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New Hybrid Fruits

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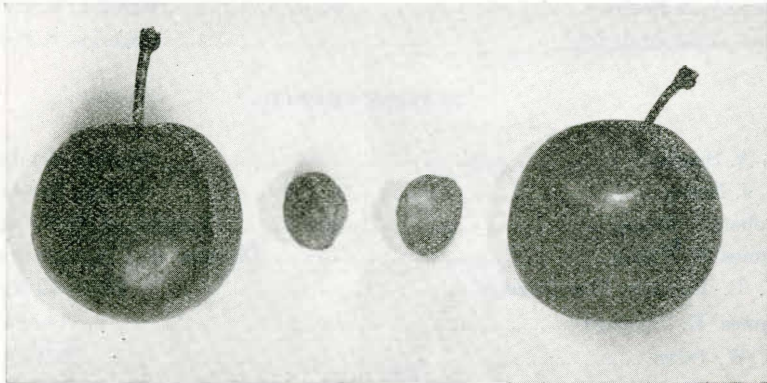
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South Dakota Agricultural Experiment Station

South Dakota State College of Agriculture and Mechanic Arts, Brookings, S.D.

NEW HYBRID FRUITS

ORIGINATED IN THE DEPARTMENT OF HORTICULTURE



TOKEYA NATIVE SAND CHERRY X CHINESE APRICOT



HANSKA NATIVE PLUM X CHINESE APRICOT

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NEW HYBRID FRUITS

N. E. HANSEN, Horticulturist

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A. Hybrids of the Apricot plum of China with our native sand cherry and plum.

B. Hybrids of our native sand cherry with the Japanese plum; native plum; Persian purple-leaved plum; European apricot and sweet cherry; cultivated peach. Native plum hybrids.

C. Summary.

This Bulletin may be considered as a continuation of Bulletin 87; The Improvement of the Western Sand Cherry; and Bulletin 88, Breeding Hardy Fruits. The improvement of the native Dakota sand cherry by selection from many thousands of seedlings is still in progress. The fruiting of the fourth generation is awaited this year. Some of the best of the third generation are an inch in diameter and of good quality. Several of these have been sent out for preliminary trial but only one has been named, the Sioux. These have been budded on native plum, (*PRUNUS AMERICANA*) stock, as it furnished a convenient means of propagation and obviated the risk of mixture of sprouts from the seedling stock which would be the case were the budding done on sand cherry stock. The press of other work has prevented extended experiments in cheaper methods of propagation, but limited trials show that they can be propagated from cuttings; and layer easily where the branches are covered in nursery row. With a view to securing a tree of greater vigor than the sand cherry so as to make it an orchard fruit, rather than a small fruit, extensive experiments have been carried on for several years in hybridization of the sand cherry with choicer fruits. Some of these have fruited the past two years and it appears desirable to present a brief report at this time.

Today, May 28, 1908, under appointment from Hon. James Wilson, Secretary of Agriculture, I start on my third trip to Siberia as agricultural explorer for the United States Department of Agriculture. It will be my fourth trip to Russia.

