The Haybox

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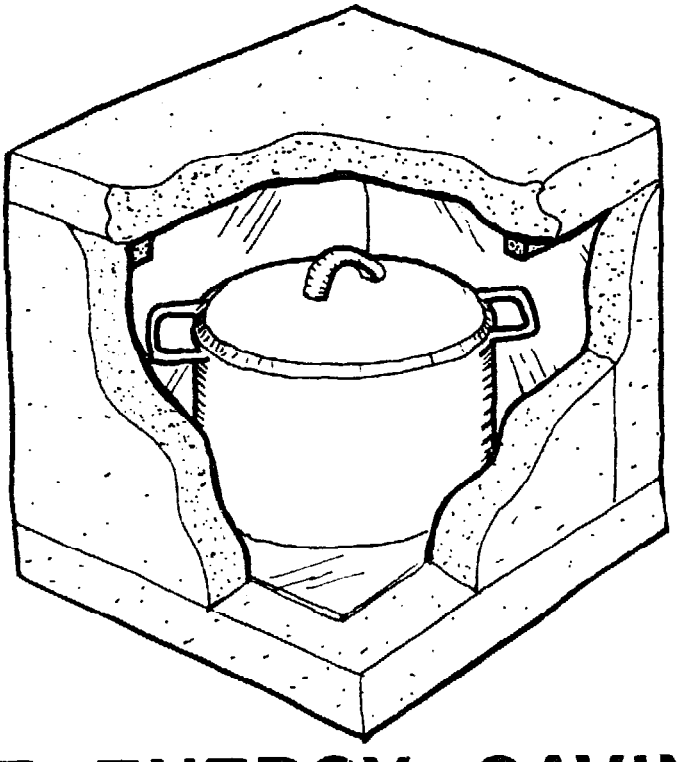

THE ENERGY SAVING COOKER

LOW ENERGY SYSTEMS

Technologies, which are compatible with more direct human control and involvement, are required in the emerging post-industrial societies. The skills, techniques and machines needed will be responsive to initiative in their design, construction, maintenance and improvement. This will lead to more dispersed and recentralised life support systems.

The energy needed will be supplied from renewable sources such as wood, wind and sun. These set natural limits on scale and concentration.

Low energy systems is a group committed to the co-operative.

STUDY
DESIGN
CONSTRUCTION and
DISSEMINATION of such low energy resource conserving technologies.

We are a non-profit organisation. All our resources are put to carrying out further research and development, and to meeting running expenses.

Primarily we are a research and development group. This is a continuous activity of invention, experiment, testing and information gathering. From this we have gained an extensive experience in the design and construction of low energy resources conserving technologies.

Based on this experience we offer information and advice to those wishing to construct similar systems. We help on the design, list the tools and materials needed, offer assistance on material working techniques and assist in solving difficulties encountered.

We work with individuals and small groups, and also with communities both urban and rural, who are seeking to evolve more independent and self-sufficient living and working patterns.

Contact us at 3, Larkfield Gardens, Dublin 6. Telephone 01.960653

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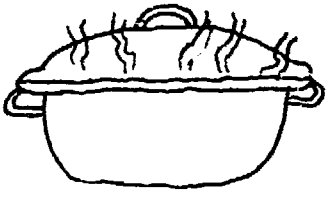
What is a Haybox



At a time when energy costs are rising rapidly with little prospect of levelling out, it is understandable that consumers should seek out methods of reducing their consumption either through the use of utensils and equipment which will provide the same or similar service but using less energy in the process or, through the consumption of less foods which require cooking, thus less energy is used.

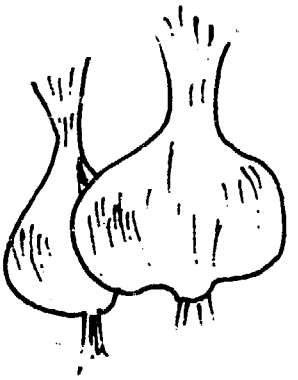
Planning the use of the oven so that it is always fully in use, cooking for more than one day, or using pots that completely cover the rings are all methods of economical utilisation.

However, with the use of a Haybox a high percentage of the energy used in cooking of many foodstuffs can now be saved – a formidable saving. Steeped in tradition, the Haybox was a part of the furniture in many rural homes for years. The meal was cooked slowly and most nourishingly, while the household worked in the fields. It is a simply made box containing materials which will preserve the heat in the pot holding the food and will cook the meal without the use of fuel.

