Spring 1911

Some New Fruits

Originated by N. E. Hansen in the Fruit-Breeding Laboratory of the South Dakota Agricultural Experiment Station

and

Some New Alfalfas

Found in Northern Eurasia by

N. E. HANSEN

Professor of Horticulture in the South Dakota State College of Agriculture and Mechanic Arts; and Agricultural Explorer for the United States Department of Agriculture, 1897-8, 1906-7, 1908-9.

INTRODUCTION.

The object of these experiments is to originate better and hardier fruits for the prairie Northwest than any now known. To be compelled to protect fruit trees and plans is **Horticulture on Crutches** and hence to be avoided if possible.

This department does not conduct a commercial nursery. The plants sent out are either originated here as the results of fruit-breeding experiments, or imported from Russia, Siberia or other northern regions of Europe and Asia. My policy is to offer each kind only until well introduced, leaving the main work of propagation to the commercial nurseries. The varieties sent out have all done well here; their value elsewhere can only be determined by actual trial. A careful record is kept here of each lot sent out, and it is expected that each planter will do the same and report in due season when requested.

Those interested in experimental horticulture for the prairie Northwest should order early, as the stock is limited. On late orders please specify if selection of varieties is left to me.

The past season has not advanced our knowledge of new fruits, owing to the untimely late freeze which caused such widespread loss of the fruit crop in the Mississippi valley. The experiments in breeding hardy fruits at this station are now second to none in extent. The new Fruit-breeding Laboratory granted by the last Legislature includes an area of 40 x 115 feet under glass, which greatly facilitates the work. Some 500 lots of hybridized seed were planted this fall, the result of the past season's work. Special attention is now being paid to the apples, as the most important problem of all is a hardy winter apple. After fruiting a multitude of apple seedlings and after wide travel in many lands, I believe the future is full of hope in this line and that the longed-for apple is on the way and almost here.

The varieties offered in this list are some of the successes with stone fruits, the failures are represented by the ashes of many huge bonfires.

In the following cuts, the fruit is shown natural size, with one or two pits or with fruit cut to show pit.

Special Note—To give these Sioux Indian names their native melody, pronounce the vowel A with the long Italian A, as in "arm."

TERMS, CASH WITH ORDER.

Positively no credit given except to Government Experiment Stations. Add 25 cents to orders for less than $3.00 to pay for moss and packing. Stock is shipped by express carefully packed in moss.

No Orders Booked Until Paid For.

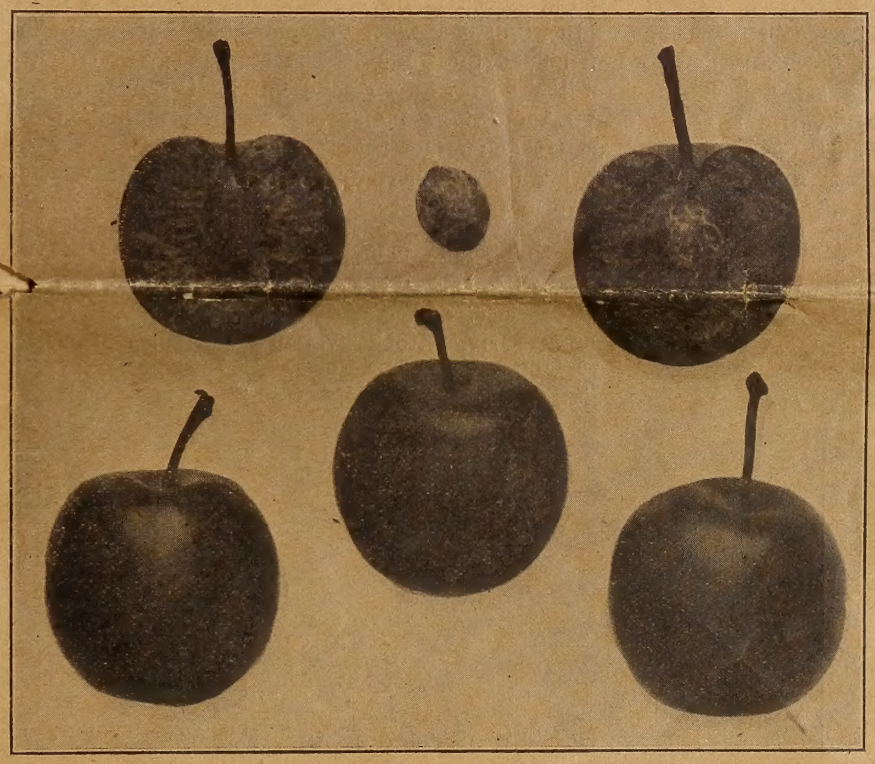
No Plants Sold In Less Than the Quantities Specified.