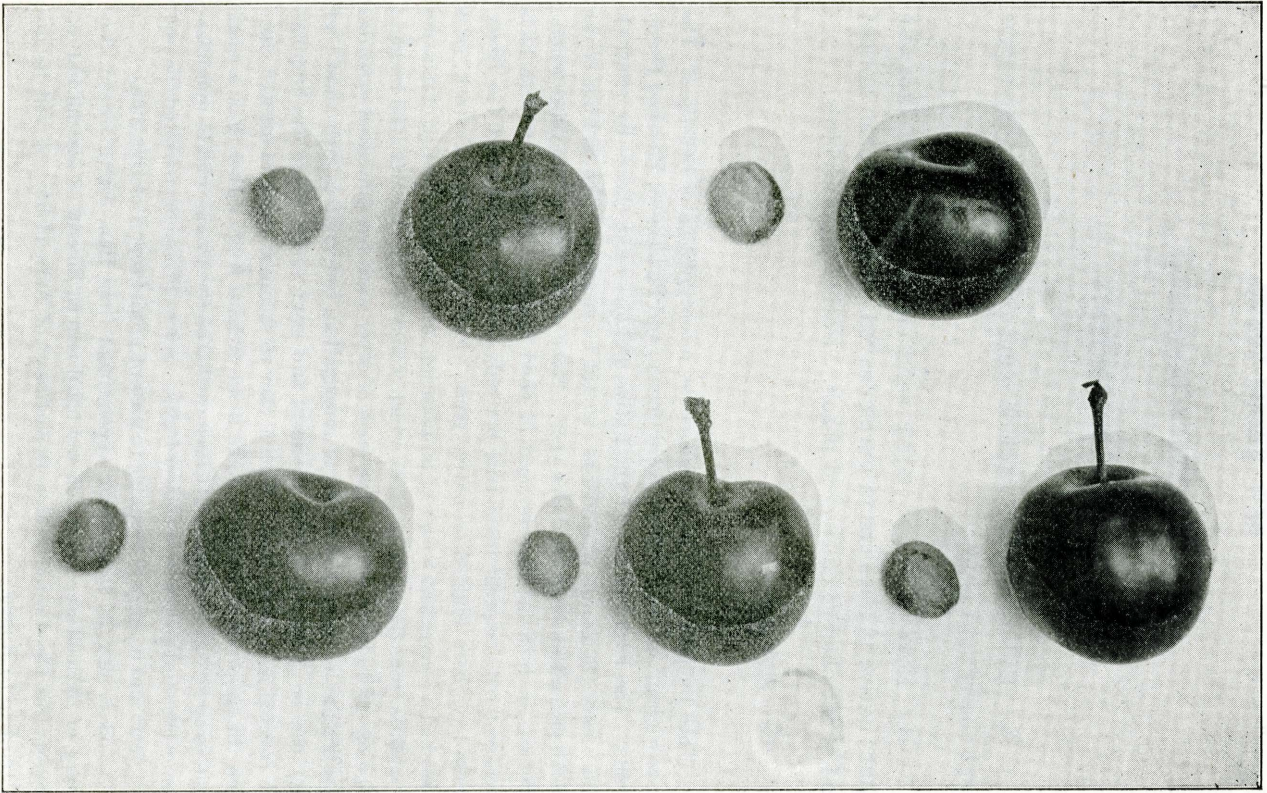


PLATE 3. TOKEYA.—First fruits of a native sand cherry X Chinese apicot plum hybrid.

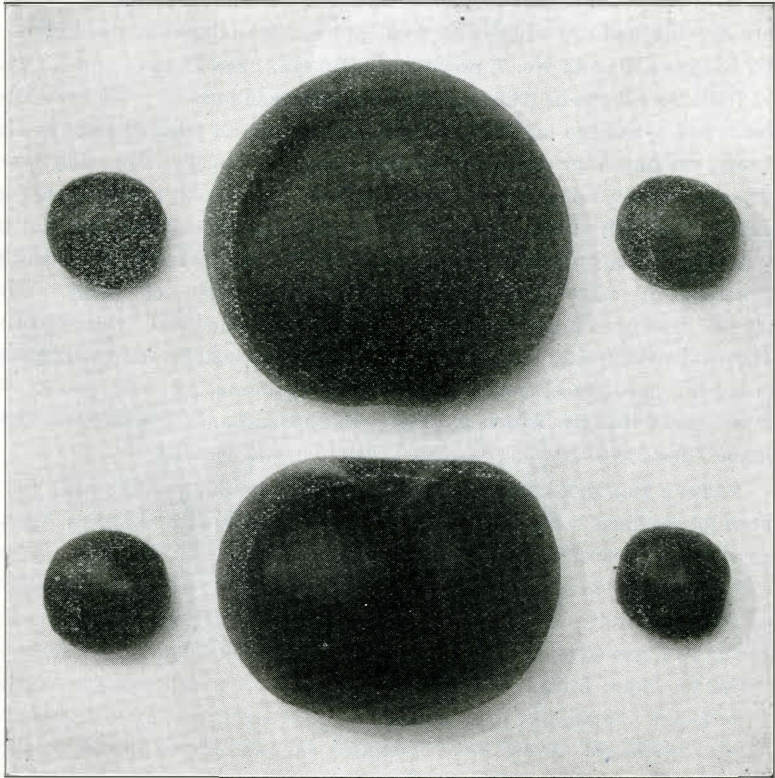


PLATE 4:

The parents of Tokeya. The two large fruits in the center are *Prunus Simoni*, (notice the peculiar flat shape); the four small fruits are a second generation seedling of the native Dakota sand cherry, (*PRUNUS BESSEYI*). The sand cherry is the female parent.

