

Where one-storey buildings are installed with artificial heating apparatus, a timbered floor is often necessary. This may be provided with spaces for the passage of air, and be raised above the level of the ground to enable steam or hot-air pipes to be laid and to create a hot-air chamber in this region.

### **Light and Windows in Factories.**

The bad effect of light on rubber, and the necessity of having abundance of light in the machinery sections, necessitate the adoption of a different arrangement in various parts of the factory. There can hardly be too many windows near the engines and washing mills. These should therefore be provided and constructed so as to open inwards for draught purposes.

In the curing room, however, windows must either be supplied with red glass, or curtains, to stop the chemical rays from reaching the rubber, or with wooden or corrugated iron doors—which can be opened from the inside to allow light to enter during inspection of the rubber. It is necessary that the rubber in the curing room be frequently inspected in order that the development of moulds and tackiness may be arrested in the initial stages; hence the desirability of having even the curing room well supplied with light under control.

Doors and windows should, whenever possible, be made to close on the inside in order that draughts of fresh air can enter the building without check.—(*India Rubber Journal*.)

## **POTATOES AND JERUSALEM ARTICHOKE FOR PIGS.**

"In his valuable work on "Pigs and their Management," Mr. H.W. Potts, Principal of the Hawkesbury College and Experiment Farm, Richmond, New South Wales, gives a chapter on "Crops for Pigs." Amongst the roots and tubers he considers Jerusalem artichokes as a most valuable food. Why this crop has been so much neglected by Queensland pigbreeders is hard to understand, seeing that its cultivation is simple and the yield of tubers considerable.

Concerning roots and tubers generally as pig-food, Mr. Potts says that:—"All these, when fed continuously and exclusively to pigs, have a lowering tendency on the digestive functions, but that this is a matter which, in intelligent hands, can be controlled. The value and importance, he says, of root crops for pigs, particularly in our warm climate, are now widely recognised, in so far as they are used only as a succulent and relishable adjunct to other classes of food, richer in protein, and containing less moisture. A normal nutritive ratio must be maintained, and the success of feeding largely depends on the right interpretation of the balanced ration. We find that many root crops form excellent aids to the standard feeds.



"Amongst the domestic animals, none respond so readily to root crops as pigs. We have to admit that, under some conditions of climate, they are costly crops to raise, as they require large quantities of water. All things being equal, however, they provide a high percentage of digestible dry matter. Their value is chiefly emphasized in making available, during the hot, dry months of summer, and the cold months of winter, a succulent, relishable fodder, when our natural pastures and herbage are dry and scarce.

"Seeing they contain high percentages of water, starches, and sugars, it is essential, in the maintenance of a maximum growth in fattening swine, that they be combined judiciously with cereals, maize, flesh food, lucerne, pollard, skim milk, cowpeas, peas, beans, and other similar foods.

"A too wide nutritive value may create waste and check good growth by preventing the complete digestion of the protein, as well as permitting some of the starches to pass from the body as manure."

On the subject of

### Potatoes

as pig food, the author says: "When fed to pigs, potatoes appear to agree with them better than other root crops, particularly when the ration is balanced with barley, maize, or oats and skim milk. The Danes secure very high returns with this class of food. The starchy matter of the potatoes is combined with the protein of the skim milk and cereals to formulate a well-arranged diet. The bacon made from pigs fed on these rations has a notable reputation.

"At the Wisconsin Experiment Station it was ascertained that 1 bushel of maize is equal in food value to  $4\frac{1}{2}$  bushels of cooked potatoes. In numerous experiments it was found that pigs always secured better flesh gains by being fed on cooked potatoes in comparison with those given raw.

"The use of potatoes as pig-feed can only be determined by the current market values. When potatoes are low in price, their use as a pig-food is justified; but, where potatoes are grown as a staple crop on the farm, there is always an unmarketable residue, and these can be fed to pigs with advantage. Pork raised solely from potatoes has a tendency to be very fat, and wasteful in cooking. In every instance they must be fed with other foods in which the percentage of protein is prominently high."

### Artichokes.

"This is a flowering, perennial plant which has, in the past, been overlooked as a valuable food for pigs. It grows from 6 to 9 feet high, and when in bloom, seen from a distance, the crop looks like one of miniature sunflowers.