The money received from the sale of plants makes it possible to carry on the fruit-breeding work on a larger scale than would otherwise be possible. A work of tremendous magnitude and importance is being done with very limited means; this charge helps to cover cost of propagation and also serves to keep the stock out of the hands of the careless planter who is not really interested in the work.

Do not send local checks. Remit by Bank Draft, Postoffice or Express Money Order. Address

N. E. HANSEN,

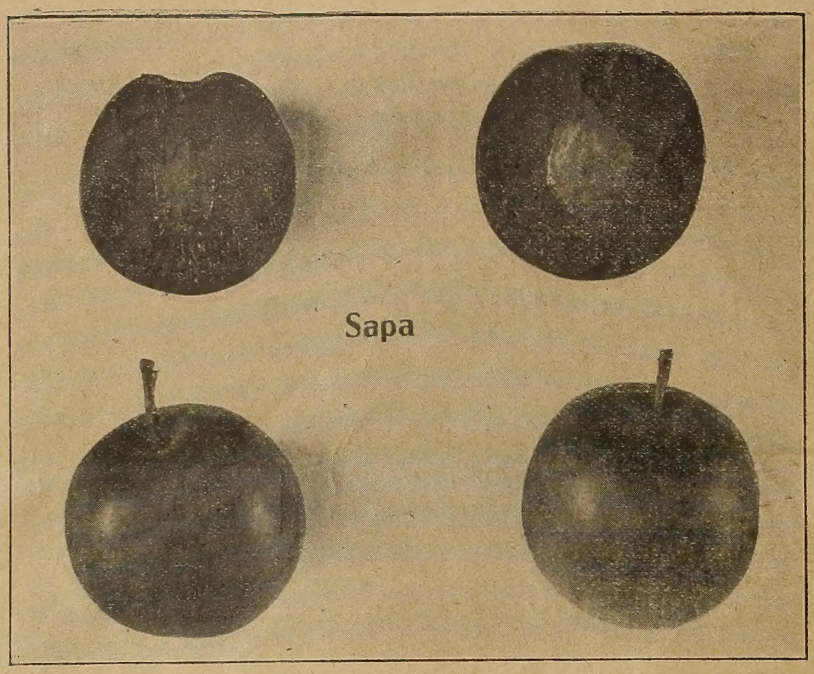
December 15, 1910. Experiment Station, Brookings, South Dakota.



OPATA.