NATIVE SAND CHERRY X CHINESE APRICOT PLUM POLLEN.—This heading means that the native sand cherry was crossed with *Prunus Simoni*, using the pollen or male element of the latter. The parents are shown in Plate 4. Eight seedlings resulting from this cross are in propagation in nursery row, the original plants having been cut the first year for bud sticks. Only one has had opportunity to fruit and was introduced in the spring of 1907 as South Dakota No. 7, now named Tokeya. See Plates 1 and 3. The first fruits were borne in 1906 on a one year old tree in nursery. The same tree gave a few specimens in 1907. These varieties are all selected trees in the nursery, ranging from three to four feet. Some are smaller than this, however, one variety being of low stocky growth, only six to twelve inches in height. The fruit buds appear freely on one year shoots from the bud in the nursery. The early fruiting character of the sand cherry is evidently pre-potent in these hybrids, also the dwarf habit of plant. The fruit of Tokeya (Sioux Indian for "first") is one and three-eighths inches in diameter, dark red; flat; flesh green, of good quality; flavor, sprightly subacid intermediate between that of the two parents; pit, very small. It will be noticed that the Tokeya is a half sister to Hanska, having the same size, but the Tokeya is a dwarf as compared with the giant Hanska.

NATIVE PLUM X CHINESE APRICOT PLUM POLLEN.—We have fully a score of seedlings resulting from crossing our native plum (*PRUNUS AMERICANA*) with pollen of a very large, firm fleshed apricot plum of China. These are all much alike in nursery and all of the five varieties that have fruited are very similar in fruit. See Plates 2, 5, 6, and 7. The Hansika is the only one that has been named and was introduced in the spring of 1908. The Hanska is the Dakota Sioux Indian for "tall" and the name is given in allusion to the extraordinary rapid growth in nursery, some of the three-year old trees attaining a height of twelve feet. Two-year old trees are too heavy to ship well. The Hanska fruited first in 1906 and 1907 on two and three year old trees in nursery row. In fruit the Hanska closely resembles its Chinese parent in form, color, fragrance, quality and firmness of flesh. The size, however, is smaller, being only one and a half inches in diameter so far, but will probably increase on older trees. As noted in the above cut the pit is very small. The heavy blue bloom was rubbed in handling so that the photographs do not give the full beauty of the fruit. The quality is not as good as that of the Skuya, but the past two seasons have been unfavorable for developing good quality in plums.

PRUNUS SIMONI X NATIVE PLUM POLLEN.—A seedling resulting from cross of *Prunus Simoni* with many of the De Soto and native plums, gives

us stocky trees three feet in height from one year old buds, not as vigorous as the reciprocal hybrid, the Hanska.

