IN SHORT, IN HORT

NEW YORKER HORTICULTURE

The *New Yorker* magazine best known for the wit of James Thurber and the cartoons of Charles Addams, has published some of the most influential articles in American journalism over the last quarter century including Edmond Wilson's "Scrolls from the Dead Sea" (May 14, 1955) and Rachel Carson's "Silent Spring" (June 16, 23, 30, 1962). The *New Yorker* has not slighted horticulture and over the past decade stimulating articles have appeared including a two-part series on the Florida Citrus Industry by John McPhee titled simply "Oranges" (May 7 and 14, 1966) –now available in book form from Farrer, Straus and Giroux, two articles by Berton Roueche, "A Friend in Disguise," October 28, 1974, about the merits of garlic and "One Hundred Thousand Varieties," August 11, 1975, about apples. In the January 24, 1977 issue, Thomas Whiteside takes aim at Florida's fresh tomato deal in a long article titled "Tomatoes" illustrated with a Steinberg drawing of a tomato on a dinner plate flanked by a hammer, chisel, and pliers. Whiteside writes unsympathetically about the cultural and shipping techniques which are alleged to have reduced consumer quality. The article refers to ASHS members M. Allen Stevens, Ray Volin, H. H. Bryan, and C. B. Hall and contains considerable copy on Florida's 'MH-1' tomato (See *HortScience* 10 (1) :2 and 11-12. 1975) whose resiliency withstands a 6 foot drop with a computed impact speed of 13.4 miles per hour, more than two and a half times the speed which federal auto-bumper safety standards provide for the minimum safety of current-model cars. Whiteside concludes with a broadside that will upset the Florida Industry: *". . .Now that the food industry has succeeded admirably in breeding tomatoes superior in gassability and crashworthiness, where is the flavor? Where has the basic quality that is supposed to be the raison d'etre of a tomato-'that delicious lush tomato taste--gone? It seems to have been lost somewhere in R. and D., and to have become a discounted, dispensable factor in the whole scheme of things. So the very quality for which people supposedly buy fresh tomatoes is precisely what an advanced system of research, growing, and distribution has succeeded in filtering out as economically unimportant. And, instead of the simple fragrant, tender, juicy, and glorious-tasting fruit we once knew, we see stacks of transparent sealed pinkish globes, still pallid after their stay in the gas chamber, resting peacefully in their plastic tubes, each of them embalmed in a thin coat of wax for cosmetic effect, and all uniformly dry, mealy, and insipid."*

Perhaps all this is moot in 1977 with Jack Frost taking care of this year's Florida winter crop.

AGRICULTURE: THE NATION'S LARGEST BUSINESS

Total assets of agriculture amount to more than $530 billion. This amounts to three-fifths of the capital assets of all manufacturing corporations in the U.S., according to the USDA. Between 14 and 17 million persons work in some phase of agriculture, from growing food and fiber to selling it at the supermarket. One farm worker now supplies enough food and fiber for 56 people.

APPLE-SHAPED PEARS

A few hundred acres of Asian pears in California may be predictive of the future, according to W. H. Griggs and B. T. Iwakiri, in *California Agriculture.* If the demand for these pears, some of which look like apples, continues to increase, the cultivar names 'Shinseiki', 'Kikusui', 'Chojuro', and 'Tsu Li' may become as well known as 'Bartlett', 'd'Anjou' and 'Winter Nelis'. Chinese and Japanese pears were developed from *Pyrus ussuriensis* and *Pyrus serotina.* They are crisp and juicy even when eaten ripe and have longer storage lives than the *P. communis* cultivars grown in the U.S. Asian pears first entered the U.S. in the gold rush days, brought in by Chinese miners, who planted them along streams of the Sierra Nevada. Later immigrants brought more seeds and scion wood. Today many trees are maintained in backyards. Commercial orchards are few, with the largest production area of 225 acres in Tulare County.

LAETRILE EVALUATION

The substance, laetrile, or as properly named, amygdalin, is a cyanogenetic glycoside found in seeds of apricots, peaches, and plums. Such glycosides are toxicants occurring naturally in foods. Similar compounds are in vetches, clovers, sorghums, cassava, lima beans, and acacias. They are characteristically hydrolyzed by enzymes (β-glycosidases) to yield a sugar, usually dextrose, and their second component, mandelonitrile, which consists of a molecule of hydrogen cyanide combined with a molecule of benzaldehyde. This component decomposes into benzaldehyde and cyanide, either spontaneously or by the action of a second enzyme. The cyanogenic glycosides have no food value or vitamin activity, although the misnomer, vitamin B_{17}, is used in the promotion of laetrile. Indeed, in cultures where the consumption of "laetriles" is high, chronic cyanide poisoning occurs in human beings as a direct result . . .