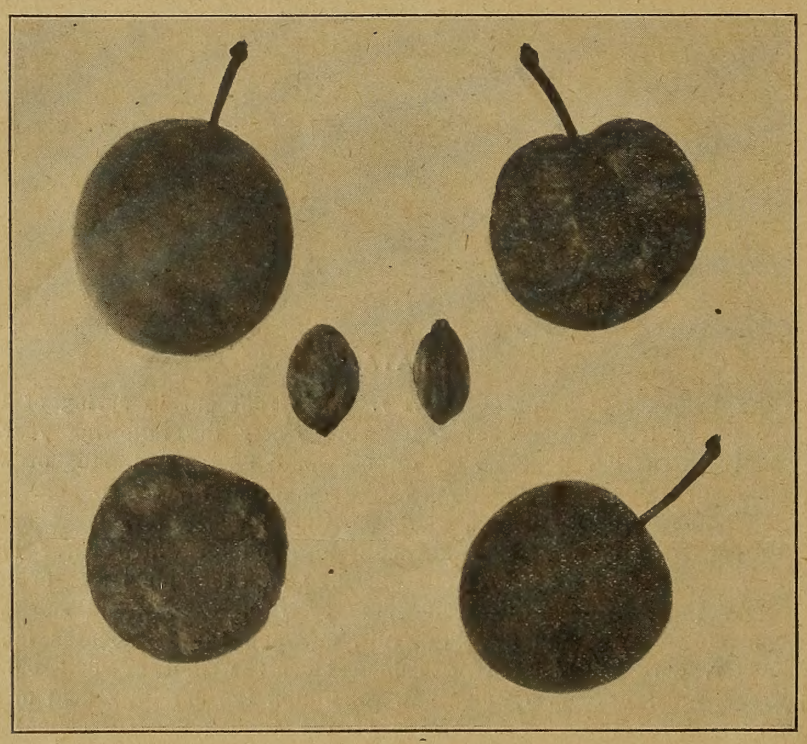
Opata (Sioux Indian for "bouquet"). First sent out in spring of 1908 as one-year-old trees from bud; these bore freely the following year in many places. The excellent quality of the Opata makes it worthy of wide popularity for table and culinary use. Female parent, the Dakota sand cherry (Prunus Besseyi); male parent, the Gold plum, a very large hybrid Japanese variety originated by Luther Burbank and for which Three Thousand Dollars was paid when first introduced. Opata is a plum tree in habit of vigorous growth and forms fruit buds freely on one-year-old shoots in nursery; foliage large and glossy. Fruit, one and three-sixteenths inches in diameter, dark purplish-red with blue bloom; weight one-half ounce; flesh green, firm; flavor very pleasant, combining the sprightly acid of the sand cherry with the rich sweetness of the Gold plum. Excellent for eating out of hand. The thin skin can be chewed and eaten, as it is entirely free from acerbity. Pit very small, as is seen by the above cut; season extremely early. Our best Opata fruits in 1909 were one and five-eighths inches in diameter. A very strong grower in nursery and orchard and an early and heavy bearer. At this station in 1909 Opata was fully ripe when the Manitoba No. 1 plum, although dull red, was not ripe enough to eat.

Trees, one year old, budded on native plum root, each $1.00; six trees for $4.50.



SAPA.

Sapa is the Sioux Indian for "black" and alludes to the color of the skin, flesh and juice of this remarkable hybrid, which was offered in the spring of 1908 for the first time. (See Bulletin 102.) This represents a new departure in stone fruits for the prairie Northwest. The fruit has the rich dark purple-red skin, flesh and juice of its sire, which is a very large Japanese plum of the Satsuma type, originated by Luther Burbank of California and by him named the Sultan. The female parent is one of our selected seedlings of the northwestern sand cherry (Prunus Besseyi), a favorite fruit of the Dakota Sioux Indians. The tree is plum-like in habit, forming fruit buds freely on one year trees in nursery. One year trees sent out in the spring of 1908 bore freely in 1909 in many places. Specimens of the Sapa grown in Minnesota took first prize as a seedling plum at the Minnesota State Fair in 1909. In 1909 our best Sapas at Brookings were one and three-eighths inches in diameter, weight five-eighths ounces, on one-year-old trees set the preceding year and bearing a heavy crop. The rich purple color of the skin is dulled at first by being overspread with a thin gray, which disappears as the fruit attains full ripeness. Season extremely early. Stock available for spring, sixty-two trees, transplanted, 4 to 5 feet, each $1.00. One-year-old budded trees, each $1.00; six trees for $4.50.

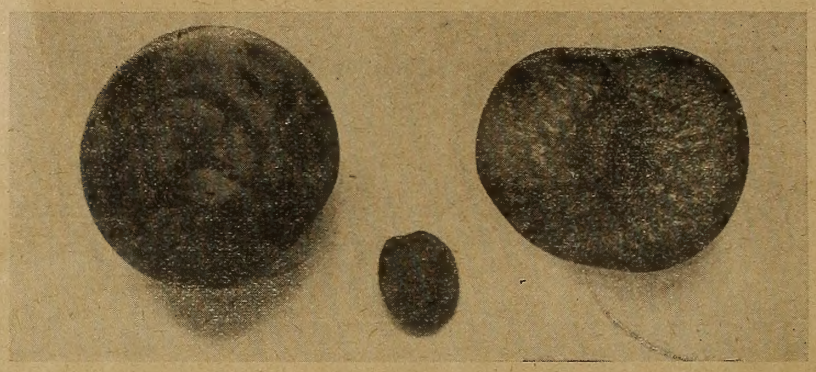


EZAPTAN.

