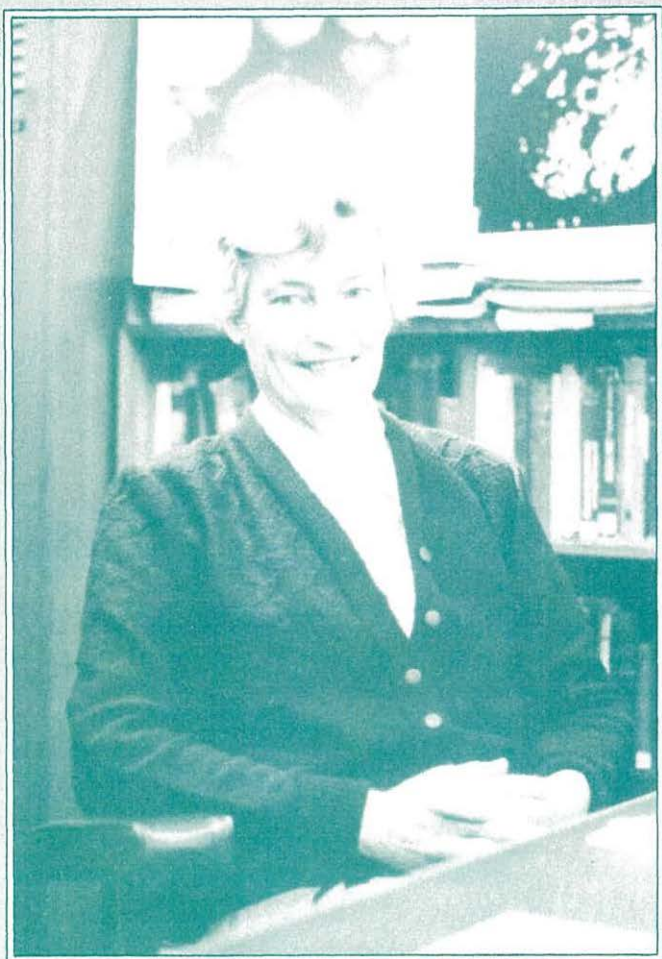


people in science

WHO THEY ARE ● WHAT THEY DO ● ACTIVITIES



JOY BEAR

PRIMARY EDUCATION

SCIENCE SERIES

A Primary Education Book
Dove Communications
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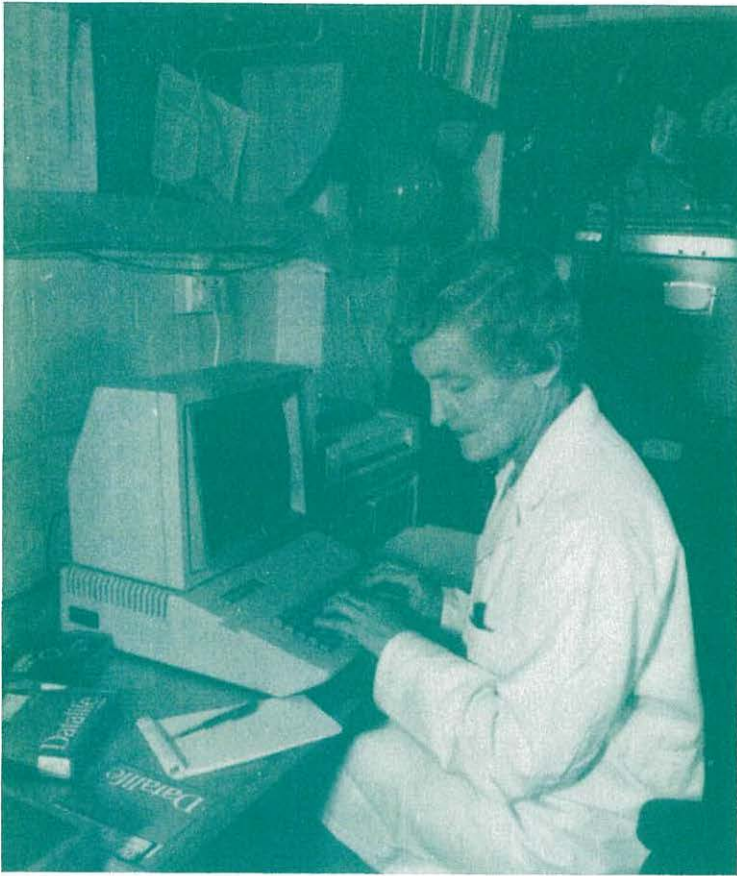
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Joy Bear