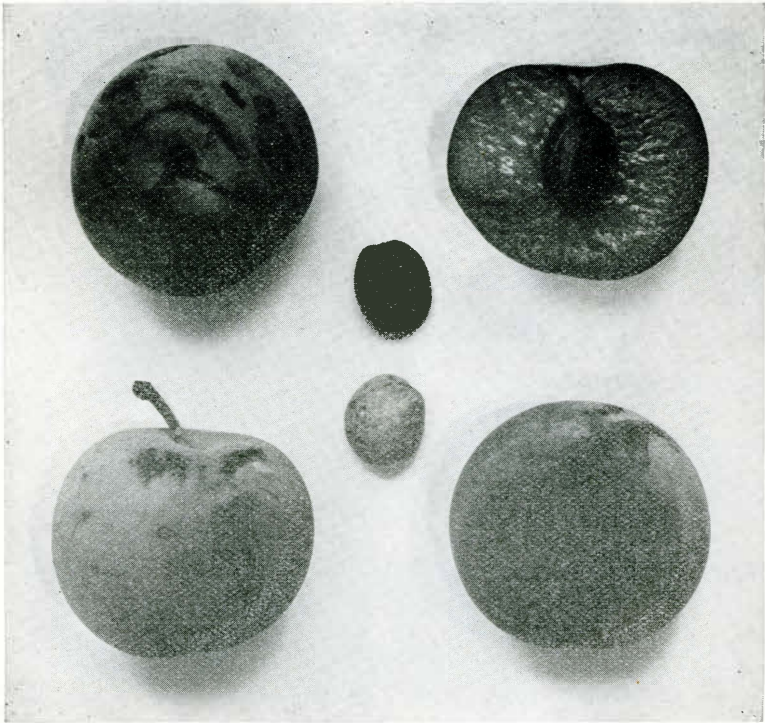


PLATE 5.

HANSKA.—A hybrid of our wild plum with the apricot plum of China.



PLATE 6.

A new plum of same parentage as the Hanska.

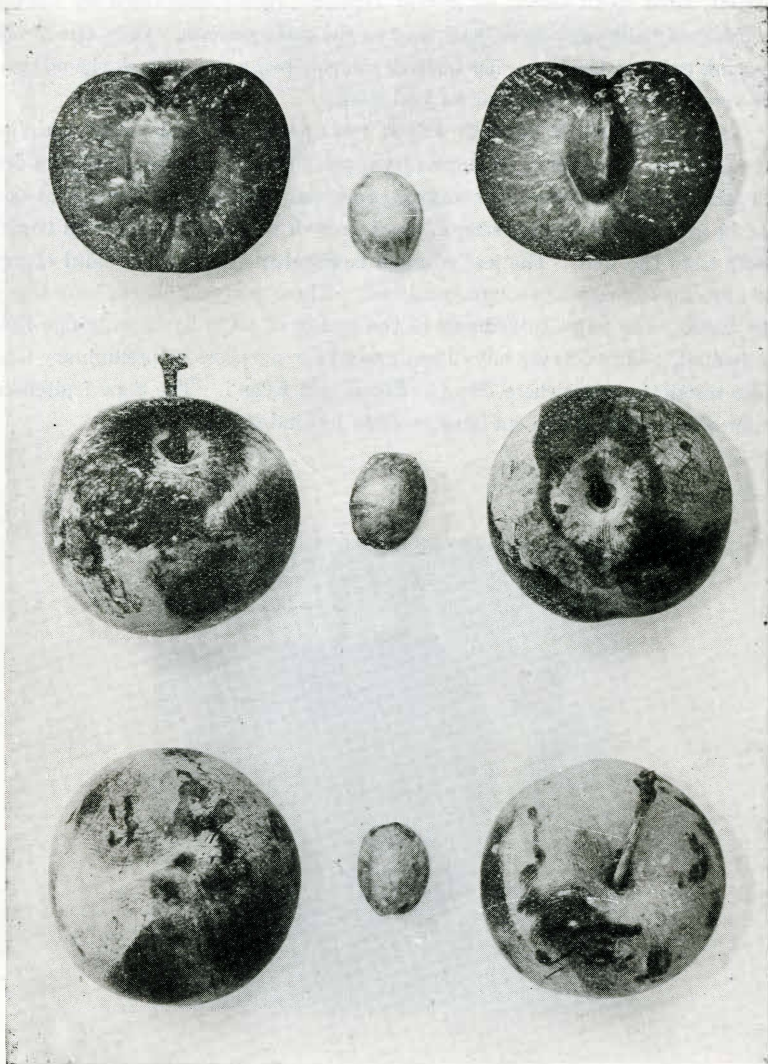


PLATE 7.

Another new plum of same parentage as the Hanska

SAND CHERRY X JAPANESE PLUM POLLEN.—In this work the Sultan, Bartlett, Gold and Climax, all hybrid Japanese plums originated by Luther Burbank, of California, have been used as the male parents. Only one of the resulting hybrids, the Sapa, has fruited, the rule being to cut back the original tree very severely the first year for bud sticks.