I have a number of seedlings of the same pedigree as the Sapa, much the same in character of fruit, but differing somewhat in tree. Perhaps several are needed for better pollination in mixed orchards. It seems worth while to offer for the first time a few trees of the Ezaptan (Sioux Indian for "fifth"), remarkable for its early and heavy bearing. Color of fruit in 1909 of a dark purple and with less grayish overcast than that of Sapa; perhaps averages smaller than Sapa but this will be better determined with further experience. Quality delicious, color black purple-red from skin to pit the same as Sapa. Trees one year old, each $1.00.

FOUR NEW HYBRIDS.

Wild Plum x Chinese Apricot—Hanska, Inkpa, Kaga, Toka.



HANSKA.

First introduced in the Spring of 1908. As exhibited at the South Dakota State Fair three years in succession, the fruit of this variety has been much admired for its beautiful color, which is bright red with heavy blue bloom, firm yellow flesh, good quality and rich fragrance; fruit in 1909 was one and one-half to one and nine-sixteenths inches in diameter. When cooked the strong apricot flavor is brought out to perfection, entirely unlike any native plum. The flat shape also distinguishes it from all the other hardy plums grown in the Northwest. The female parent is a seedling of our wild Northwestern plum (Prunus Americana); the male parent is the large, firm-fleshed, fragrant, apricot-plum of China (Prunus Simoni), popular in the orchards of California. Hanska is Sioux Indian for "tall," alluding to the extremely rapid growth in nursery and orchard.

Inkpa and Kaga, of the same pedigree as the Hanska, were offered for the first time in the spring of 1909. The three varieties are much alike in fruit and rapidity of growth, but further trial is needed to determine which is the best one. It may be that it will be best to plant some of all four varieties of this pedigree for better pollination of the blossoms, the same as many other plums. Inkpa in the Sioux Indian language means "apex" or "acme;" and Kaga signifies "pitch a tent."

TOKA.

Offered for the first time. I have some 15 varieties of the same pedigree as Hanska, Inkpa and Kaga, all of which bore a heavy crop in 1909, when native plums were almost a total failure. They are all very much alike in character of fruit but differ somewhat in tree. In observing these seedlings closely in the nursery and orchard, I cannot help noticing that some are spreading, while others are very upright in habit, much like the Prunus Simoni itself. One is of such erect strong, stocky growth, really a model nursery tree, that I deem it worthy of trial. My field notes state: "Simoni habit in nursery. The nicest looking tree in nursery and orchard." Toka is the Sioux Indian for "adversary." An early and heavy bearer.

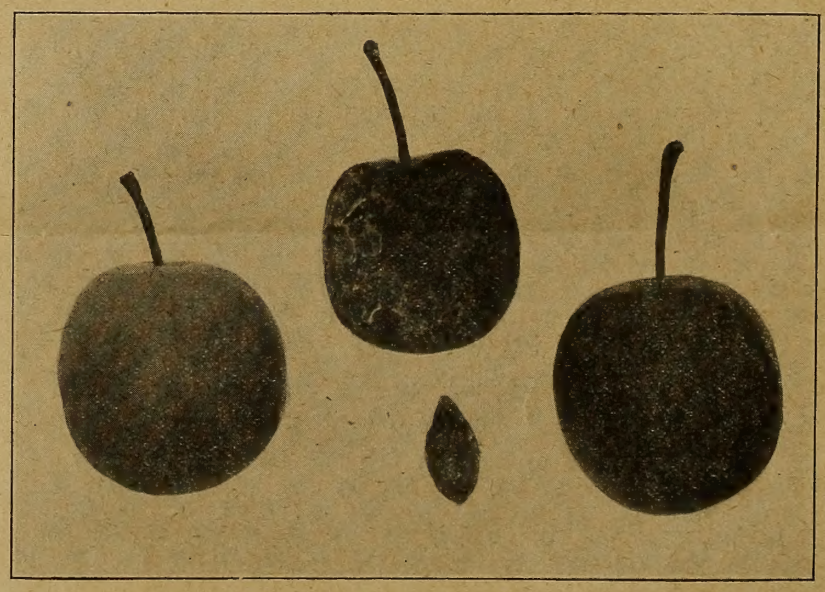
Trees of the Hanska Type Available for Spring, 1911.