In the modern kitchen, safety is a factor often stressed by various manufacturers and organisations. Haybox users may utilise their box without fear of fires or gases escaping. They may be allowed the comfort of putting their meal in the box to cook and go out to work/shop or pursue any other activity without mishaps occurring and with the knowledge that the meal will be cooked, warm, and ready when they return. Some cookers have a similar facility and are fitted with numerous gadgets to do the work which unfortunately can break down. This involves the continuous use of energy while you are out working or whatever. The choice of cooking your meal free of charge while you are out or cooking by means of continuous use of expensive fuels is yours.

In cooking in the Haybox, there is no mess caused by unattended pots boiling over. There is little cleaning involved. Some Hayboxes are layered with tinfoil which can be changed from time to time if thought desirable, but no meals we have cooked have ever boiled over in the box. Simple logic is on our side here.

The amount of water used in the cooking will also be reduced. As you are aware cooking in water removes the minerals from your vegetables. Cooking in the Haybox with less water helps to preserve the minerals and vitamins and refines the true taste of the food. You also avoid the continuous boiling of your food that some people engage in.



When cooking, the heat used may escape in any of three ways: Conduction, Convection or Radiation. It follows therefore that good implements should be used in cooking though they too will lose some of their heat via these three methods. By enclosing your hot pot in a Haybox you are now equipped to cut down drastically on this waste of heat.

conduction

The heat is transferred through materials. Some materials conduct heat quite well e.g. metal but others like wood and air are poor. Hence the wooden handle on pots and pans. By using materials like sawdust, wood or shredded newspapers, fibreglass, wool, foam plastic, rags, hay, straw which are all bad conductors of heat, the conduction of heat will be reduced.

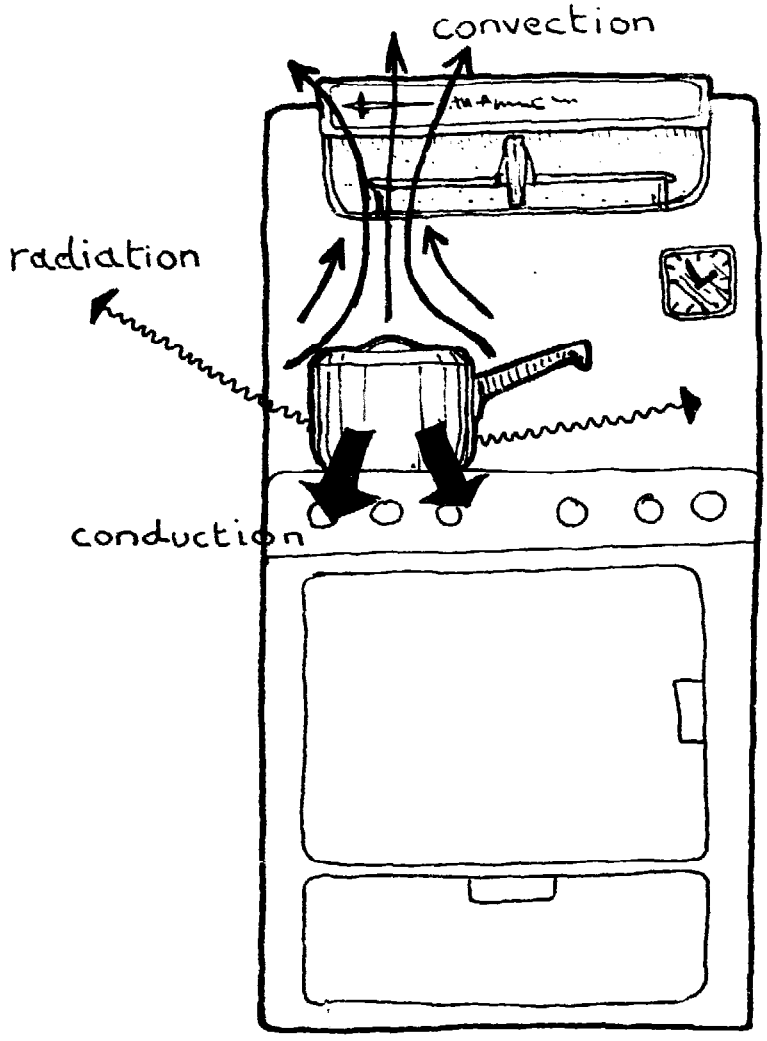
convection

The heat moves away in a liquid or gas e.g. in a convector heater the heat is moved about the room by the movement of hot air up and away from the heater. By not allowing the air to circulate about the cooking pot in the haybox any air surrounding the hot pot cannot make its way freely to cool air outside the box.

radiation

Here the heat is transferred to the colder objects in the surroundings by electromagnetic radiation. The same way some of the heat gets to the earth from the sun. The Haybox is lined with a shiny aluminium foil. The heat is reflected back into the box as a mirror reflects sunlight.

