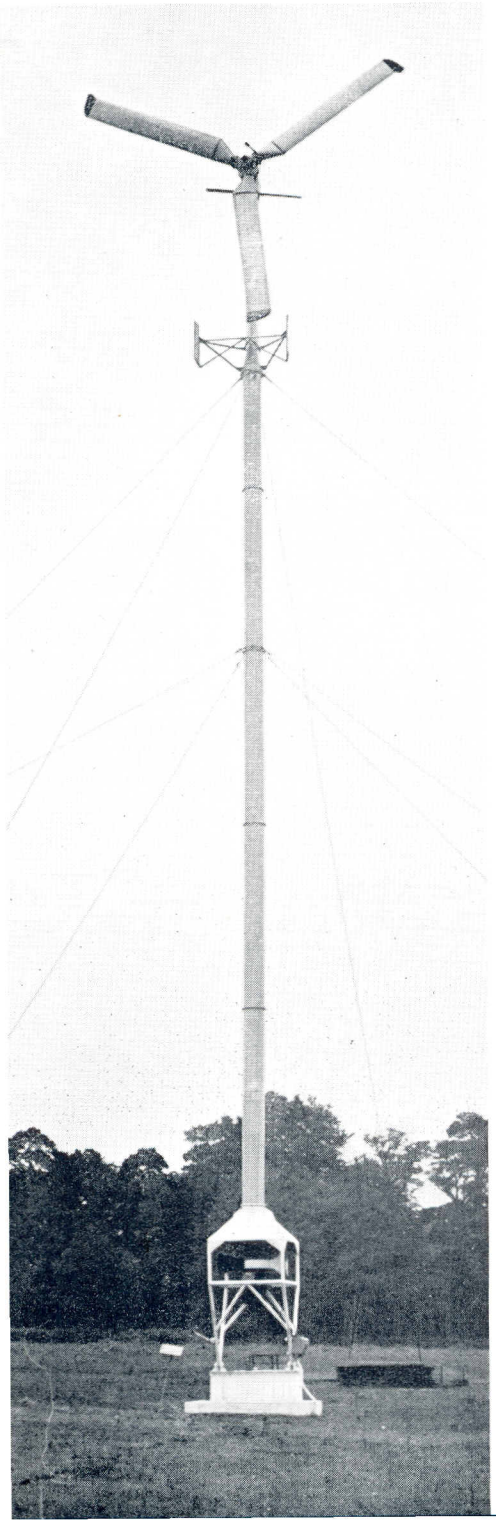
COOKING
BY WINDMILL

By
D. H. Middleton



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TO the best of our knowledge and belief, an "Eighty-four" Cooker is the first gas appliance in the world to be operated by Hydrogen which has been produced from water with power generated by a windmill.

The Hydrogen is produced at Prae Wood, St. Albans by Enfield Cables Ltd. in an exhibition which displays a wide range of machines and processes all operating successfully on fuel or power created by harnessing the winds.

Throughout the ages, man has sought to convert the force of the wind into mechanical power but the few remaining windmills derelict in this country testify to the uneconomical and inefficient results hitherto achieved.

Now a new principle is being applied, and although an enormous amount of research and experimental work remains to be done, practical results have already been achieved.

The conventional method employed in the past was to have some form of mechanical transmission direct from the shaft of the windmill. The Enfield project bears no relation to this, its success arises from the application of the well known principle of centrifugal force.

If an object is tied to the end of a piece of string and swung round and round, the string will remain taut. Should, however, the knot become loose, the object will be thrown off with

Left : THE WINDMILL WHICH GENERATES THE POWER FOR THE PROCESS PRODUCING HYDROGEN FUELLING THE "EIGHTY-FOUR" COOKER.

THE HYDROGEN FUELLED " EIGHTY-FOUR " COOKER IN USE. BEHIND THE PARTITION IS THE PLANT WHERE WATER IS SEPARATED INTO HYDROGEN AND OXYGEN.

considerable force ; in fact, by the action of centrifugal force.

To apply this principle, a hollow tower has been built, to the top of which a hollow propeller is fitted, the latter being revolved by the wind just as the old fashioned windmill was.

At the tips of the propeller blades, on the edges which are not facing the wind, there are air outlet holes. As the propeller revolves, centrifugal force throws out the air from these holes in exactly the same way as it would our object if the knot in the string became loose.

When the air is thrown out, more air moves *up* the hollow tower into the propeller to replace that which has been ejected and is in turn thrown out through the holes. This process is continuous and the up-draught in the hollow tower reaches a tremendous velocity.

This high velocity air stream is utilized to rotate an air turbine built into the lower part of the tower. The turbine shaft is coupled to a generator which converts the wind power into an electrical power supply.

Having obtained electricity at a negligible operating cost, it becomes a comparatively simple matter to apply it to a wide range of electrical, mechanical and chemical operations and processes.

One of them on show at the exhibition is the separation of water into hydrogen and oxygen, the hydrogen being used to drive a gas engine and also as fuel for the operation of a converted " Eighty-four " Cooker.

This conversion was the result of a dinner at which Lord Verulam, the Managing Director of Enfields told Mr. Kenneth Davis the story of this new project. Mr. Davis arranged for Central Laboratories in Birmingham to make new burners of similar power for the otherwise standard cooker.

The cost of power produced by this new type windmill is calculated to be a farthing per kilowatt hour as compared with the cost of nearly a halfpenny per kilowatt hour for electricity generated by the orthodox coal-burning steam generating plant.

The possibilities of this new form of wind power utilization are so great that the British Electricity Authority have taken the initiative in supporting the Enfield project. They visualise the erection of a number of large wind-power generators in suitable spots as an economic and therefore valuable means of feeding cheap electricity into the national grid system.

Those of us without town gas who prefer the advantages of cooking with gas will perhaps have a windmill on our house-tops !

A CLOSE-UP OF THE HOTPLATE WITH A PAN SUPPORT REMOVED TO SHOW THE SPECIAL BURNERS.

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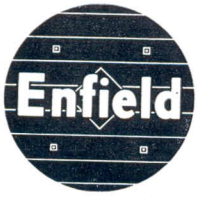

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