Hanska, 65 trees; Inkpa, 115 trees; Kaga, 58 trees; Toka, 136 trees. All the above stocky, extra heavy, 2 to 3 years transplanted, 5 to 7 feet, each $1.00.

The Hanska Quartette.

Special Offer: One each of Hanska, Inkpa, Kaga and Toka for $3.00. On late orders only one, two or three varieties can be included in this special offer, as the stock permits. The foregoing list shows that the stock on hand will only permit fifty-eight complete sets of this kind. Those who already have one or more of these varieties will thus have a chance to test the others.

The present indications are that Hanska, Inkpa, Kaga and Toka will become standard market varieties because they present a remarkable combination of vigor of tree and early bearing with large, choice, handsome fruit.



ETOPA.

Etopa is Sioux Indian for "fourth." First sent out spring 1908 as one-year old trees. These bore freely in 1909 in several places. Pedigree same as Sapa and much like it in color of skin and flesh. Like Sapa the fruit is

excellent in quality and remarkable for the intense black, purple red color of skin, flesh and juice. Skin thin, free from acerbity. Mr. A. P. Stevenson of Dunston, Manitoba, writes: "Etopa ripened some very fine fruit on September 12, 1909. I think a lot of this variety, it is the best yet fruited here." Only 22 trees available, transplanted trees 4½ ft., each $1.00.

SKUYA.

Skuya is Sioux Indian for "sweet." First sent out, spring, 1908. Female parent Red June, a large early Japanese plum; male parent, De Soto, a well known native plum (Prunus Americana) originated in southwestern Wisconsin. Fruit red and yellow, quality excellent and delicious; pit very small. Total stock available, 15 transplanted trees, stocky, 6 feet, each $1.00.

SANSOTO.

HYBRIDS OF SAND CHERRY AND DESOTO PLUM.

At this station I have fruited over five hundred seedlings of the Compass plum in the endeavor to secure an improvement on that well-known variety. These seedlings run back either to the native plum (Prunus Americana) or to the native sand cherry (Prunus Besseyi) which definitely proves that there is no trace either of the Miner plum or Morello cherry in its ancestry. Although the seedlings as a class bore heavily, none were enough of an improvement upon the Compass to make them worthy of introduction. But by crossing the Dakota sand cherry with the De Soto plum, the well-known standard native plum (Prunus Americana) from southwestern Wisconsin, I have raised many better seedlings. In the fall of 1907 thirteen of these were under propagation in the station nursery which fruited heavily in 1909 as budded trees. All these are of strong growth in nursery and formed abundant fruit buds the first year. Some were destroyed since they combined the bad qualities of both parents in quality of fruit and large size of pit. Others show promise of value as late market plums. They fruited heavily in 1909, when native plums were almost a total failure. Two of these were names Sansoto and Cheresoto, (made up from the words sand cherry and De Soto), and were introduced in the spring of 1910. These two are much alike in fruit, but differ somewhat in shape, Sansoto being round, while Cheresoto is longish with a minute bristle or prickle at the apex, which it no doubt inherits from the sand cherry. The size was about one and three-eighths inches in diameter, color shining black when fully ripe, with heavy blue bloom; flesh cling, yellowish-green, sprightly, pleasant; skin thin and free from acerbity; pit small. The fruit is a perfect mingling of the sand cherry and De Soto in looks and flavor, having the size of De Soto and color of the sand cherry. Both are very strong growers in nursery. The sand cherry hybrids as a class bloom later than the plum, which is characteristic of the sand cherry.

Sansoto and Cheresoto could not compete with Opata and Sapa in quality were they of the same season, but they come in after the Opata and Sapa are ripe and gone.