As you have seen the many advantages of the Haybox you must, on looking at one be immediately aware of its simplicity. More and more, the ability of people to control their own lives is being lost. If the cooker breaks down you call out the repair man, though years ago what would go wrong with the range you cooked on and when it did couldn't you repair it yourself.



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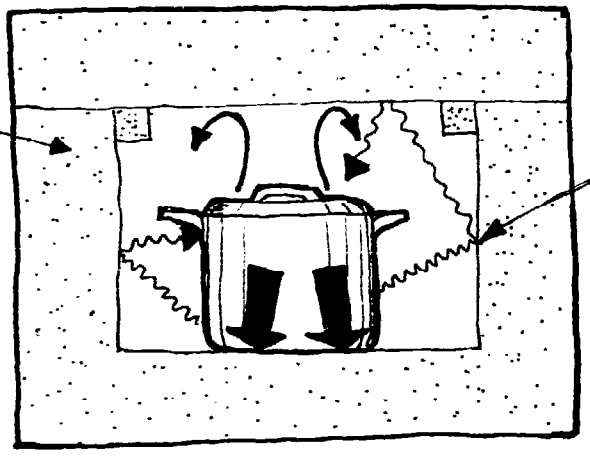


Insulated box greatly reduces losses by conduction and convection

Foil lined inner surfaces reflect back heat radiation

How to make one

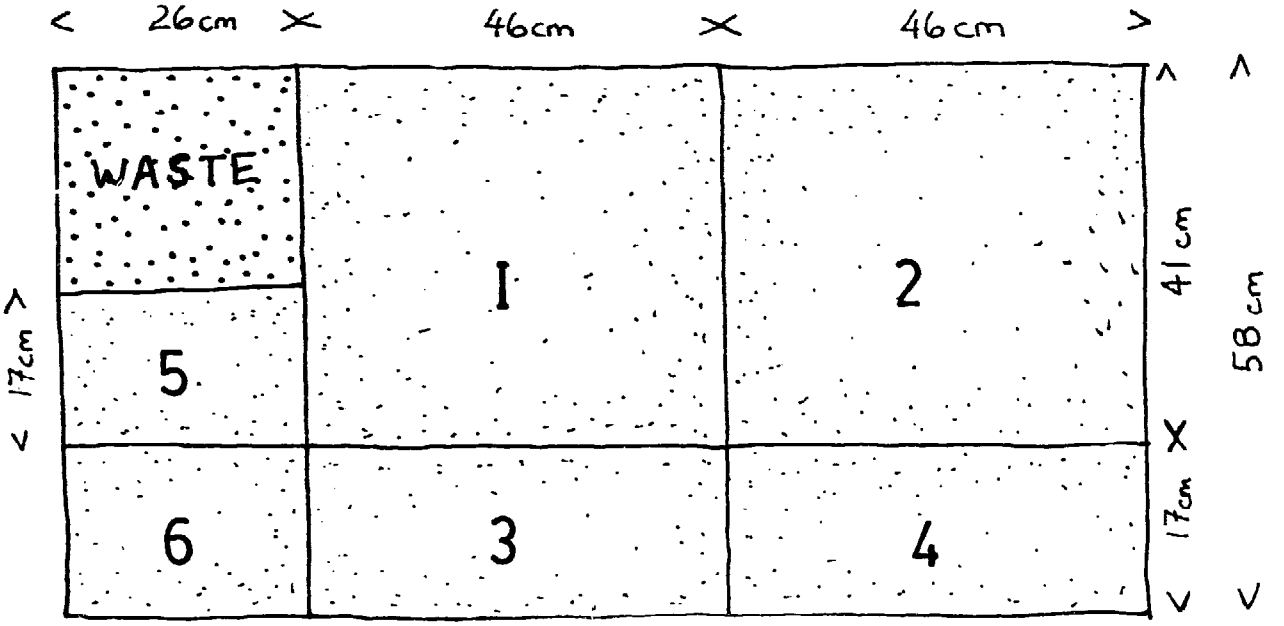
You can make up your own Haybox in a night or two and be ready to use it the following day. As will become evident the variation of design and materials are many and you may even discover other methods as you put your hands to work on it. We would love to hear your experiences and ideas. Below we give measurements and guidelines for a box that was made leisurely during two evenings. You may use any measurement you like – the ones below will make a box measuring 32 x 36 x 41cm and you will have only a small piece left over. The internal dimensions will be 17 x 31 x 26cm, more than adequate for an average pot. You could scale down the measurements to suit a smaller pot, remembering the less empty space in the box the better.