The use of laetrile to treat cancer was originally based on a proposal by Ernst Krebs, MD, that the substance would be broken down by an enzyme in cancerous tissue to liberate cyanide, which would "kill the cancer." This wishful concept was destroyed by the following facts: 1) there are only traces of β-glycosidase in animal tissues and even less in experimental tumors, and 2) cyanide diffuses rapidly and would poison the surrounding normal tissues, or be transported to cause systemic poisoning.

The proponents of laetrile then changed their strategy. Their next claim was that amygdalin was hydrolyzed to mandelonitrile, which was carried to the liver and converted to the β-glucuronide. This alleged compound was asserted to be carried to the cancer tissue, where it was said to be hydrolyzed by an enzyme, β-glucuronidase, with the subsequent liberation of cyanide. There was no basis for such a claim.

The sponsors of laetrile made an application to the Food and Drug Administration (FDA) through an "Investigational and New Drug Application." Their application was reviewed and rejected because of insufficient evidence that the product was safe and effective in the treatment of cancer. For the review FDA convened an outside committee of cancer experts to review all submissions. They also rejected the evidence as totally inadequate.

But the sponsors of laetrile, faced with a roadblock, proceeded to make an end run. Since their compound had been ruled out as a drug, they decided to transform it into a vitamin, thus making it a food rather than a drug. They hoped that this transformation would release laetrile for shipment in interstate commerce as "vitamin B_{17}." Of course, laetrile and its relative, prunasin, have not the slightest resemblance to a vitamin. The crucial property of a vitamin is that its absence from the diet produces a specific deficiency disease in vertebrate animals. The cyanogenetic glycosides do not have this property.

Thomas H. Jukes
J. Amer. Med. Assoc., Sept. 13, 1976

HORTICULTURE, ALCOHOL, AND ENERGY

Ethyl alcohol in a car's driver may be disastrous. Ethyl alcohol in a car's fuel tank may be one of the answers to the world's energy problem. If so, Brazil will be leading the way. The Brazilian government has begun an ambitious program to replace imported oil with ethyl alcohol from sugar cane and other crops. Brazil imports 80% of its oil and was hard enough hit by the oil price increases to turn to a biomass energy strategy in a serious effort to achieve energy independence.

Horticulture's contribution to the program may be the manioc or cassava. A major food crop in Brazil, with 2 million hectares in production, manioc roots contain 20-40% starch, from which alcohol may be made. Sugar cane will be the primary source for some time. About 800 million liters of alcohol are now produced from cane. Further expansion of the crop is planned but limited because it can be grown only in certain parts of the country. Also it is a seasonal crop, with a 160 day maximum harvesting season. It must be processed soon after cutting before the sugar content degrades and the distilleries would remain idle over half the year. Manioc, despite the large total production area, is grown mostly in small plantings. An increase in yield and in large production fields is necessary, as well as modernization of the technology of production, harvesting and processing. In particular, an efficient method to convert starch to alcohol is needed. The potential for manioc is great, however, and therefore the prospects for Brazil's conversion to biomass energy is also great.

Alcohol as a fuel has advantages over gasoline: more power per liter and less pollution. It is also a renewable resource. The impact of conversion to its use could be substantial, in pollution reduction, employment, industrial growth and national prestige for Brazil.

Science 195:564-566, 1977

NIGHT HARVEST

Harvesting cantaloupes at night under lights may not seem a very good way to save energy. However, melons harvested during a June day in the Imperial Valley of California may reach a temperature of 94% that of the maximum air temperature, which may in turn be well over 38°C. The cost of cooling hot melons is substantial, in money and energy. If the harvest is started at 3 AM and continued to about 10 AM, melon temperatures may reach 78% of maximum, perhaps 26-32°C. Those harvested before daylight would range between 13-17°C. Hence the lights, and first tests indicate that melon color is easier to see and judge under fluorescent light than under incandescent lamps or sealed beam headlights.

Western Grower & Shipper, Feb. 1977

CHINESE AGRICULTURE

Chinese agricultural research is strongly oriented towards immediate practical results, such as the development and widespread adoption of short-strawed, high yielding cultivars of rice and wheat. Less interest, even indifference, seems to be the attitude towards basic research and seed exchanges with other countries. American agricultural scientists who have visited China are concerned that these attitudes will prevent continued crop yield increases and result in the loss of valuable germplasm.

