

stand without water after they have been measured or by packing berries into the barrels without first placing a couple of gallons in the bottom; these involve an actual crushing of the berry. They are due solely to the carelessness of the packer, and the resultant loss is justly charged to him.

Winnowing Machines.

It is unfortunate that the pickers are obliged to keep the berries in bags or boxes for several days while waiting for a wind to winnow them. During this time, the berries are losing both weight and volume by the evaporation of water, and the picker is consequently losing money. The introduction of winnowing machines, such as are in use for cleaning cranberries, would make it possible to get the berries into barrels on the day of picking; and berries so packed might sell as a fancy article, commanding a few cents above the ordinary market price.

Mechanical Pickers.

All picking is done by hand at the present time; and it must be admitted that under the existing conditions, the prospects of devising a successful mechanical picker are exceedingly slim. The ground is uneven, and the berries are so intermingled with woody-stemmed shrubs and buried in lichens that the intelligence and adaptability of a human hand is needed to get them off the vines with the necessary rapidity. Two pickers were given a trial at Old Perlican this season. One was a cranberry picker from Cape Cod. The cover is hinged and when the fruiting tips have been brought between the wires, by a forward motion of the picker, the pressure of the thumb on the bar closes the cover and prevents the berries from flying out as an upward pull separates them from the plants. This closing feature is a valuable one; but the picker is quite useless on account of its width; it digs up a great deal of moss without getting many berries. If made about three inches wide—one-third its present width, it would work better; but at best it is expensive and complicated.

The other was a small tin picker, designed in this country in competition for a prize offered at one of the Agricultural Exhibitions. The berries are lifted from the vines by prongs which in the original form of the implement were straight, and a backward tilt of the picker carries them over the guard, so that another horizontal stroke can be taken without loss of fruit. When the picker is full, it is reversed, and the berries are poured through the opening. This design is more promising than the first one, but many berries are lost by flying out when the pull of the picker separates them from the vines. An hour's picking in a favorable place with this device yielded barely half a gallon, whereas a good hand picker would secure a gallon in that time.

I am indebted to the kindness of Mr. W. A. Munn for the opportunity of trying these pickers.

Any picker built like a rake rather than like a scoop seems out of the question on account of the moss and lichens in which the berry plants grow. Fruit raked from the vines falls down among the stems and cannot be secured.

It seems necessary, therefore, to abandon temporarily the idea of a mechanical picker. Under the changed conditions which cultivation would produce, the question would assume an entirely different and much more favorable aspect. In the meantime, even the design and trial of pickers intended to be used under existing difficulties.

VI.—VARIATION IN SIZE OF CROP

One of the principal objects of the present investigation was to discover, if possible, the causes of variation in the amount of the crop. As was pointed out at the commencement of the work, a definite solution of this problem can be reached only by comparing the conditions which result in a large crop with those which produce a small one. The present season, moreover, has (unfortunately, from this point of view) been an exceptionally good one, and has offered little opportunity to discover factors ad-