On a recent visit to a tiphead we found quite an amount of sheet polystyrene which could all have been used. It is a material that is very much available without having to pay for it, but should you want to go through more reputable sources some builders' providers stock it. Because of the nature of the material, a special glue must be used. This is the same glue as used for sticking polystyrene tiles on ceilings. Other glue will just burn through the polystyrene.

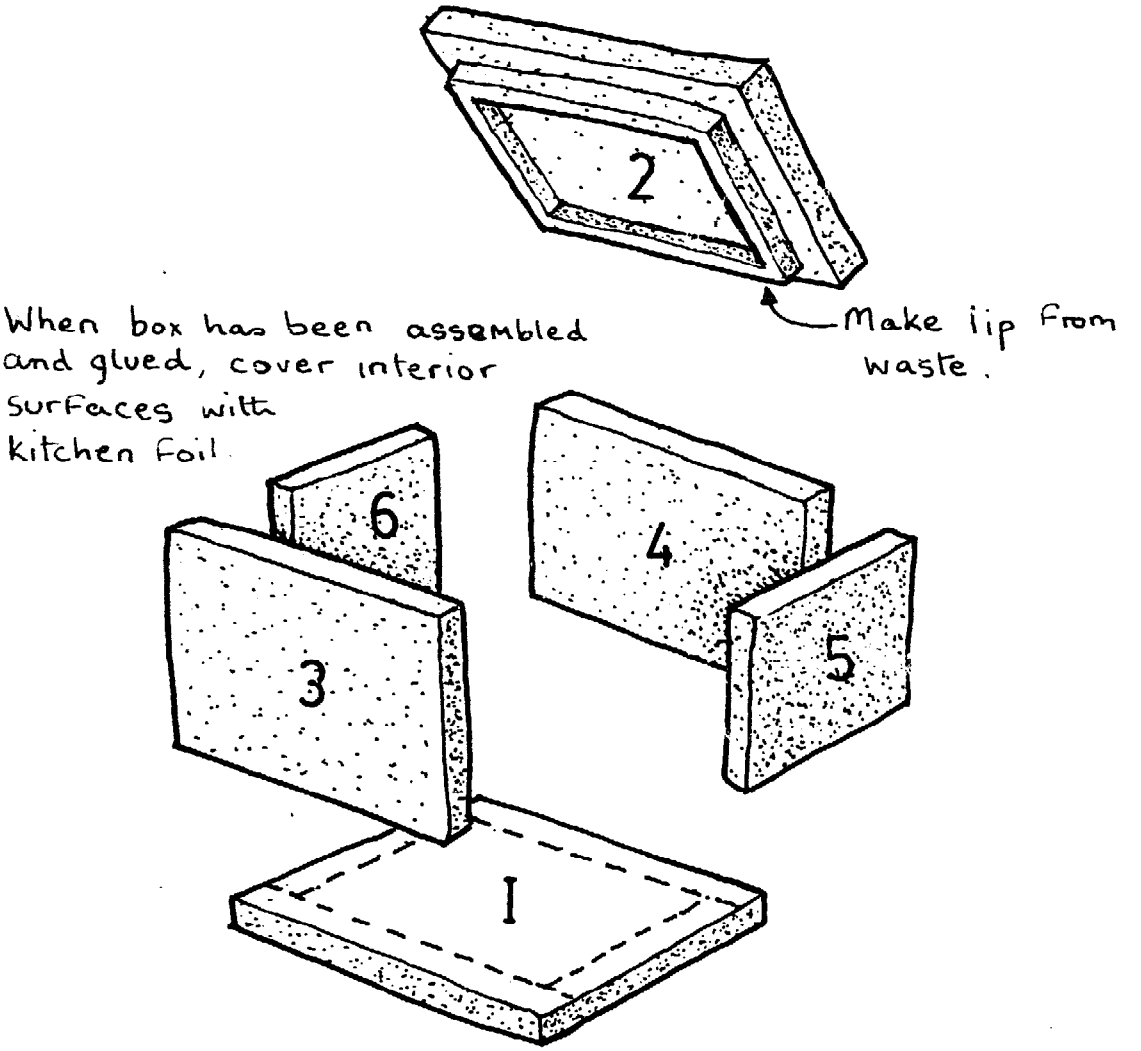
Be careful when making your Haybox - a little care now will mean better results whenever you use your box.

If you decide to use other measurements try to be as accurate as possible in cutting the polystyrene as a slip-up now will have to be sealed up with glue or will be the source of draughts later, thus reducing its effectiveness.

With a 118cm x 58cm sheet of 7.5cm thick polystyrene you can make one box if you follow the guide below.