Available stock: Sansoto 71, Cheresoto 91, transplanted, 6 feet, extra heavy trees, each $1.00.

PURPLE LEAF SAND CHERRIES.

An event for landscape gardeners. By crossing the Dakota sand cherry with pollen of the Purple Leaved plum of Persia, **(Prunus Pissardi)**, we have a number of beautiful shrubs following the sand cherry in stature and glossiness of leaf, but with the rich purple-red color of foliage which gives the Persian sire such wide popularity. In the spring of 1909, three of these seedlings were first introduced as Purple A, Purple B, and Purple C. Last year Purple A was named **Cistena** (Sioux Indian name for "baby").

Further experience shows that Purple B is also worthy of a name since the color is as bright and the growth equal if not superior. The name now given to Purple B is

STANAPA.

which is made up from two Sioux Indian words meaning "purple leaf". In my opinion these purple-leaved sand cherries will win great favor for single specimens or groups on the lawn or for dwarf ornamental hedges, owing to their brilliant coloring.

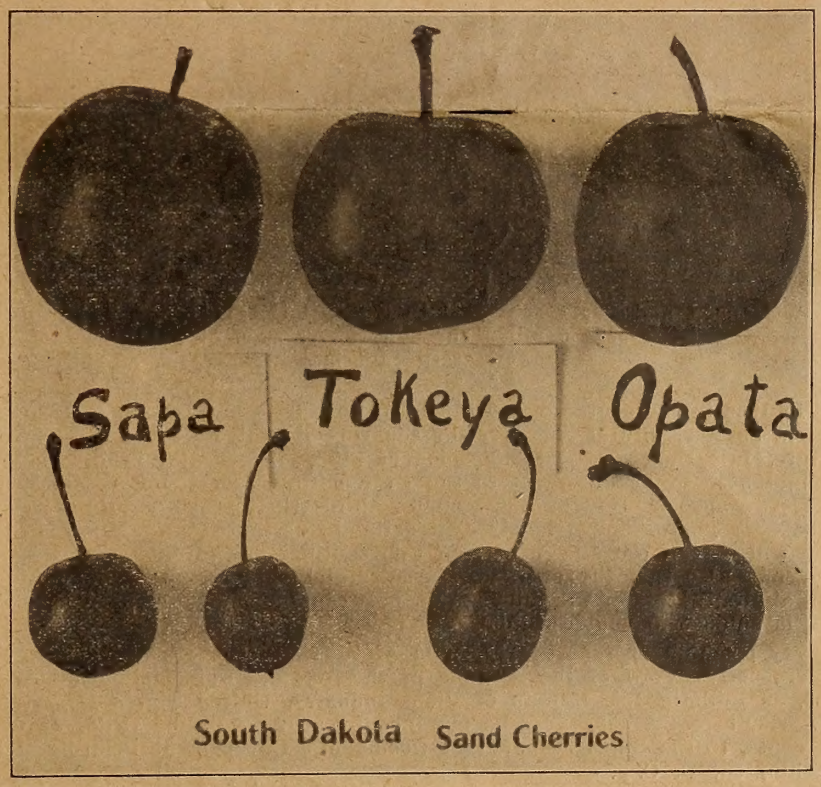
For the spring of 1911 I have 86 two-year transplanted plants of Stanapa budded on native plum stocks; price each $1.00.

CHERESOTO.

SCIONS.

Scions of all the hybrid plums listed in this circular are now in cellar ready for top-grafting or for crown-grafting out doors in early spring on native plum roots. Scions are intended mainly for expert nurserymen, as in the hands of amateurs they usually give disappointment only.

Price of scions, 10 feet for $1.00, 100 feet for $5.00. No scion order for less than $5.00 will be accepted.



SAND CHERRY SEEDLINGS.

