

Physics forum

Turbines generate electricity with 'wave power'

(This column is intended as a forum for airing technical questions of importance with emphasis on how these questions affect our area. It is sponsored by the Membership Advisory Committee of the American Physical Society, a small group of area scientists from industry and education. Questions and comments from the public are invited. Write The Observer & Eccentric, 1223 Bowers St., Birmingham, MI 48064. Attention: Physics Forum)

By Membership Advisory Committee
American Physical Society

Q. I have heard the term tidal power referred to as one of the new energy sources. I presume that means using the tides in some way. But, How?

A. Two major methods have been proposed. In one, a dam would be built across the mouth of a bay. Such a dam has already been built in France though with relatively little success. This approach might be a very realistic possibility say in the Bay of Fundy in the maritime provinces of Canada, where there are tremendously high tides.

Another approach, better termed "wave power", has been suggested recently. Large breakwaters would be built with moving vanes or paddle-wheels. Incoming waves would turn the vanes which would drive turbines to generate electricity.

This approach differs from the first in that it taps the rolling, rather than the up and down, motions of the waves. It is estimated that such wave generators could provide all of Britain's electricity requirements.

Q. In past articles you have mentioned all sorts of great new forms of energy-nuclear, solar, geothermal, etc. It seems to me like the same old thing of a lot of talk but no action. Just which of these should we concentrate on and when can we expect some results? We need energy now!

A. I agree with you that we "need energy now!" or at least more and cheaper energy resources than we have now but I don't think anyone

really knows for sure exactly when these resources could be available. If I had to guess I would say that in the very short term of the next 10 years we will have to make do with pretty much what we have now, namely, fossil fuels. I can almost guarantee that in this period we here in the U.S. will go back to the use of coal to replace or supplement gas and oil. In this near term we may see more and more nuclear fission power unless

the viewpoints of the more adamant environmentalists hold sway. From 1985 to the year 2000, coal and nuclear fission power will probably predominate, possibly supplemented more and more by solar power in certain regions. Beyond 2000, solar and the new nuclear fusion should be the primary energy forms. An important consideration is the regional aspects. Where we have perhaps made such a big mistake in the

past is in our dependence on only one or two forms of energy utilization for all regions of the nation. Why should Florida, for example, be almost entirely dependent on oil and gas for power when one of the things that makes Florida what it is-sun-isn't even considered. The same thing holds true for Arizona, New Mexico and much of the western states.

Q. Sometime ago the Freon con-

troversy was "aired" in your column. It was pointed out that Freon must reach the stratosphere before reactions could take place which might upset the ozone balance. Now I know that Freon is heavier than air. So how does it reach the stratosphere?

A. If the Freon were contained within a balloon, it would not rise to the upper reaches of the atmosphere since it is heavier than air. However,

if it were allowed to mix with the air, then it could rise even though Freon molecules are about four times heavier than air molecules. One aid to this upward mixing would come from air currents or wind. A less obvious vehicle to this upward motion is the diffusion process, whereby the gas particles intermingle as a result of their spontaneous movement. The net movement in this case is from regions of higher to lower concentration.

AN OPEN LETTER TO CESAR CHAVEZ FROM ERNEST AND JULIO GALLO

Dear Mr. Chavez:

We are surprised that you are requesting an election by the Gallo farm workers, who are the highest paid farm workers in the continental United States with the best package of fringe benefits.

You know that Gallo has a legally binding contract with the Teamsters Union; the union chosen by the Gallo farm workers to represent them.

You know that Gallo cannot unilaterally break that contract any more than Gallo can break its contracts with the three AFL-CIO unions representing other Gallo workers.

You know that, if Gallo yielded to your request, Gallo would violate its contract with the Teamsters and become subject to Teamster strikes, lawsuits and other harassment, including boycotts.

You know that Gallo is now and always has been perfectly agreeable to an election if you and the Teamsters would agree to such an election, and if the results were legally binding and enforceable on all parties.

You know that the answer to this problem is in legislation - not marches, boycotts, and demonstrations.

You know that Gallo has long supported legislation, state or federal, to give farm workers and their employers the same rights, benefits and protection given most other American laborers and their employers under the National Labor Relations Act.

You know that, so far, the only reason we do not have a California labor law like the National Labor Relations Act is because you oppose such a law.

You know that California farm workers need and deserve such legislation, under which most other American labor has grown strong and prosperous.

Isn't it time, Mr. Chavez, that you change your position, and join the rest of organized labor and Gallo in seeking legislation to bring farm labor under the protection of the National Labor Relations Act, or an equivalent state law?

Ernest Gallo
Julio Gallo

WRITE YOUR LEGISLATORS TO INCLUDE FARM WORKERS UNDER THE NATIONAL LABOR RELATIONS ACT OR ITS STATE EQUIVALENT.
FOR ADDITIONAL INFORMATION WRITE: E. & J. GALLO WINERY, P. O. BOX 1134, MODESTO, CALIFORNIA 95353

Beverly reports safety runs

BEVERLY HILLS—Police and fire vehicles traveled 11,723 miles throughout the village in January following up a total of 32 crimes, making 12 fire vehicle runs and issuing 101 traffic citations.

The statistics were included in the monthly report released by the Beverly Hills Department of Public Safety.

Vandalism and larceny were listed as the most common complaints, with residential burglaries next.

Total value of articles taken in the larcenies is estimated at \$1,940, and vandalism amounted to \$75, according to the report. Eighteen physical arrests were made during the month.

The breakdown follows: assault, 1; burglary, 4; larceny, 11; automobile theft, 1; fraud, 1; stolen property, 1; vandalism, 6; narcotic drug law violations, 2; driving under the influence of liquor, 2; and drunkenness, 1.

Twenty-five traffic violators were charged as the result of radar enforcement. 52 citations were for hazardous and 25 for non-hazardous violations.

Pupil costs reported

BLOOMFIELD HILLS—The Bloomfield Hills Schools ranked 10th in the state in per pupil operating expenditures during the 1973-74 school year, the State Board of Education has reported.

The average cost of educating a child in the Bloomfield Hills Schools was \$1,500. The Oak Park Schools, at the top of the list with a per pupil expenditure of \$1,940, is the only other Oakland County district among the top 10.

Per pupil costs in Michigan's 531 kindergarten through 12th grade school districts ranged from \$721 in Tuscola County's Vassar Public School District to Oak Park's high figure.

Oak Park also ranked number one the previous year with a per pupil expenditure of \$1,600.

The average per pupil costs for all public school districts in 1973-74 was \$1,052, up from \$8320 the year before.

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