What makes a person want to become a scientist? Doctor Joy Bear thinks that it was because, when she was a girl at school, she became interested in astronomy (the study of the stars, planets and other objects in space). This, in turn, led to a general liking for science subjects and the idea of becoming a scientist.

However, although she wanted to be a scientist it wasn't easy for her to become one. When Joy was young it was not popular for girls to do science subjects. When making subject choices at high school her father encouraged her to do typing and shorthand. Although she

did these subjects she still wanted to be a scientist. To do this she would need to go to university. Unfortunately at that time you had to pay to go to university. Joy's father had four children to educate and he didn't think that it was important for girls to go to university. So when Joy finished high school she had to look for a job. Luckily she was able to find one as an assistant in a scientific laboratory.



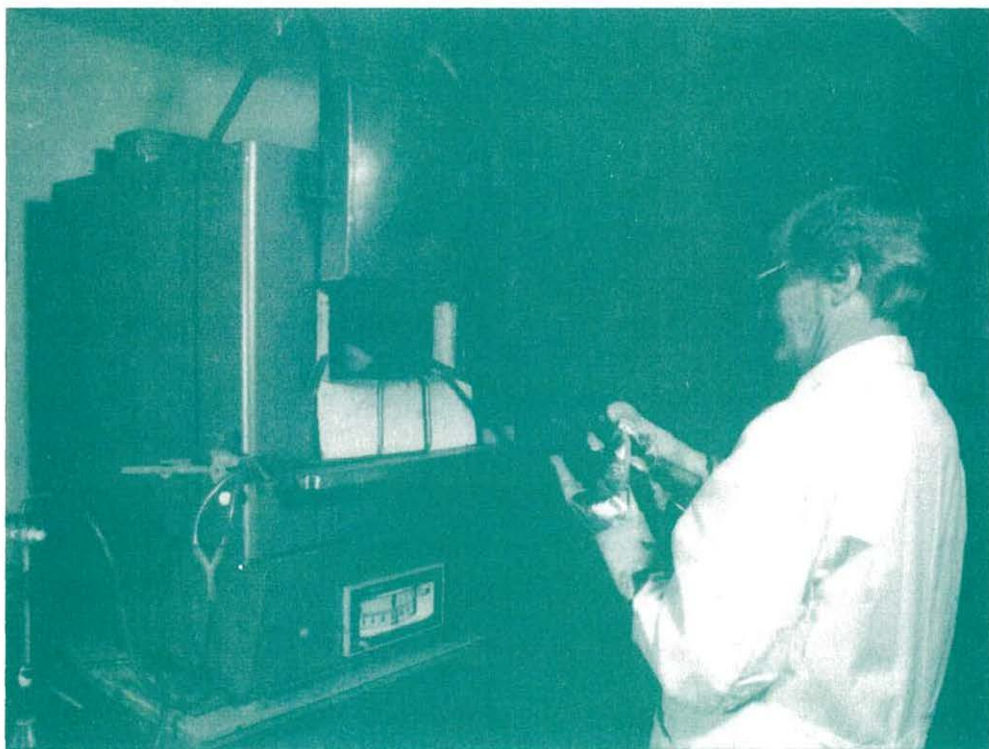
For the next six years, as well as working in the daytime, Joy went to classes four nights a week to learn more about science.

After this, for a while Joy was living and working in England and when she returned to Australia she was able to find a job with the C.S.I.R.O. (Commonwealth Scientific and Industrial Research Organization). Eventually she was encouraged to do some research on her own, instead of simply helping others. She did this so well that she was given a senior research position. Other scientists thought very highly of her research and felt that she should be given credit for it. So in 1978 she was

awarded a senior doctoral degree. That means that she is now called Doctor Joy Bear.

