



HOW TO GET MORE GOLD



PHOTO: R. BAKER



Global Mercury Project



Less Mercury, More Gold and Better Health

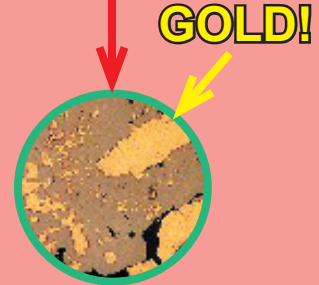




STEP 1

UNDERSTAND
THE TYPE AND
SIZES OF THE
MINERALS IN
THE ROCKS

TYPE AND SIZE
DETERMINE HOW TO
GET THE GOLD OUT OF
THE ROCK



GET THE MOST

STEP 2

TEST HOW
MUCH GOLD
CAN BE
BROKEN FROM
INSIDE THE
ROCK

RE-GRIND AND PAN
TAILINGS AND THEN DO
THIS AGAIN AND AGAIN
UNTIL YOU GET NO
MORE GOLD

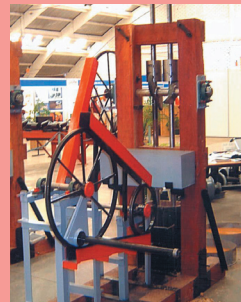




STEP 3

USE GOOD
GRINDING
TOOLS

WHAT KIND OF
GRINDING
EQUIPMENT CAN
YOU AFFORD?



GOLD FROM YOUR ORE

STEP 4

USE GOOD
CONCENTRATION
METHODS

CENTIFUGES ARE
THE BEST
(BUT EXPENSIVE)
NO MERCURY
NEEDED!



GOOD CARPETS
FOR SLUCES





ANALYTICAL TOOLS

GET HELP FROM
TECHNICIANS FROM
GOVERNMENT OR
LOCAL MINES



**MORTAR
& PESTLE**



PAN



**TEST
SCREENS**



**HAND
LENS**



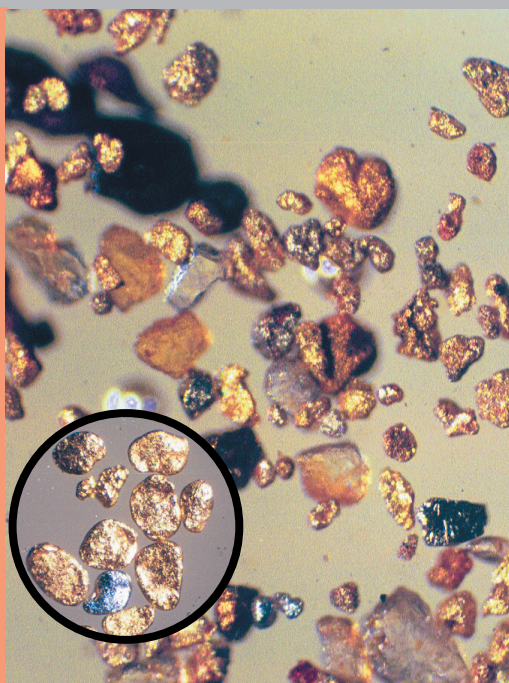
MICROSCOPE

STEP 1:

WHAT SHAPES
ARE THE GOLD
PIECES?

--FLAT PIECES ARE
HARDER TO CATCH IN
SLUICES THAN ROUND
PIECES

--SMALL PIECES ARE
HARDER TO CATCH
THAN BIG PIECES



PHOTOS: CLEANGOLD/PLATH; GUNSON





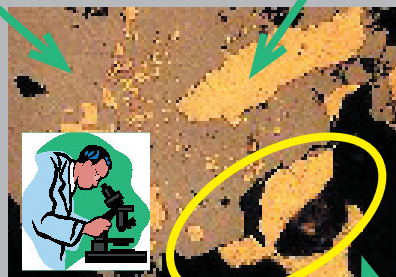
HOW IS
THE GOLD
ATTACHED TO
THE OTHER
MINERALS IN
THE ROCK?

