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Solar Water Heater

By

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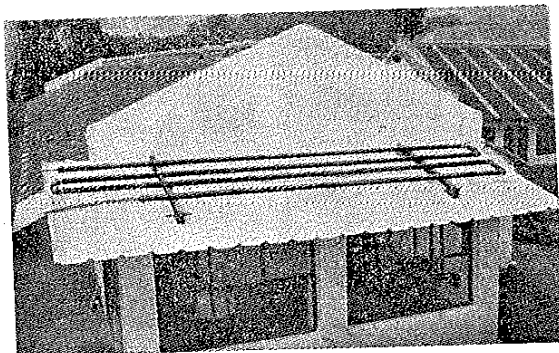
A solar water heater can partly and inexpensively solve the hospital hot water problem. Two conditions are necessary to make it practical :

1. An unobstructed sunlit area such as a terrace or roof preferably facing east.
2. A reasonable number of sunny cloudless mornings. If 30% or more of the mornings are such, a solar heater would justify its existence.

There are three drawbacks :

1. It works only on sunny days.
2. It will not supply hot water during the first few hours of the morning.
3. It will not supply very hot water.

The great advantage is low cost. Here are the performance statistics of the model shown in the picture.



Solar Water Heater

2nd January, 1957

Air Temperature	Incoming Water	Cold Supply	Outflow from Hot Water Tap
8 A.M.	66° F	76° F	81° F
9 A.M.	70° F	78° F	90° F
10 A.M.	74° F	80° F	110° F
11 A.M.	77° F	80° F	110° F
12 Noon	80° F	80° F	110° F

3rd April, 1957

8 A.M.	83° F	87° F	96° F
9 A.M.	86° F	89° F	106° F
10 A.M.	89° F	90° F	116° F
11 A.M.	92° F	92° F	126° F
12 Noon	93° F	94° F	130° F

The construction is simple.

Materials required :

Number of lengths of pipe of calculated size.

(N-1) × 2 Elbows of same size.

N-1 Connecting pieces 6 to 12 inches long.

2 Reducers for connecting heater and two smaller pipes for inflow and outflow.

2-3 × 4 inch teak timbers for supports.

Suitable fasteners.

Suitable lengths of 3/4 inch or 1/2 inch pipe for inflow and outflow connections.

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In Appreciation

On the eve of commencing my studies at the Royal College of Nursing-London, I am writing to express my appreciation and to again extend my thanks to the TNAI for selecting me for the award of the Minto Scholarship.



Mr. M. A. Ahad

The opportunity given to take the Sister Tutor course demonstrates the impartiality with which the TNAI regards its members. I am aware that it is an honour and I humbly accept it not just for myself but on behalf of men nurses.

I shall do my best to make the most of this wonderful opportunity to widen my knowledge and further my general experience so that I may bring back to India something of real value to our profession and to our Association.

M.A. AHAD.

XIXth International Red Cross Conference

Under the Chairmanship of Rajkumari Amrit Kaur, the XIXth International Red Cross Conference will meet in the new Conference Hall, New Delhi, from October 28 to November 7, 1957.

The President of India, Dr. Rajendra Prasad who is the president of the Indian Red Cross Society, will inaugurate the Conference and Prime Minister Nehru will also address the assembly.

The theme of the Conference will be "Protection of Population". This choice of theme topic is of special significance to human welfare. The discussions will assuredly influence International regulations concerning the protection of civilians against the dangers of indiscriminate warfare.

93 countries who are signatories to the Geneva Convention and the 84 National Red Cross Societies are likely to send delegates. Several National and International Organisations have been invited to send delegates.

The International Council of Nurses will be represented by Mrs. Van der Gracht; and the TNAI by Miss I. Dorabji.

Solar Water Heater — (Contd. from page 314)

- 1 Bib tap for hot water supply.
- 1 Wheel valve for inflow shut off.
- 1 Pint Dull Black paint for coating heater pipes.

(Black absorbs heat more readily).

The pipes should be placed with each succeeding pipe at least slightly higher than the other. Since hot water tends to rise, the cold water supply should come into one end of the lowermost pipe. The hot water outlet should be at one end of highest level pipe.

The pipes themselves should be painted a dull black to promote heat absorption.

Heating efficiency is increased if the surface beneath the pipes is a reflecting surface. Zinc sheets, aluminium paint, asbestos sheets or even white washed surface are all good reflectors.

The pipes should be spaced at least three times their diameter apart so that sunlight will be reflected onto their posterior surface.

Now how to decide on number and

size of pipes to use.

Three factors govern this:

1. Desired capacity in gallons.
2. Desired rapidity of heating.

(Smaller pipes heat the water more quickly than large).

3. Cost of size and number of pipes selected on basis of first two considerations.

Some statistics on Galvanized Iron pipe.

Internal diameter of pipe	Ratio of Cu. In. capacity to Sq. In. of surface	Feet required for 1 Imperial gallon	Price per foot	Approx. cost per gallon capacity
1"	1/1	29.4	Rs. 0.88	Rs. 26.00
2"	1/1	7.37	Rs. 2.13	Rs. 15.70
3"	1/1	3.28	Rs. 3.50	Rs. 11.50
4"	1/1	1.75	Rs. 4.62	Rs. 8.10

The solar heater shown in the picture consists of 4 lengths of 3 inches galvanized iron pipe each about 20 feet long. This gives a capacity of about 25 gallons.