In the work of improving the native sand cherry, hybridization with Japanese plums gave the quickest results as is shown by such varieties as Opata and Sapa. However, the work of improving the sand cherry by selection from many thousands of seedlings is still under way, the fourth and fifth generations are now under cultivation. The fruit of some of these selected varieties compares favorably with California cherries in size. The pressure of other work has prevented the propagation of any of these for distribution for several years past, with the exception of one very large-fruited variety which I hope to offer in due season. I am now endeavoring to work out a cheaper method of propagation than budding on native plum roots, a necessity for future work. In response to many inquiries we can spare a few mixed sand cherry seedlings of the third generation, small one year plants, at $3.00 per hundred. They vary greatly in size and quality. Most of them will be no improvement upon the wild ones, but for high dry land in their native home west of Pierre they will serve a useful purpose for new settlers. The fruit of all these seedlings is good enough for sauce, and an occasional one will have choice fruit.

On low rich soil in a moist region they mildew and are unproductive. We use sand cherry seedlings also as dwarf stock for plums and peaches in our fruit-breeding experiments, and have had good results from indoor grafting of native plums on sand cherry seedlings, using a long scion and whole root, so that the plum may soon be on its own roots.

HARDY RASPBERRIES.

Out of fourteen thousand raspberry seedlings fruited at this station the Sunbeam is the only one that has been named and introduced. It now stands out as the hardiest red raspberry in cultivation. The Sunbeam was first sent out in spring of 1906 and is now so extensively grown by nurserymen that I will not need to continue its propagation. The female parent of Sunbeam is a wild red raspberry from Cavalier county, North New York. The male parent, Shaffer's Colossal from New York.

The Sunbeam is now on the recommended Fruit List of the Minnesota and South Dakota State Horticultural Societies.

HARDY STRAWBERRIES.

An immense number of strawberry seedlings have been raised at this station in the endeavor to originate a "busy farmer's berry," one that is hardy without winter mulching. These are mostly hybrids of the wild and cultivated varieties. Two of them have been sent out so far, South Dakota Nos. 1 and 2. The pressure of other work has prevented the propagating of the larger-fruited seedlings. Several hundred different seedlings are still retained. Both Nos. 1 and 2 have the habit from their wild parent of setting too many plants, but they are extremely hardy. Fruit one-inch in diameter when plants are not allowed to get too thick. It is probably best to fruit the beds only one year.

Some New Alfalfas

N. E. Hansen and party coming into Semipalatinsk, August, 1908, from a drive of 400 miles through the steppes of Southwestern Siberia.

In 1906 in the course of my third trip to Russia and second trip through Siberia as Agricultural Explorer for the United States Department of Agriculture, I learned that three species of alfalfa grew wild in Siberia, and brought seed of one of them to the United States for the first time. The other two species were obtained on my third trip to Siberia in 1908-9. All three bear yellow flowers. My own estimate of these new alfalfas is that they will extend the alfalfa belt on this continent as far north as we wish to farm. Also that they will be needed mainly in regions where our common alfalfa, native of the mild region between India and the Mediterranean Sea, is subject to winter-killing.

My preliminary report "The Wild Alfalfas and Clovers of Siberia, with a Perspective View of the Alfalfas of the World," was published May 28, 1909, as Bulletin 150, Bureau of Plant Industry, United States Department of Agriculture. A copy may be obtained by sending Money Order or Cash, ten cents, to the Superintendent of Documents, Government Printing Office, Washington, D. C.

So far seed from the 1906 trip has not been available in sufficient quantity for the Experiment Stations, let alone the multitude of private planters eager to test them. My correspondence indicates the intense and widespread interest in the alfalfa question, but farmers must be patient until the relative value can be determined and seed of the best ones raised for distribution.

Seeds will not be available in quantity until the legislature grants sufficient funds for the work at the central station and sub-stations, preliminary to the work of farmers and seedsmen.

WHY NAMES INSTEAD OF NUMBERS.

Words are usually retained in memory easier than figures, hence I have given the new alfalfas names instead of numbers. The present plan of giving each state its own agronomy accession numbers makes it very difficult to follow up new introductions. In time, however, the agronomists will, no doubt, adopt rules of priority in nomenclature as stringent as those of the American Pomological Society. The present lack of rules in agronomy nomenclature causes confusion, as it inflicts local bookkeeping on national problems.

FOUR ALFALFAS: PURE-BRED AND HYBRID.