BACTERIAL ICE NUCLEI MAY INCREASE FROST DAMAGE

Some strains of bacteria have the ability to act as ice nuclei on plant leaf surfaces. Supercooled water droplets, at the −5° to 0°C range, may turn to ice crystals, causing frost damage to sensitive crops, such as lettuce, corn, beans and orchard species. The amount of damage has been found to be related to the size of the ice-nucleating bacterial population. Orchard trees recently sprayed with a bactericide had less damage than unsprayed trees. The susceptibility of corn to frost damage was measurably reduced by spraying with streptomycin.

FOOD SYSTEM TAKES 16.5% OF TOTAL ENERGY: CUTBACKS INEVITABLE

The above title is from a review by L. E. Slater, Editor-in-Chief of *Food Engineering,* a trade journal of the food processing industries, of a study released by the Federal Energy Administration last May. The study, done for the FEA by Booz, Allen & Hamilton, reveals that the U. S. food system consumes yearly an estimated 15,000 trillion BTU's. Components of the food system studied and per cent of total U. S. energy used by them included: production 2.9%, manufacturing 4.8%, distribution 1.3%, in-home and out-of-home preparation 7.1% and manufacture of trucks used in transporting food 0.4%. The Federal Energy Administration's Industrial Programs Office, since its start about a year ago, has concentrated on publications showing the average food plant how to significantly cutback on energy bills.

U.S. AGRICULTURAL POLICY REQUIRES GLOBAL VIEW

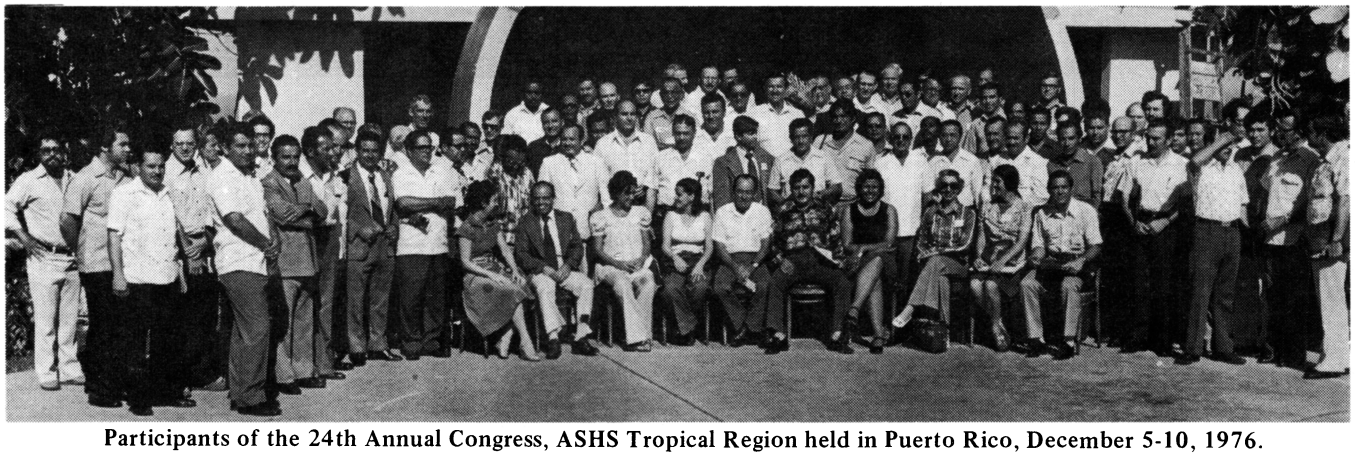
"The American farmer is inseparable from the international food complex, where a farm work force of 800 million produces for a world population of 4 billion . . . "

"We must do everything we can to maintain and expand U. S. agriculture's overseas markets. The ability of the United States to produce – especially grains, soybeans, cotton and many other crops – is such that large overseas sales are now built into the marketing structure."

"We all recognize that trade balance includes imports as well as exports. If we are going to advocate liberal trade, we must be consistent and recognize the need for other agricultural nations to trade."

" . . . the United States should take the lead in developing a global food policy to moderate the extremes in commodity prices." Bob Bergland
Secretary of Agriculture

Foreign Agriculture, Vol. 15
Feb. 1977



Participants of the 24th Annual Congress, ASHS Tropical Region held in Puerto Rico, December 5-10, 1976.