SAND CHERRY X SULTAN PLUM POLLEN.—There are eight varieties resulting from this cross. All seem very much alike in nursery. Trees budded on native plums (*PRUNUS AMERICANA*) stock run from four to five feet at one year in nursery; of stocky, strong, erect growth with many twin and triplet shoots from the bud. The leaf is much larger than those of the sand cherry and even more glossy as though varnished. These one year shoots have many fruit buds. The Sapa, introduced in the spring of 1908, is the only one that has fruited. Three others have been named for purposes of preliminary trial under restrictions elsewhere, Enopa, Etopa and Eyan i. The Sapa fruited on a spur of the original tree cut back severely for bud-sticks.

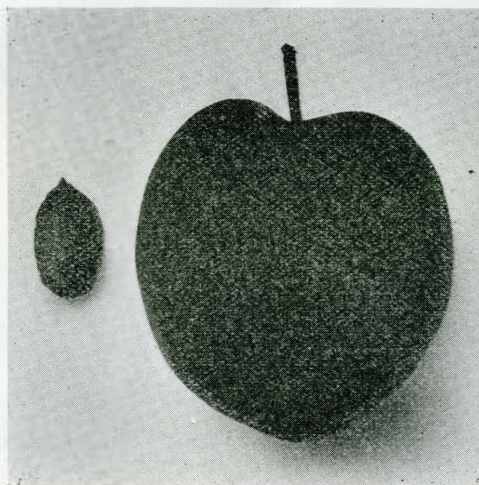


PLATE 8.

SULTAN.—The male parent of the Sapa. The Sultan is remarkable for large size, good quality, and rich dark purple red flesh, and is a great credit to its originator Luther Burbank.

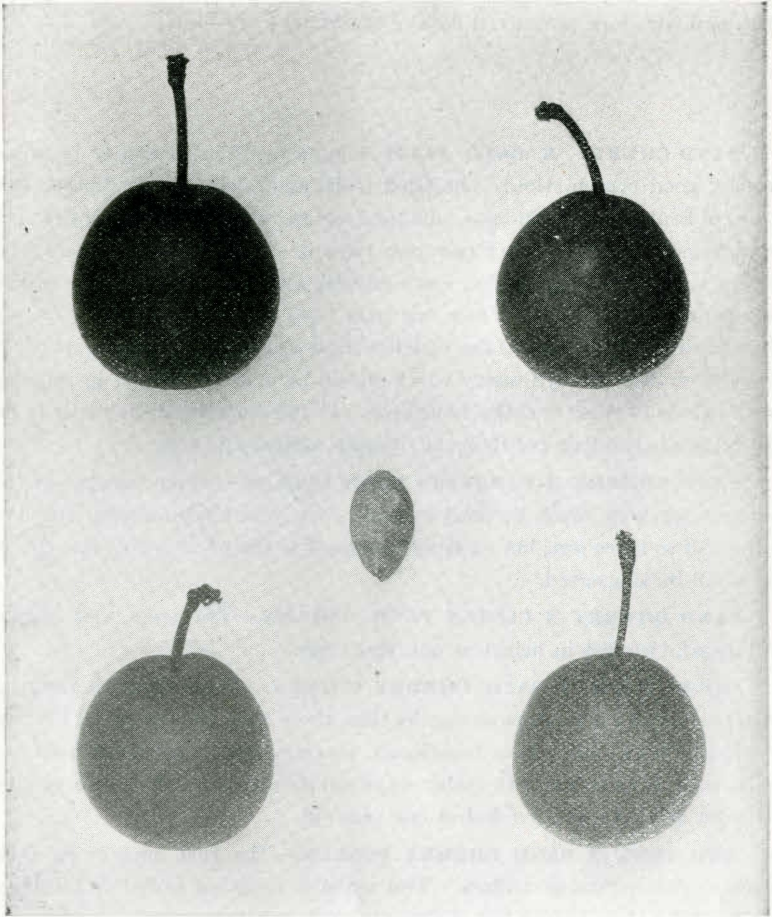


PLATE 9.

