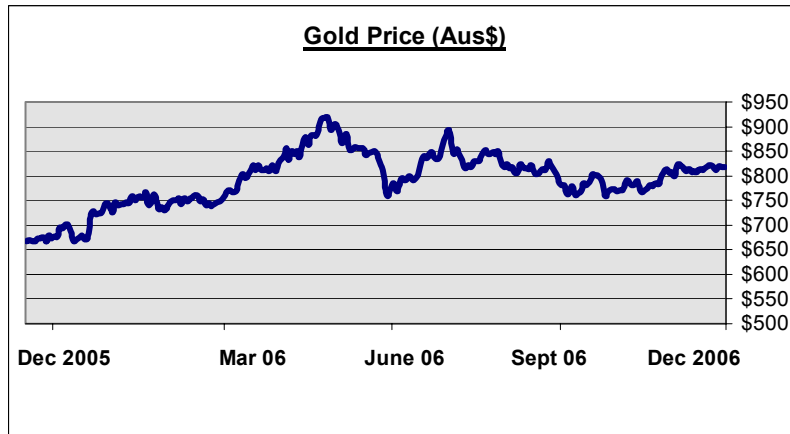


## The Philosophers' Stone



### Solder behaving badly?

Solder refuses to flow, so you turn up the flame...the piece melts!! .....and the customer wants it tomorrow....

Often the main problem in this situation, (besides the customer wanting it tomorrow), is that the pieces being joined are dirty. Maybe a film of oxidation from the beginning or one developed during the initial heating process. This occurs when not enough flux is applied.

Flux acts like an oxygen sponge but there is a limit to the amount of oxides it can hold before you need to re-flux.

Whilst soldering, the smallest possible flame should be used and virtually stroke the piece with it. Both sides of the joint should be precisely the same heat colour for the solder to be drawn into the joint, by capillary action.

### Is 9 carat gold harder than 18 carat gold?

It is surprising for most people to learn that the simple answer is no.

It would be fair to assume that this confusion has arisen due to the fact that pure gold is known to be quite soft. Too soft in fact to be used successfully in local jewellery. 18 carat obviously contains twice as much gold as 9 carat, the assumption being it is therefore softer.

Also, it is fairly widely known that if gold is alloyed with other metals it becomes harder, however, many people assume that the more other metals are added the stronger and harder the resultant alloy.

There are many different combinations of metals which can be used to make gold alloys with each combination having specific characteristics. This can be further influenced by mechanical working and/or appropriate heat treatments, however in general most common 18 carat gold alloys are both harder and more hard wearing than their 9 carat equivalent.

Alloy	As Cast. Hardness	Max. Annealed Hardness
9	70-105	160-170
18	85-125	170-230

See simple table (left) comparing 9 carat and 18 carat gold using the "Vickers" hardness test.

The "Vickers" hardness test method consists of indenting the test material with a diamond indenter then establishing the relationship between the load applied and area of indentation. A little scientific perhaps and not easily achieved at the jewellers work bench.

### Merry Christmas

*Well it's that time of year again folks. Ho, ho, ho! After a quiet October, it is apparent that things are building for Christmas so we would like to take this opportunity to thank you for your valued support, and wish you all the very best for a happy and successful Christmas and prosperous 2007.*

