lating at all times. As a practical example, I could get a crop out of both kinds of houses ready to sell in six to eight weeks. These were the Hahn's and the English Ivy. This amounted to three crops plus during the fall and winter months.

CONSTRUCTION COSTS: These were approximately $1.00 per sq. ft., including heater, blowers, and coolers. Heating cost were about $50.00 per month per house with the thermostat set at 68°F. Since my crops are not a high value type, as compared to other greenhouse crops, for economic reasons I had to lower the temperature setting to 50°F. Even at this setting, on a cold night the heater burned continously. A better method would be to recirculate the air, with an arrangement of louvers or ducts, bringing in fresh, outside, air only for the burner. The burners on the heater would not fire-up unless the blowers were turning as a safety factor. All operations for cooling were done manually. This includes watering the plants by hand.

CONCLUSION: I would say that the economic feasibility of an airhouse for a commercial grower will be based primarily on the longivity of the type of material used. There are coatings available to prolong the life of vinyl. Much more experimentation will have to be done by growers, much of it on a hit or miss basis. A more efficient method of fabrication could be attained if the plastics manufacturer could make wider sheets, thereby eliminating as many seams as possible; this alone would greatly reduce the cost of fabrication.

MODERATOR BODDY: Thank you very much, Ken. The next speaker on our program is Al Holland, the Agricultural Extension Service representative from Orange County, California. He, too, has worked very closely with air-supported houses and has spent considerable time with Ken's house. He has additional information, however, and at this time I'll call on Al Holland to give us that information. Al —

DEVELOPMENTS IN AIR-SUPPORTED PLASTIC GREENHOUSES

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Dr. Errol Rodda, Department of Agricultural Engineering, University of California, Davis, prepared a paper with the above title. It reports on two air-supported, water-anchored greenhouses which were used experimentally over chive plants. Construction details and estimates on costs of maintenance as well as production of some other crops are reported. It also briefly discusses air-supported row-covers.

From my experience I expect to see air-supported plastic greenhouses become quite common. There will be a diversity of designs for diverse uses. Some will be for long life and great durability against heat, cold and winds. Others will be

used with a minimum of cost but with greater risk of destruction.

A few suggestions I might take are the following:

1. A water anchor may have considerable value for certain conditions. I believe it can be most effective as a separate, one-foot diameter (more or less) tube and inserted in a larger fold-back tube made from the main greenhouse sheeting and running the full length of both sides of the greenhouse.

The fold-back tube could be cut at one or two-foot intervals to facilitate inserting the smaller tube into it. The inner tube could then be fully inflated with water, making possible an intimate seal to the ground with uniform anchorage regardless of soil unevenness or level. This would still allow the strong tear-drop shape of the outer tube. Stress points would be at a minimum if an open head is maintained at the highest point of the inner tube.

2. Larger capacity low-pressure fans appear to be very satisfactory, provided their vents can be closed and higher pressures built up by higher pressure capacity fans during strong windstorms.

3. A very low-volume fan can be adequate for quiet, cool, nights although much loss of heat is by radiation.

4. Modular construction might be considered. That is, end-domed areas having framed doors and vents (instead of zippers) could be made of nylon reinforced plastic sheeting. These might be constructed to connect to the main running area of a greenhouse by use of zippers. Do not use zippers which might corrode.

5. Cheap pressure control devices are possible. They could be installed to prevent rapid collapse of a greenhouse during a power failure.

MODERATOR BODDY: Dr. Tokuji Furuta is an Extension Specialist in Ornamental Horticulture and is servicing the entire state of California, operating out of the University of California campus at Riverside. Tokuji has been with us about a year and he's certainly become one of the most widely-traveled people in the state of California. Tok —

ANATOMY OF THE PLASTIC HOUSE — The Arkansas Razorback

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Dubbed the "Arkansas Razorback" by the editor of *Jed's Jottings*, this greenhouse was designed by Joseph W. Vestal and Sons, Inc. of Little Rock, Arkansas, a large producer of floricultural products. The clear span structure is simply constructed of prefabricated steel pipe arches and is covered with plastic.

The initial houses were 30 feet wide without posts or