Joy's work at the moment could help Australia if she is successful. In Australia we have rock containing a metal called nickel. This metal is used for lots of things like putting a coating on the bumper bars of cars to prevent the iron from rusting. Before it can be used like that many things need to be done. The first is to get the nickel from the rock. This is done at a refinery near Perth in Western Australia.

When the nickel comes from the refinery it is a fine powder. For jobs like plating bumper bars the nickel needs to be in hard blocks which won't crumble as they get used. Unfortunately, this has to be done overseas at the moment. So our nickel has to be sent away and then brought back.



Joy Bear hopes that she can work out a way of making these strong metal blocks here in Australia. If she is successful it will mean that there will be jobs for some people in Australia making the metal blocks. So everyone in Australia will be a little bit better off.

As you can see from Joy's early days it wasn't easy for her to become a scientist but she's glad that she persevered. She really enjoys the challenge of solving the problems that she finds or that others ask her to solve.

Although she started off wanting to become an astronomer looking at the skies she has ended up working with metals found in the earth. But she doesn't mind this switch of interests at all. She thinks that she would have been happy working in any area of science where there are interesting problems to solve.

In 1986 Dr Joy Bear was awarded the AM of the Order of Australia for her services to science.



Activities

ACTIVITY 1

- How can you tell metal from plastic?

Compare things which you know are metal with plastic things by looking at, feeling and tapping them.

- Make a list of all the things which contain metal that you use in your kitchen, bedroom, classroom.

ACTIVITY 2

- Often people talking about the past emphasise how people used metals. The use of metals was very important in determining the way people lived.

Find out about: the bronze age, the iron age.

- Find out what you can about brass rubbing.

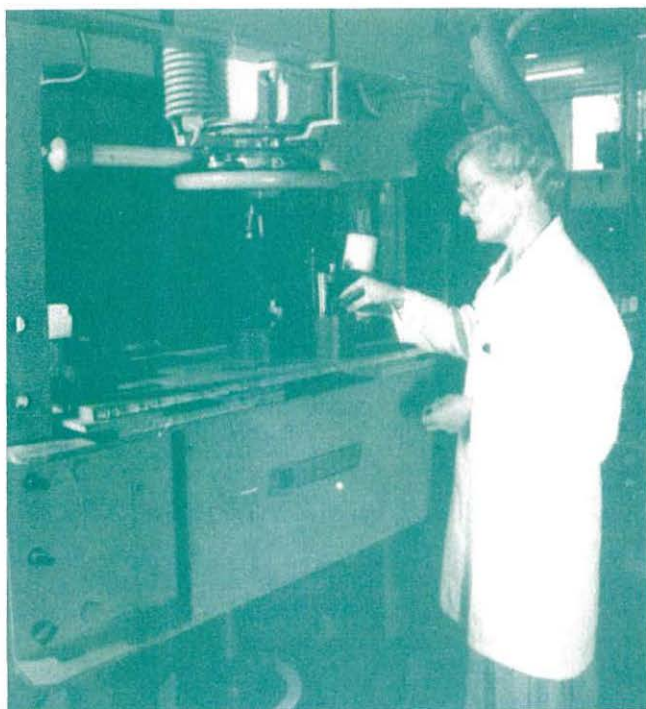
You can make a rubbing by flattening a milk bottle top, placing it over a 20 cent coin, and rubbing it gently with a pencil.

ACTIVITY 3

One of the properties which makes some metals very useful is the fact that they conduct heat well. You can explore this property on your own and find out which metals are good conductors of heat. A candle is quite a good heat source. Take the piece of metal (perhaps a piece of wire or a large nail) and dip it in the molten wax

at the top of the candle. When you take it out it will cool and you will get a small piece of solid wax on the end of the piece of metal. This will be your guide as to whether the metal is getting hot or not.

Now hold the piece of metal in a wooden clothes peg and put the end without the wax in the flame. See how long you have to hold it in the flame before the drop of wax melts, thus telling you that the end on the piece of metal is getting hot. You can compare different metals and pieces of different size and shape of the same metal.



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