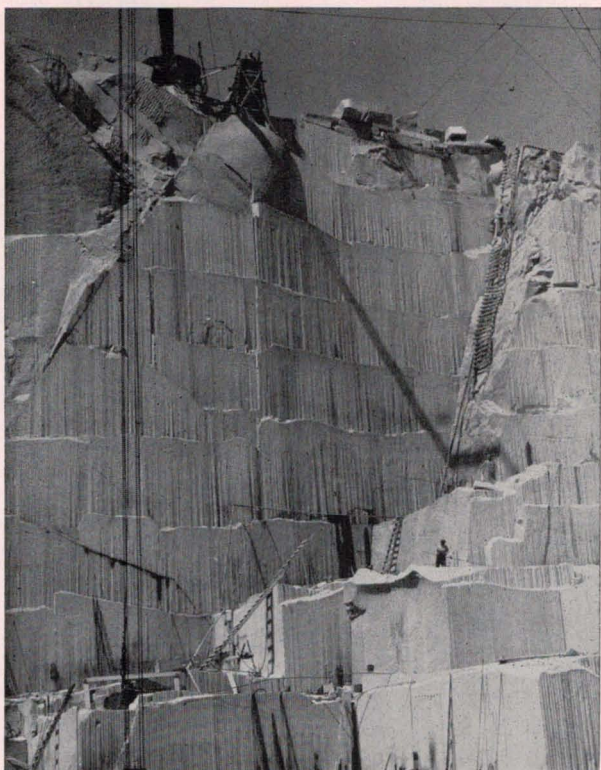
- A beautiful effect is obtained by a background of screen carving forming the outline of the lettering. This is an unusual effect produced only by the Rock of Ages, and as shown by the word "Memorials."

Raised Lettering

- This is a very rich form of lettering and often used with contrasting finishes. It can be strong in appearance as you see it here . . . or it may be very delicate.

Relief Carving on Screen Background

- Here at the extreme right is a combination of relief carving with the screen or lace background. This is an exceptionally fine ornamentation, adding great beauty to the memorial and also it is a great tribute to the skill of Rock of Ages craftsmen. All in all the work displayed on this show-piece represents the finest work being done in the memorial industry today.



Rock of Ages is removed only after a tedious process of drilling—A part of the work requires expensive diamond-studded drills—No blasting is done to remove the memorial material as evidenced by this photograph—a symmetrical symphony of vertically drilled flutes

Origin of the Name "Rock of Ages"

*"Rock of Ages cleft for me
Let me hide myself in thee."*

It was in 1776 while seeking shelter from a wild storm in High Cleft Rock in the picturesque Mendip Hills in Somerset, England, that Reverend Augustus Montague Toplady found sanctuary and was inspired to write the famous hymn, "Rock of Ages."

Today Rev. Toplady's immortal hymn is as universal as rain and sunshine. It belongs to every branch of the Christian church, to every Christian heart.

The lines of "Rock of Ages" move the beggar, the tycoon, the soldier and the statesman. The hymn has been translated into many languages and even into obscure dialects, until today it is sung and cherished in every clime on every continent.

And it is only appropriate that the inspired words, "Rock of Ages," full of Christian sentiment and religious faith be applied to Rock of Ages Memorials created by skilled craftsmen and artists of the Rock of Ages Corporation, Barre, Vermont.

(Right) High Cleft Rock in the Coombe at Burrington, Somerset, England. The cleft is clearly visible and one can easily visualize it as a sanctuary in a storm as did Reverend Augustus Montague Toplady so many years ago, when he was inspired to write the sacred hymn "Rock of Ages."



(Left) Here is a partial view of a gathering of pilgrims at the historic spot on the occasion of a recent program of commemoration.

