

New developments in the field of solar stills were reported by American and Algerian researchers. They indicate that although solar stills cannot produce fresh-water at prices acceptable to large-scale consumers such as farms and large cities, there is no doubt that small stills can provide drinking water at reasonable prices in areas where none is available.

One of the most efficient plant cultures that has received considerable study in recent years is the algæ, *Chlorella*. Many papers were therefore devoted to its characteristics. While no one exactly agrees on the energy conversion efficiency of *Chlorella*, it appears that under favourable conditions, *Chlorella* will do better than most higher plants. *Chlorella* therefore may provide a technique for increasing the world's food supply and possibly even for producing fuels for use in conventional boilers. Unfortunately, to date no strain of *Chlorella* has been found that will grow profusely without somewhat complicated and costly equipment.

Papers by N W Pirie (Harpenden, England) and P. C Mangelsdorf (Harvard University) stressed the merits of higher plants as storers of solar energy. Their contention was that if as much time, attention, and care were devoted

to certain higher plants as have been devoted to *Chlorella*, there is little doubt that increased growth efficiencies close to those demonstrated by some *Chlorella* strains would be obtained. Mangelsdorf pointed out that of approximately one-third million species of plants in the world, the world's people obtain the larger proportion of their food from approximately 12 species (potatoes, sweet potatoes, cassava, cane, beets, rice, wheat, corn, soya beans, common beans, coconuts, and banana). The various types of plants mentioned (root plants, sugar plants, grains, beans, and trees) appeared to him a promising field for the study of hybridization.

It is probable that in the years to come the emphasis of research will be directed toward attempts at modifying the genetics of higher plants to increase, among other things, their protein productivity.

The symposium revealed that there are immense possibilities in the utilisation of solar energy, provided suitable converters are evolved. It also brought out the fact that the fundamental aspects of the techniques or such a conversion have been fairly well studied and that a concerted effort should now be made by scientists, engineers and industrialists to carry out research into the practical application of these methods.

#### DIAMOND AS A PINPOINT RADIATION COUNTER

SINCE van Heerden reported that silver chloride at low temperature would detect  $\beta$ -particles, several other crystals have been found which possess this property, and diamond is one of the most useful of them. Cotty (*Nature*, 1956, 177, 1075) has observed that certain types of diamond will act as ideal radiation counters at room temperature for  $\alpha$ - and  $\beta$ -sources usually used in the laboratory, and are as efficient as the Geiger counter.

Diamond has physical and chemical properties which makes it an attractive material for use in a practical counter. Physically, its density is such that diamond has a stopping power nearly three thousand times greater than that of air, and electronically, the density (and the  $\gamma$ -ray absorption) of carbon is of the same order as that of human tissue. Thus a high-speed particle would penetrate both diamond and tissue to about the same degree. Consequently, if the diamond counter were to be used to measure the dose-rate on patients receiving deep therapy or similar

treatment, one would expect to get more accurate measurements than could be obtained with more conventional instruments. Furthermore, because of its chemical composition, diamond can be autoclaved and sterilized satisfactorily for use internally.

The only drawback against the use of every diamond for the purpose appears to be polarization due to space charges built up inside which oppose the externally applied field and reduces its counting efficiency. This is due to current carriers being captured by the trapping sites in the crystal. But Cotty has been able to sort 100,000 diamonds (by ultraviolet fluorescence tests), which are electronically perfect enough not to be seriously affected by polarization. These diamonds, it is claimed, make really efficient counters and maintain a reasonably steady counting rate for periods of several hours, perhaps indefinitely. Such diamonds have been in use for the past five years and hold out possibilities of ultimately being developed into a useful pinpoint counter suitable for specialised—probably medical applications.