Mark your measurements on the sheet as illustrated and cut with a sharp knife or hacksaw. Be gentle in cutting it. Remember it will cook your food for you and if you treat it with respect and love then that will also enter into the foods cooked in it. By being gentle you will avoid the polystyrene breaking away in lumps as can happen if you do it too quickly. and giving you the difficult job of filling in later on. A neat way to do this is by cutting with a "Hot Wire".



Each box consists of:

2 of 46cms x 41 Top and Bottom.

2 of 46cms x 19.7 Front and Back.

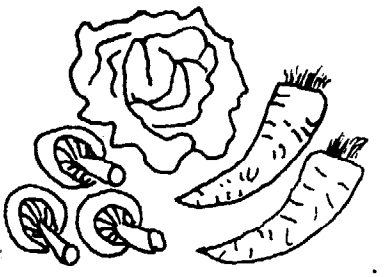
2 of 26cms x 19.7 Sides.

giving an internal volume of 17 x 31 x 26cms.

The box can now be assembled using the glue to stick the walls and allowing to dry. When dry, the inside should be covered with tin foil. Glue can be used to keep the tin foil in position. The lid can be completed with an additional piece to act as a mesh with the four walls of the box thus ensuring a tightly fitted lid and a good seal.

With the floor of the box covered with a mat – a piece of hardboard or strong cardboard would be suitable, you are now ready to use your box. The mat is used as a base for heavy pots.

Your box is now complete as a cooking aid or utensil, however, many users that we know of have extended its use. One of the better uses we've seen is where friends of our own built a light wooden box around the Haybox and with material and straw lined the sides. They put some cushioning materials on the lid and covered it with material and lined the sides in the same design thus making a beautiful stool and could joke about it being the hot seat. It had been transformed into a beautiful addition to the furniture with a dual role – if only more furniture was like this.



other ideas

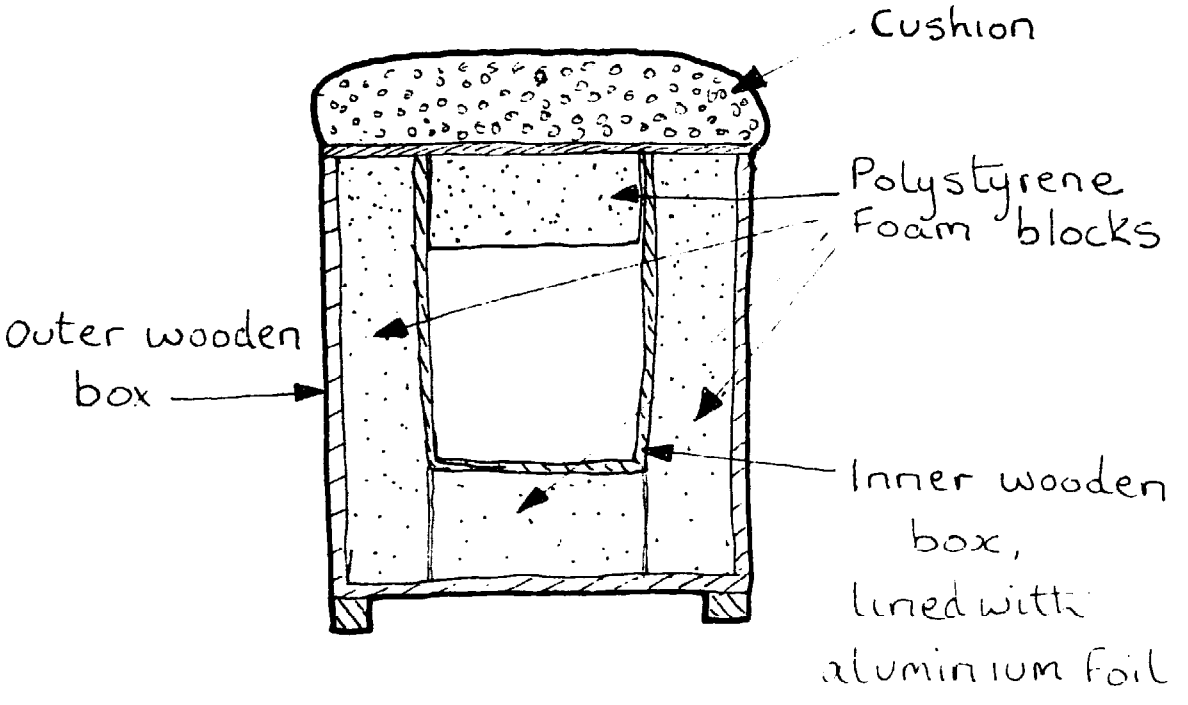
Before making the Haybox just described we would like to tell you how some other people have made them.