"The stalks are frequently used for feeding sheep or conversion into silage, and the tubers afford a palatable and succulent food for pigs. The plant is very persistent in growth, and, if raised, in suit-



able soil, is difficult to eradicate. Enough tubers, as a rule, are left each year to continue the crop; hence it is wise to set apart a permanent paddock for it, or the odd corners of a farm, or waste places of little value for other crops may be used for growing artichokes.

"The plant is extremely hardy; it resists frost and drought. Whilst the best crops are raised on good mellow loam, profitable yields are secured on stiff clay lands, light sandy or gravelly soils. The land is best suited where the drainage is good; in fact, any soil suitable for potatoes will answer for artichokes. It is a crop that requires little attention when it is established.

"The soil needs thorough cultivation. It should be deeply ploughed about May or June. During the winter it may be harrowed occasionally, lightly reploughed about September, and well manured as if for sweet potatoes. The tubers are then planted by dropping them into furrows 3 ft. apart, with a space of 2 ft. between the tubers. If the sets are small, plant whole, while large ones may be cut. Cover by turning a furrow over them. About 4 cwt. of tubers will plant an acre.

"The crop matures in five months. Should rain fall immediately after planting, the harrow may be run over the land to fine the surface. This should be repeated when the plants are about 4 in. high. It checks evaporation, destroys weeds, and will not injure the crop. Later on, the cultivator should be kept moving between the rows about once a month.

"When the crop flowers and the tops droop and die, about April or May, it is ready for harvesting. The average yield will be from 7 to 8 tons per acre."

"Two varieties were tested at Hawkesbury College, and gave the following results:—

Jerusalem White	...	...	9 tons 1 cwt. per acre.
Jerusalem Pink	...	...	6 tons 16 cwt. per acre.

"For feeding pigs it is best to turn them into the crop to root out the tubers. It must be remembered that, where it is desired to continue the crop, the pigs should be removed before all the tubers are eaten.

"Few foods are more relished by pigs. The tuber in the raw state is very nutritious, more especially for pregnant sows, and also sows reduced in weight and condition after suckling and weaning big litters.

"This class of food acts as a diuretic, or promotes a healthy action of the kidneys in secreting urine; it relieves constipation and stimulates liver function. One acre will support twenty sows from four to six months. Young growing pigs evidence considerable growth on being fed with them for a short period. The exercise obtained in harvesting or rooting up the tubers has a beneficial influence. It is especially notable that artichokes are very digestible.



"The outcome of a number of tests goes to show that, for fattening purposes, these tubers must be given with grain, and have a similar result to feeding with ordinary potatoes; 325 lbs. of wheat fed with 820 lbs. of artichokes gave 100 lbs. increase. The average composition of the artichokes is shown here in contrast with the potato":—

	Water.	Ash.	Protein.	Carbo hydrates.	Fat.	Nutritive Value.
Artichoke ...	79.5	1.0	2.4	16.7	0.2	1:7
Potato ..	78.9	1.0	2.1	17.9	0.1	1:8.6

### JERUSALEM ARTICHOKE.

The culture of Jerusalem Artichokes (*Helianthus tuberosum*) has long been neglected in the Malay Peninsula. It is difficult to imagine why this should be so as their cultivation is of the easiest. Beyond deep changkoling of the soil and the keeping down of weeds, little further attention is required.

The tubers are used as a vegetable, sometimes as a dish but more usually for flavouring purposes. They are very popular with many Europeans, and as good vegetables are difficult to obtain, this plant ought to be more widely cultivated than it is at present. Plants will grow in almost any situation but the best results and largest tubers are obtained when they receive plenty of room and liberal treatment. Deeply changkol the soil and add to it a little well decayed cow manure about a fortnight before planting. Avoid using horse manure for various reasons.

The roots or tubers are planted in rows 2 feet apart and it is often as well to shade the plants when the leafshoots first appear. The stems do not grow to the height they do in Europe but they usually produce flowers, which is the exception in England. When the plants are about four feet high (usually their full height) the leaves wither and die. It is then that the tubers are in an edible condition.

When artichokes are grown as a vegetable for European consumption, it is not advisable to plant up a large area at once as the resultant tubers soon become discoloured and uneatable if lifted and stored, and if left in the ground for very long they would commence to sprout again. If a small bed is planted with tubers at the above mentioned distances and three weeks are allowed to elapse between each successive planting, a continuous supply of fresh tubers can be obtained. It usually takes from three months from the time the tubers are planted until the next crop is available.

The plant is really a Canadian sun flower.

J. W. A.