IS THE GOLD BETWEEN
MINERAL GRAINS?

IT CAN BE HARD TO GET
GOLD THAT'S INSIDE
PYRITE

PYRITE

GOLD



QUARTZ

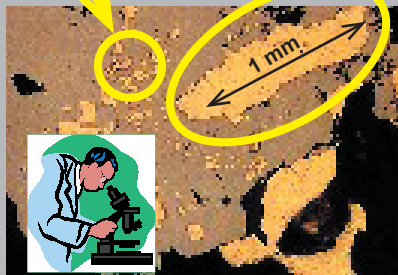
GOLD
BETWEEN QUARTZ
AND PYRITE
GRAINS IS
EASIER TO BREAK
FREE

UNDERSTAND YOUR ORE

HOW BIG ARE
THE PIECES OF
GOLD IN THE
ROCKS?

LITTLE
PIECES
HARDER TO
BREAK FREE

BIG
PIECES
EASIER TO
BREAK FREE





HOW LONG TO GRIND?

1. GRIND YOUR ROCK

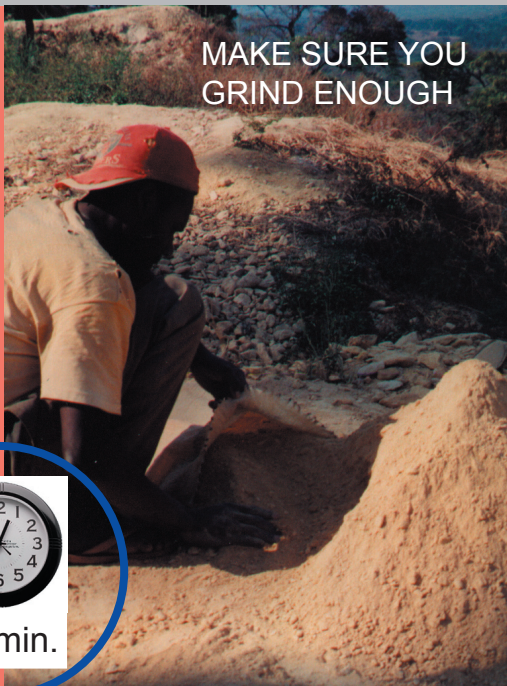
--GRIND FIRST FOR 10 MINUTES

--THEN PAN THE GOLD



10 min.

MAKE SURE YOU GRIND ENOUGH



STEP 2:

2. RE-GRIND THE "WASTE"

--GRIND AGAIN FOR 10 MINUTES

--THEN PAN THE GOLD



10 min.





3. RE-GRIND AND PAN THE WASTE AGAIN

--DO THIS A FEW TIMES
UNTIL YOU GET NO
MORE GOLD



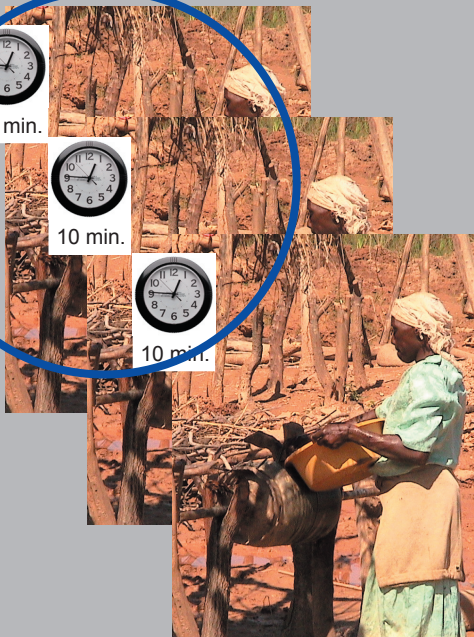
10 min.



10 min.



10 min.