One couple we know have made a Haybox completely from items they have picked up from time to time. It consists of two wooden boxes one fitted into the other as shown.

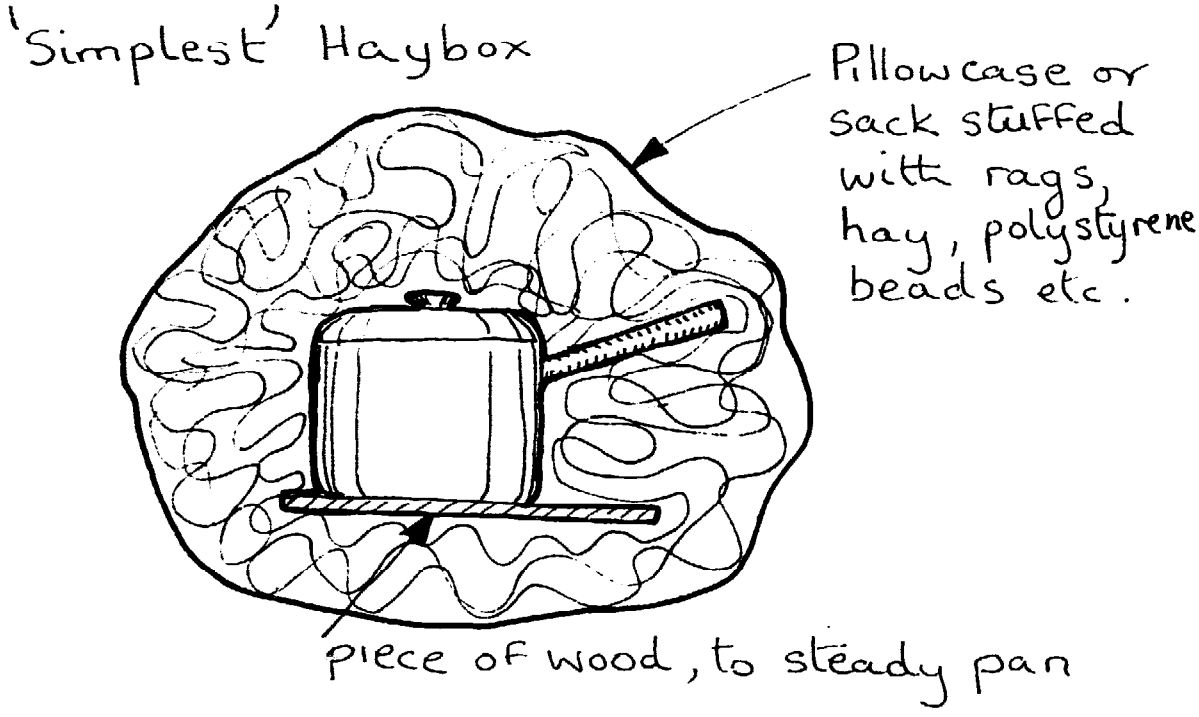
The floor of the larger box has been layered with sawdust, pieces of paper, rags and hay to a depth of 7.5cm and with the smaller box inserted, these materials are stuffed into the gap between the two boxes thus insulating it very well.

On the inside of the smaller box there is a layer of small cushions made simply from colourful pieces of cloth or flannel stuffed with insulating materials into which the hot pot is placed and some more bolsters and cushions are placed on the top of this to complete the insulation.

