should track the sunlight, otherwise they are often "Out of Focus". The sun tracking parabolic trough collector can be fitted with a water or oil carrying system that gives very high temperatures.

The Telkes Oven — This is another simple reflecting device not concentrating the Sun's rays as precisely as the parabolic type; but storing the heat that enters the oven like a "Hot Box". We cook biscuits in it usually, but it can manage casseroles and roasts.

Kevins Beebox Food Dryer works by the convectional movement of heated air through the drying chamber. Heated air flowing causes evaporation of moisture from the substance to be dessicated. The same principle can be used for wood, hay and grain drying.

Water Heaters of the flat plate absorber type are in use domestically now. Many makes are available for domestic hot water and for heating swimming pools.

The Fresnal Lens is a thin formed plastic lens through which the sunlight can be concentrated to extremely high temperatures at the focal point. It was used to do the soldering when these appliances were wired.

The Bees Wax Melter tilted towards the sun is a heat collector that melts wax from the honey comb very cleanly. The wax runs into the trough below and the dust and dirt are left behind on the grille.

models displayed here demonstrate in a small way just e of the methods of solar usage. There are countless cations in domestic and industrial fields that are yet to be . Think about it, learn about it in books from the bookshop do some experimenting of your own.

There is a paved and covered area for picnickers to relax out of the weather.

IS THE 44 GALLON DRUM made into a Savonius rotor and rigged up with a pulley and belt to work a milk separator – though we never use it for separating milk. A four-tiered Savonius motor made by Steve Mihalka is waiting to be set up to run a small compressor. What alternative energy potential this would be if wind energy could be stored as compressed air and not only as D.C. electricity in batteries!

Children love to try the simple **wind-speed meter** to see how fast the wind is blowing.

This is **A MINIATURE CRETAN WINDMILL** that grinds grain. The design is similar to the grain-grinding mills still seen on the Greek islands.

KEVIN SIMS of Oakburst near Maryborough built the cement **METHANE DIGESTER.** It is made in three compartments, the central one sealed off from the air. Fowl and goat manure, weeds, grass clippings and kitchen scraps are digested in it and the methane is collected in inner tubes for easy transportation. From a larger plant the methane could be compressed and used in the same way as LP gas.

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at

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What's It All About?

THE SUN POWERED EUKEY COMPLEX

ıe Sun is the centre of our planetary system and astro-ers tell us it is only one tiny star among billions in outer e. Our Sun converts mass into energy at the rate of about ıillion tons per second and will continue to do so for at another 4 million years. This huge and constant energy ce is the basis of all the energy we use on Earth. The rise all of air masses heated by the Sun is responsible for the ls which have been used as a power source for many uries. **Evaporation** and **precipitation** of water by the s heat give life-giving rain. Water flow gives hydro-electric er to drive our turbines for electricity production. **Light** the Sun's ultraviolet rays by the process of **photo-hesis** allows plants to grow that animals feed upon, so ing the basis of our agriculture.

hotoelectric conversion, which we are now learning to changes light directly to electricity. **Heat** from the Sun s the temperature of the surface layers of the sea, giving a **mal power** we may use to drive turbines in the future.

ıe whole spectrum of wave lengths that the Sun emits is et fully understood, but research is going on constantly adio and cosmic wave lengths that have been "discovered" umans quite recently.

nly part of the radiation from the Sun ever reaches Earth's sphere and of that, only half penetrates the dust and ous layers of air around the Earth. Much radiation remains ır outer atmosphere.

ıe amount of radiation any part of the Earth receives nds on its position on the Earth (latitude), on the conform-, such as a mountain or valley and on the atmospheric litions, such as cloud cover.

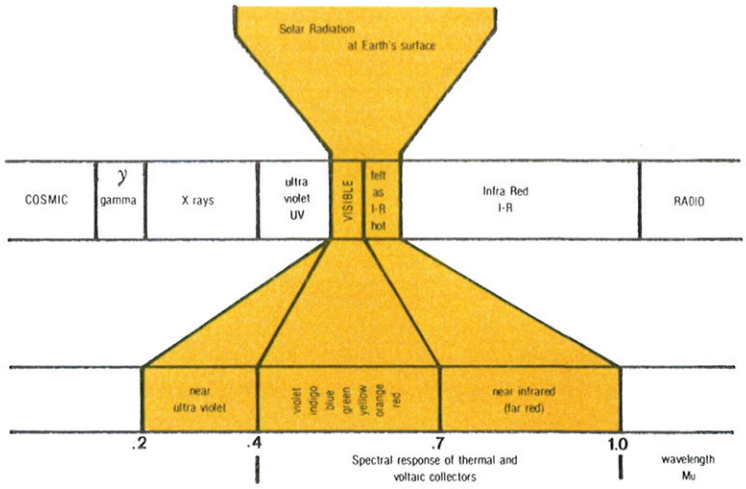
ıe position of the Sun in relation to Earth's axis can be ed right through the year. This should be taken into unt in building design to use the most beneficial aspect of Sun for heating in Winter and cooling in Summer.

Solar House should collect, store, distribute and retain of the Sun's radiation through the building in the Winter. It ld also be designed to prevent overheating in Summer by shading of overhang or vegetation, by orientation of the ing to catch the Summer breeze and by ventilating ıgh windows. These are ways of passive space cooling.

y studying the plans of the **Sun Spot** you will see some of e systems in use.

Solar Windows. The northern wall and roof are orientated o trap the Sun's heat directly inside the building. The heat ays can penetrate the glass and glass reinforced resin, but annot go back through it. The temperature of the inside air

THE SPECTRUM OF TOTAL KNOWN SOLAR RADIATION AT THE EARTH'S ATMOSPHERE



surfaces is raised, so acting as heat storage and heat radiators after the Sun has set.

(2) **Collector and Storage Building Materials.** Solar radiation penetrates the glass of the windows and roof and is absorbed by the concrete wall and concrete floor. These heated elements radiate the stored heat directly into the interior space of the building. Natural movement of air helps distribute heat.

(3) **In an Active Collector, Storage and Distribution System** such as that used in the gallery the Sun's heat in the **hot room** on the north side is trapped, warms air, walls and floor and is drawn through a **rock bed** under the floor which the hot air also heats. Wind charged electric fans then draw warm air out of the rock bed into other parts of the building.

The rock bed is eighteen inches of one inch basalt gravel insulated with sheets of plastic foam and lying directly below the concrete floor slab.

In some buildings, water, oil or air is heated in an absorber such as you will see on the roof of a smaller building (the Solar Plexus) and stored in tanks from which it is drawn through radiators in the rooms when needed.

The angle of the high section of the Sun Spot roof has been gauged to take this type of active system in the future. The heat from the Sun trap on the north side can be used over a dull weather period of three days. If cloud or rain persist, a back-up system of heating by wood burning room heaters can be used. Wood is a renewable source of the Sun's energy that we are squandering far too freely at present.

How can we store the Sun's tremendous energy?

Nature does that for us in many ways already by heating the Earth, growing vegetation, causing movement of air and water.