TEST YOUR GRINDING

4. THE BEST GRINDING TIME FOR THIS ORE IS:

THE TOTAL OF ALL THE
GRINDING AND RE-
GRINDING TIMES



TOTAL





SIMPLE TECHNIQUES



SMALL RING OF
SACKING
PROTECTS HANDS

ROCK FILLED
STEEL BOX
ON STEEL PLATE



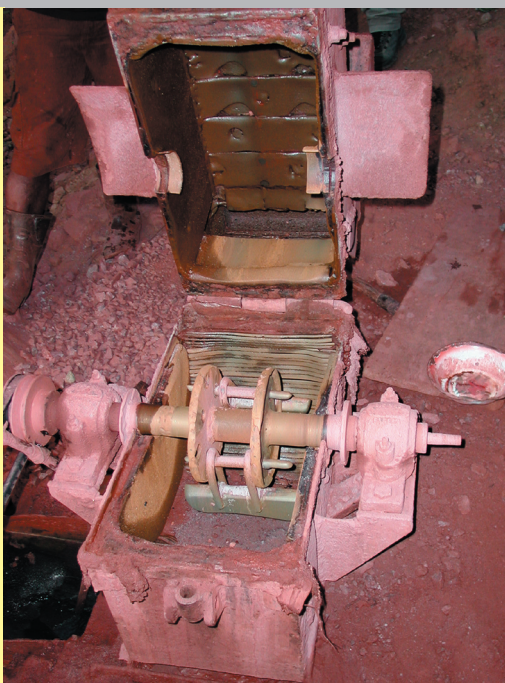
PHOTO: M. PRIESTER

STEP 3:

HAMMER MILLS

GOLD STAYS CLEANER

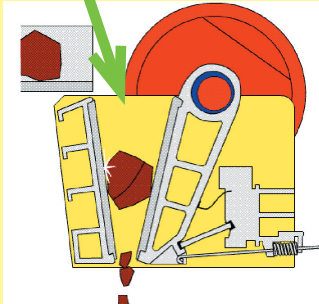
GOLD PIECES ARE NOT
FLATTENED





JAW CRUSHER

BIG ROCKS IN



SMALL ROCKS
OUT



CRUSHING AND GRINDING

WET BALL MILLS

FILL MILL ABOUT
40% FULL:

BALLS-----2 PARTS
ORE-----1 PART
WATER-----1 PART

SMALL BALLS GRIND
FINER THAN BIG BALLS
--USE BOTH BIG AND
SMALL AT THE SAME
TIME

**AIR IS BETTER TO
BREATHE** WITH WET
MILLS--LESS DUST!



**ONE MOTOR
CAN DRIVE
MANY MILLS**





SCREEN YOUR GROUND ORE

CONCENTRATION WORKS BEST WHEN PARTICLES ARE THE SAME SIZE



STEP 4:

2 STAGE SLUICE

ZIG-ZAG SLUICES SLOW DOWN THE SLURRY AND RECOVER FINE GOLD

--USE DIFFERENT SLOPES AND/OR CARPETS ON EACH STAGE

LONG SLUICES DON'T HELP--MOST GOLD IS RECOVERED IN THE FIRST 50 cm





SLUICE DESIGN

THE RIGHT FLUID
SPEED AND DEPTH
ALLOW THE GOLD TO
FALL INTO THE CARPET

--IF FLOW IS TOO
SLOW THE CARPET
FILLS WITH SAND

--IF FLOW IS TOO FAST
THE GOLD IS WASHED
AWAY



TURBULENCE LOWERS
FINE GOLD RECOVERY

GOOD CONCENTRATION

FINE GOLD
CONCENTRATES
WHERE THE SPEED IS
SLOW

RIFFLES INCREASE
TURBULENCE AND
CAUSE LOSS OF FINE
GOLD

KEEP FEED RATE
CONSTANT AND FLOW
SMOOTH BY CHANGING
WIDTH AND SLOPE





PROTECT your children's future



**KEEP KIDS AWAY FROM
DANGEROUS EQUIPMENT
AND MERCURY!**