Haybox as a stool

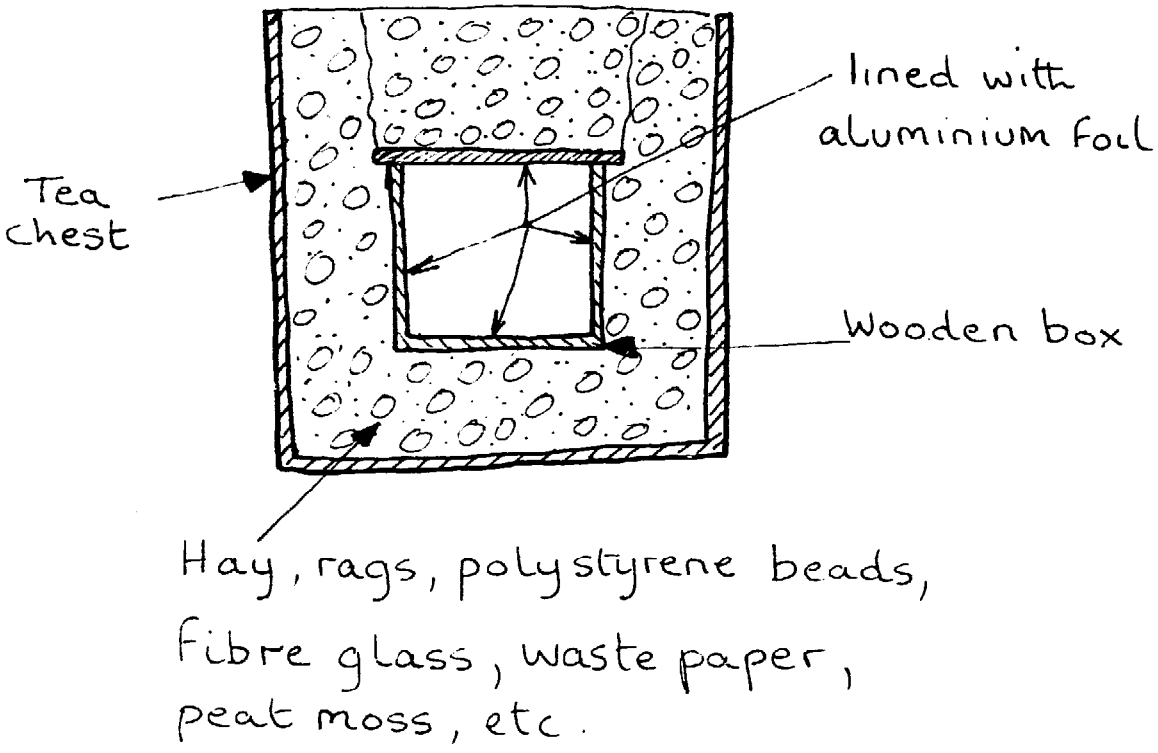


Their results with the box have been impressive. It is in constant use in their flat. They have transformed it from a unipurpose utensil into a fine seat simply by fitting some rags on the lid and covering it with material. The sides are painted to blend in with the rest of the furniture.



Prior to making their haybox they had utilised the same principles in a simpler method. They would bring the pot to the boil and then put it in bed and wrap it in blankets, thus insulating the pot and continuing the cooking process. They didn't say if the pot was ever disturbed by one of their children jumping on the bed.

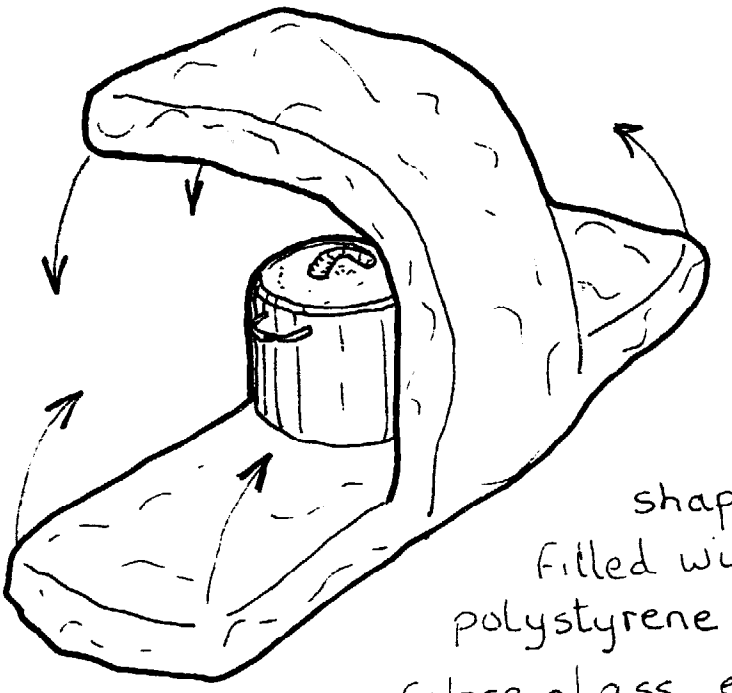
In their book Binnie and Boxall suggested that you make it from a large sugar box lined with brown paper or newspaper, then packed very tightly with hay. He advises using any remaining space by making a thick pad of hay enclosed in a piece of flannel or an old pillow case. "A Hay Box is most useful when gas is used for cooking, as it will continue to cook things otherwise requiring a small gas to keep them going."



E.M. Hildbeith's haybox consists of 4" insulation against each of the walls of the rectangular box lined with newspapers -- at least eight layers covered with brown paper and held in place with American cloth fixed by tacks or glue. The cushions taking up any remaining space were old blankets and cloth stuffed with hay.

Polystyrene, as we used it earlier was in sheets. It is available in beads also and if you make a pillow as illustrated and fill it with beads and hay you will have an effective pliable cooker that might double as a sagbag if made with a little foresight.

