

only by more research that man can harness these forces in the energy systems we have learnt to expect as part of our standard of living.

The discovery of electricity, of the external and then the internal combustion engine and of the turbine engine are just some of the outstanding energy systems that have changed our way of life more drastically over the last century than in any other time in human history.

In this Sun Centre you will see in simple methods, some of the energy uses that have been developed by human ingenuity over the ages – from the simple sun dial right up to the photovoltaic silicon cells that make power for our satellites. Who knows; seeing some of the discoveries of other people might stimulate the imagination to research your own project, or at least show there is more to be considered when you press a button or turn a switch. Most people living in towns and cities are completely reliant on energy sources over which they have no control. If we live in a city, the electricity we use, the clothes we wear, the food we eat, the appliances, the petrol, the oil products we use, the very air we breathe in air conditioned buildings are all produced “somewhere else”. We spend our money earning the money to pay unseen sources for our comfort. Would you live comfortably if electricity was not available? You will find here, books and pamphlets which show you how you can be self-sufficient, up to your own capacity, even if you live in a city. There is a “Do-It-Yourself” library not only in books, but also in the demonstrations all about you.

THE SUN SPOT

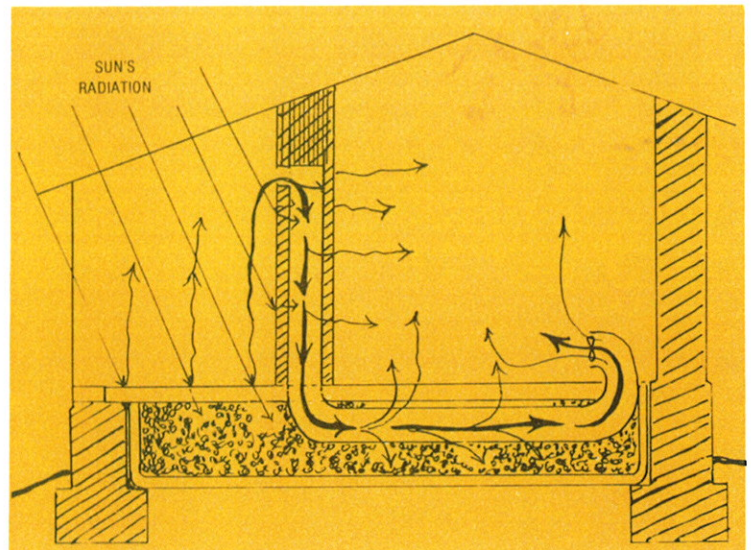
In the **HOT ROOM** there is a minerals display that follows a classification pattern used commonly by geologists. It gives you a better understanding of how your Earth was made and what material could be right there under your feet. Some of the substances are called “Gems” because we value them more highly than others for decoration, but the lowliest of minerals often contain elements that are more useful to us and really more valuable to our comfort. Charlie Mandelkow and others who found some of these specimens in the field have kindly lent them to add to the collection. The “Gems” in this display are artificial. They are not for sale, but books about them are.

In the **GALLERY** you will see work by representational artists, sometimes featuring one particular person or group. Prints and reproductions are also available.

In the **CRAFT SHOP** there are for sale many skills of people of the Granite Belt. Very few come from elsewhere. Work in leather, home-spun wool or mohair, crochet, knitting, wood, pottery, perfume, screen printing or any other medium may be ordered if what you want is not available at the moment. Just ask an assistant. Orders may also be taken for some of the solar appliances of the Complex.

THE DUNLITE WIND GENERATOR was reconditioned to give 750 watts in a 20 knot breeze. It starts generating in a 10 knot breeze. The propeller drives a generator

THE SUN SPOT



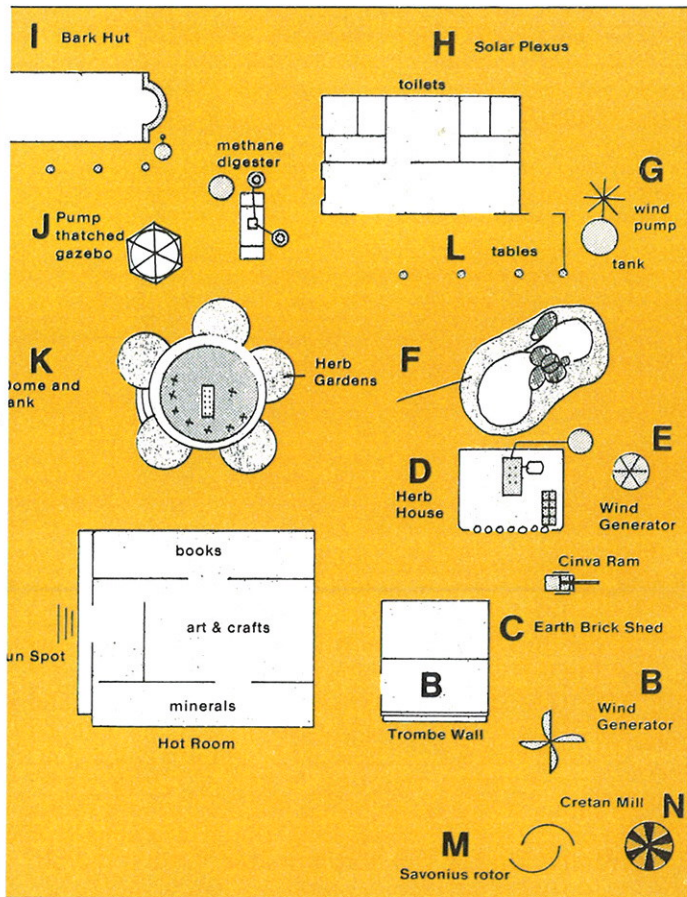
which passes the electricity made into a bank of 32 Volt lead-acid Century Home-Lighting batteries kept in the Herb House. This electricity is used for the lights and fans in the Sun Spot. There is no Electricity Board power used at the S.P.E.C. It all comes from the wind or the sun.