SAPA.—(Sioux Indian word for "black"). The female parent is one of our selected seedlings of the western sand cherry, (*PRUNUS BESSEYI*), a favorite fruit of the Sioux Indians; the male parent a very large, purple-fleshed, Japanese plum originated by Luther Burbank, of California, and by him named the Sultan. The Sultan is a plum of the Satsuma type and is perhaps a cross with some other species. The Sapa fruited first in 1907 on a tree cut back very severely for bud-sticks. These first specimens were only one inch in diameter but the size will probably increase. The tree is plum-like in habit; one year

trees in nursery have many fruit buds; the fruit has the glossy, dark purple skin, and rich dark purple red flesh of the Sultan.

SAND CHERRY X GOLD PLUM POLLEN.—This appears to be an especially good combination. The Gold plum was originated by Luther Burbank, of Santa Rosa, California. Of the fourteen seedlings resulting from this cross, none have fruited but one year trees in nursery resemble each other closely and are strong, stocky, erect growth with fine glossy foliage and an abundance of fruit buds. These one year trees range from four to five and three-fourths feet. Some of the varieties show a tendency to twin and triplets shoots from the bud in nursery which should be guarded against in propagation. Three of these varieties have been sent out for very limited trial under restrictions in the spring of 1908, the Owanka, Okiya and Opatá.

SAND CHERRY X BARTLETT PLUM POLLEN.—Three varieties of this pedigree are very much dwarfed in habit, one year trees ranging from two and a half to three feet, but we defer judgment as there was a poor stand from the small buds inserted.

SAND CHERRY X CLIMAX PLUM POLLEN.—Two trees, very slender and dwarf, two feet in height as one year trees.

GOLD PLUM X SAND CHERRY POLLEN.—Four varieties resulting from this cross are much more slender than those from the reciprocal hybrids, Owanka, Okiya, etc., above mentioned, the one year trees being from two and a half to three feet with rather wayward slender branches. One variety, however, is stocky and five feet at one year old.

RED JUNE X SAND CHERRY POLLEN.—The Red June is an early Japanese plum, *Prunus triflora*. Two varieties resulting from this combination run from three to four feet one year in nursery, stocky.

SAND CHERRY X NATIVE PLUM POLLEN.—Our native plum, *Prunus Americana*, hybridizes readily with the native sand cherry. In raising thousands of seedlings of the sand cherry we occasionally find a seedling with yellow roots and of strong growth. These turn out upon fruiting to be hybrids of some native plums, some belated plum blossom furnishing the pollen. The first seedling ever introduced of this parentage as far as I find on record, is the Compass plum originated by H. Knudson, of Minnesota, (see Bulletin 93.) After fruiting over five hundred seedlings of the Compass I find that the trees run back either to the sand cherry or to the plum. These seedlings can show similiar characteristics. None of them have ever shown any sign of

the Miner plum or the sour cherry in its seedlings so that the theory that it was a cross of the sand cherry with the Miner or Morello cherry must be given up. We have fully a dozen seedlings resulting from a hybrid of sand cherry with De Soto plum pollen. These show a good growth in nursery three to five feet, stocky, well branched with many fruit buds. Their fruiting is awaited with interest. But judging by the size and quality of both parents, we must not expect too much from this combination.

SAND CHERRY X PENNOCK HYBRID POLLEN.—The Pennock Hybrid was originated in Colorado and is claimed to be a hybrid of the sand cherry with the Artic plum. As fruited here it does not appear superior to the Compass. The seedling resulting is of dwarf, slender growth in nursery, two and a half feet, full of fruit buds. We also have crosses of the Pennock Hybrid with the De Soto and Wolf and another seedling of An ericana plum but these are slender and dwarf in nursery.

SAND CHERRY X PERSIAN PURPLE-LEAVED PLUM POLLEN.—We have at least a dozen seedlings resulting from this combination, all of them with the beautiful purple-red colored foliage which gives the male parent its decided value for an ornamental plant. In other words the male parent (*PRUNUS CERASIFERA PURPUREA* or *PRUNUS PISSARDI*) in this case is prepotent in transmitting its color of leaf. In shape, however, the leaves are more like those of the sand cherry, but larger. One year trees are rather slender in nursery, two to three feet, but better results are expected the coming year as the buds were very small when inserted and there was a poor stand. We are now propagating two or three of the best varieties as the seedlings seem to vary somewhat in character of this coloring. The original trees appear perfectly hardy without winter protection, in spite of having been cut very severely for bud sticks in 1906.