A quilt shape to fit the pot as illustrated and filled with fibreglass, hay or polystyrene beads will also produce good results and have the advantage of being able to be folded up and moved about easily.



shaped 'quilt' filled with hay, polystyrene beads, fibre glass, etc.

cooking in the Haybox

Below are a few recipes you could try out on your new Haybox. It can be used as stated for numerous dishes. What is below is just an aid and some suggestions but as in all cooking you can be flexible and varied in your timing, ingredients and combinations to suit your own tastes.

We have found that you do not need to use as much water to cook in the Haybox as you do in a pot on top of a gas or electric ring – roughly the same amount as in a pressure cooker.

In so far as possible always try to have as full a pot as possible to gain most value from the energy being used and it will cook proportionally quicker – this applies to cooking on an open flame or in the Haybox. We have always been fond believers in sauteeing vegetables first before adding water as this seals in the vitamins and minerals and we would certainly recommend this approach when using the Haybox.

Rice is well suited to being cooked in the Haybox. Use one cup of rice to 2 cups of water and a small pinch of sea salt. Bring to the boil and add your salt. Make sure the heat has passed through the rice by allowing to simmer for a short while. Transfer quickly into the box and seal. Ideally you should cook the rice until the bottom of the pot is slightly scorched. The yellow or scorched section being very yang and rich in minerals. There is no need to keep looking at your pot to see how it is doing.

Allow approximately 50 minutes before removing. The times for cooking you will have to decide for yourself for it will hinge on how well the box has been sealed. If well done, through time you may be able to improve it. We have no doubt you'll be pleased with the results. While rice referred to here is brown rice it can be used equally well for white rice. A tasty dish can be made easily, try adding one part half cooked beans (aduki beans recommended) to 8 parts rice and cooking as above.

Wakame or Kombu seaweed steeped for about 10 minutes and then used to line the pot before putting in your rice will blend in with the rice to provide a succulent base for your meal.

OAT AND BEAN SOUP

This is a fine soup that can be used to the thickness you desire. It is beautiful in the chilly winter months to be able to come home to the hot soup waiting for you in the Haybox.

Use one cup Lentils (or any other beans.) 4 cups water and a pinch of sea salt just before the end of cooking. Bring to the boil and allow to simmer until heat has spread throughout your heavy soup pot. Quickly put it in the Haybox and it will be ready to eat in about an hour, and will stay warm awaiting you.

Most types of beans need to be steeped beforehand. Lentils don't but will cook quicker if you do steep.

MILLET SOUP

Can be made thick as stew or with more water into a creamier soup.

1 tablespoonful of Sesame
½ Cup Carrots
½ Cup Sliced Onions.
½ Cup Pumpkin Sliced.
1 Cup Millet.
3 Cups water – to give thick consistency.
2 Teaspoons of Tamari.

Sautee vegetables initially and add millet, tamari and water. Bring to the boil before putting in the Haybox for about 30 – 35 minutes. The vegetables may be varied according to what is available or in season. Other grains may be used instead of millet e.g. Buckwheat.

PORRIDGE

1 cup Oatmeal.
2 cups water.

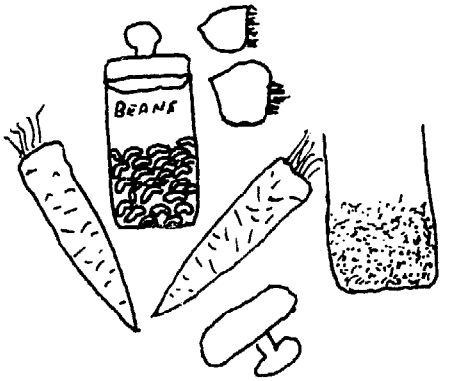
Heated through with dried fruits or nuts added if desired and left in Haybox overnight will produce a creamy Porridge. Potatoes take roughly the same time in the Haybox once brought to the boil as they would if they were boiled on an open flame.

Mrs. Beeton in her famous work "*Cookery and Household Management*" found that the Haybox was especially useful for the cheaper cuts of meat and fowl which are made remarkably tender. She recommended it for fruits that require long slow cooking such as apple rings, figs, prunes, and also porridge and Barley water.

The dishes you cook in the Haybox are not by any means limited but it is especially good for items which take a long time, e.g. Rice, Beans, Spaghetti, Soups. Grains etc.

When your meal is cooked and you're cooking for a number of people, your plates can be kept hot not by having to have the oven on all the time or any other energy but by putting the hot plates in the box they will be at a fine temperature when you come to serve your meal.

The very fact that the Haybox maintains its internal temperature so long and so well means that it can have another quite interesting application, as a Fridge. By lowering the temperature sufficiently inside it could be possible to keep that bottle of white wine chilled or any other item cold for quite a period. One can think of some useful application in hot summer days.



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