- (C) **THE GARDEN SHED** is one of the newest buildings on the Complex and is made of earth from my dam. The earth is mixed with a small amount of cement and put in a press to make bricks, this one is called ‘Cinva Ram’. Water proofing **white wash** of the Pilgrim Fathers recipe is the finish used on this building. There is a simple Michelle Trombe Wall on the northern face to heat the air.
- (D) **THE HERB HOUSE** contains the power plants or “Herbs” of the Complex, such as the battery bank from the wind generators and the machinery worked by the **gas producer** that uses charcoal and water to produce carbon monoxide and hydrogen. This gas passes into a reconditioned Holden engine that will run a generator to charge the battery bank if the Dunlite is out of action. The system was made by Clyde McCosker and is based on a gas producer that he made in 1944 and that I bought at an auction in 1977.

On the northern side of the building is a wall made of water-filled flagons and a shutter covered with foil to reflect the sunlight onto the bottles. The sun heats the water in the bottles during the day and at night, the shutter is closed to hold the heat and disperse it gradually into the room overnight. The batteries in the building work better at a constant temperature.

- (E) **TREVOR BERRILL’S** bicycle wheel wind generator has

Diagram of Grounds



aluminium blades fixed between the spokes of the bicycle wheel. Three dynamos charge a six volt battery by friction on the rim of the wheel. In a 20 knot breeze it may make about 200 watts.

HERB GARDENS surround the pools and the Dome. Some plants or seeds may be available for sale in the right season.

THE WINDMILL is reconstructed from two that were made in 1942. Familiar to country people all over Australia, the fan wind pump has been used for centuries and has many variations. This one pumps water from the underground tank under the Dome to the high tank to give pressure for the toilets and kitchen.

THE SOLAR PLEXUS. The centre of our basic needs has the kitchen on one side and the toilets on the other. Water for the kitchen is heated by the Solar Flat Plate Absorber

on the roof. We have problems with frost here so the absorbers are double glazed.

(I) **THE BARK AND SLAB HUT** is a replica of the early homes here, when courageous people came to mine tin, grow vegetables, fruit and livestock, with little more than their own ingenuity, perseverance and physical strength to help them overcome the hardships of those early days. It was built by Keith Belford after the style of his grandfather's cottage, it has an ant-bed fireplace and floor and authentic hand-adzed red gum slabs. At present the hut contains labour saving devices of the past. The relics have been given or lent by the pioneer families of this district. You will note the contrast in building methods in the various buildings of the Complex. To make best use of the materials available, countless forms of building have been used through the ages. We are fortunate to have so much granite and sand on the Granite Belt to use for building.

(J) **THE PUMPS ON THE WISHING WELL.** The familiar windlass and bucket is the simplest water raising device, but there is also an ancient cast iron washer pump whose handle you may "pump" up and down. The Solar Pump which works from a Sun or wind charged battery may be installed soon. The "hanging beam" type of roof on the well house is interesting and also the thatching for which we used a local grass.

(K) **THE GEODOSIC DOME.** This type of construction is self-supporting through the design of its framework, thus allowing a large internal area to be enclosed without any obstructions. The kit for the dome is basically a greenhouse but it is ideal for displaying models. The solar voltaic cell array on the outside top of the dome faces north at an angle of 45°. The 36 cells are made of silicon plates incorporating special metal wires that carry a tiny current when the silicon molecules are activated by sunlight. When connected in series these cells together produce about 1.5 amps. A diode stops them discharging at night.

The models in the dome demonstrate many energy forms: Solar:

- Sundials** — Shadow cast by Earth's movement.
- Fan** — Works directly from the cell array.
- Radiometer** — Spins by the differential heat rays absorbed by shiny and blackened metal fins.
- Music Box** — Works by the tiny current produced in its own photovoltaic cell.
- Distillation** — Is effected by the evaporation of water by the Sun's heat and its condensation on the sloping glass roof — down which it runs to be channelled back into the evaporation tank.
- Reflecting Parabolic Cookers** — Concentrate the sunlight that falls on the reflective surface onto a focal area where the cooking vessel is placed. For best effect these