SAND CHERRY X EUROPEAN SWEET CHERRY.—One seedling resulting from a cross of the sand cherry with pollen of the Molstreuse de Mezel, an European sweet cherry, *Prunus Avium*, gives us a very dwarfish slender tree, six to eight inches tall at one year from the bud on the native plum (*PRUNUS AMERICANA*) stock, and ten to eighteen inches in height as one year budded trees on sand cherry stock. Apparently in this direction we need not look for vigor of tree and the thought naturally suggests itself that our native sand cherry appears to be closer in its affinities to the Japanese plums than to the sweet cherry of Europe.

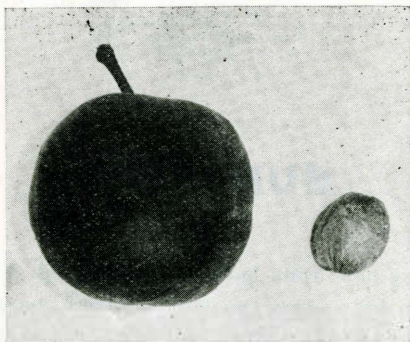
SAND CHERRY X EUROPEAN APRICOT POLLEN.—Of one variety, the Yuksa, crossed with New Large apricot pollen, one year trees are four feet

in height, slender, branched, with many fruit buds. The leaves are larger than the Kamdesa, but somewhat resembling it.

SAND CHERRY X PEACH POLLEN.—The Opulent peach, originated by Luther Burbank, was used as the male parent. One year old trees of the resulting seedling the Kamdesa, are four feet in height, stocky at base, much branched, some mildew on tops in late autumn, many slender branches, many fruit buds on one year wood. The leaves are somewhat like Yuksa the apricot x sand cherry cross, but are different in other respects. The blossoms on one year shoots show some tendency to doubling, having several extra petals and some of the blossoms have from two to four pistils. Nothing further can be noted at this time.

NATIVE PLUM X EUROPEAN PLUM POLLEN.—Two seedlings resulting from a cross of De Soto with Belgian Purple plum pollen gives us slender trees, four to four and a half feet, as one year shoots from buds in nursery.

EUROPEAN PLUM X NATIVE PLUM POLLEN.—A seedling of the Collin's Golden, European plum, crossed with pollen of the Wolf, a well-known native variety, gives us a dwarfish tree, two and one-half to three feet with European characteristics. Four seedlings resulting from a cross of the Belgian Purple plum crossed with Wolf plum pollen gives us slender trees three feet in height. One of them shows a strong weeping tendency and we have inserted buds in the top of young plum trees to test its value as an ornamental.



SKUYA

NATIVE PLUM X JAPANESE PLUM POLLEN.—Red June X De Soto plum pollen. Eight seedlings resulting from this combination are very strong stocky, erect growers in nursery, from four to five and a half feet with many fruit buds on one year wood. Only one has fruited, named the Skuya, introduced spring of 1908. Skuya is Sioux Indian for "sweet". This fruited in 1907 on a tree very severely cut back for bud sticks. The color of the fruit is a dull dark red and yellow but may improve in this respect with a more favorable season; the pit is very small; the quality excellent and delicious. The size will probably increase on older trees. Of the above lot two others of extra fine growth have been given provisional names for purposes of limited trial elsewhere in the spring of 1908, Wakapa and Wohanka. These are under strict restrictions as to propagation until they have proven their value.

SUMMARY

Some promising new fruits have been originated at the South Dakota Experiment Station by crossing the native Dakota plums and sand cherries with other stone fruits from Europe and Asia. It appears that the native Dakota sand cherry amalgamates readily in hybridizing with a number of other species, and that excellent results may be hoped for, especially with hybrids of the Japanese plums. Many more combinations have been made and the fruiting of the resulting seedlings is awaited with interest. The fact has been demonstrated that it is possible to secure fruits combining the hardiness of native stone fruits with something of the size and quality of the choice cultivated stone fruits from Europe and Asia. It is hoped that this brief record will serve to arouse interest in this subject and to many experiments in similar lines elsewhere.