One-year-old plants of four varieties are offered for spring, 1910, two of the Sand Lucern (**Medicago media**) group; two of the yellow-flowered **Medicago falcata** of eastern Russia and Siberia. Further experiments will determine which is the better of these two types of alfalfa. **Medicago falcata** ranges much further north in Asia while **Medicago media** is a natural hybrid which occurs where the ranges of the yellow and blue flowered alfalfas overlap. The crossing occurs freely where the two are grown together. These hybrid or mule alfalfas are distinguished by wonderful vigor of growth, and their quick recovery after cutting; also the seed does not shatter prematurely. **Medicago falcata** ranges much further north in Asia and is no doubt hardier, but the seed is inclined to shatter too early; this, however, will no doubt soon be bred out by selection. The plants vary greatly in habit, some being as tall and erect in habit as any plants of the common blue-flowered alfalfa **Medicago sativa**; while others are of low semi-trailing habit. The latter may prove valuable for steep slopes and mountain pastures, while those of erect habit will, of course, be best for mowing. Russian experience shows that Medicago falcata as found native in eastern Russia and Siberia stands grazing much better than the common alfalfa; in my opinion, this Siberian type of Medicago falcata will be a valuable addition to our native ranges. Plants can be set at the start by means of cheap hand transplanters, and thus our roughest hill lands, now of little value, can probably soon be vastly increased in carrying capacity as pastures.

TRANSPLANTING ALFALFA PLANTS.

The past season we have raised alfalfa plants by sowing seed in rows with a garden drill and cultivating with a wheel hoe, much the same as for carrots and beets. The plants made a strong growth and were dug up late in the fall and are now heeled in outdoors with manure over the earth. They will be desirable for transplanting three to four feet apart each way in good garden soil and should be given thorough cultivation. This will encourage the production of seed. Transplanting alfalfa plants is nothing new as it has long been practiced in parts of India and South America.

In South Dakota they will be sent only to those agreeing to enter into co-operation with the station in this alfalfa-testing work of the Agronomy Department of this station. Planters living outside the state must make the same agreement with me so that I may later make the report to the United States Department of Agriculture.

PRICE OF ONE-YEAR-OLD ALFALFA PLANTS OF THESE FOUR VARIETIES.

Customer's Selection.

50 of one kind for $1.50
100 of one kind for 2.50

My Selection.

50 of one kind for $1.20
100 of one kind for 2.00

The above 20 per cent discount is because the four varieties are not on hand in equal numbers.

HANSEN'S OMSK 1908 SIBERIA ALFALFA.

Hansen's **Omsk Siberia** Alfalfa (1908 seed). This was grown from seed gathered from wild plants near Omsk, Akmolinsk province, western Siberia (S. P. I. 24453) in my 1908 trip to Siberia, hence is really the same as my No. 199 of my 1906 trip (S. P. I. 20719) **Medicago falcata**, gathered in the same place. The plants hold their own perfectly with other native plants in the compact prairie or steppe sod. Omsk is in latitude fifty-five degrees. A plant of vigorous habit with bright yellow flowers. The plant varies somewhat in erectness of habit so that there is room for improvement by selection.

HANSEN'S SEMIPALATINSK ALFALFA.

Plants grown from seed gathered from wild plants in the dry steppes of the Semipalatinsk region, Akmolinsk province, southwestern Siberia. Plants are mostly of the tall growing type much the same as the lot I gathered in 1908 on the Irtysh river about ten miles north of Semipalatinsk, (S. P. I. 24455), from plants of erect habit, with stems some of which were five feet eight inches long. Flowers bright yellow. This is **Medicago falcata** from a region with very cold winters and dry hot summers.

HANSEN'S CHERNO ALFALFA.

This is my No. 196 of the 1906 trip (S. P. I. 20716). A Sand Lucern or hybrid alfalfa (**Medicago media**) descended originally from a single plant found wild on the steppes of the Voronesh province, southeastern Russia, land of the Don Cossacks. The flowers are called black-green, but are really a very dark purple changing to a rich green with dark purple veins; plant of strong, very upright growth, a heavy seeder here the past three years. In my opinion this hybrid condition of the plant should be continued and the colors not isolated by selection as it appears to add extra vigor.

Cherno refers to the dark-colored flowers, being the Russian word for "black."

HANSEN'S COSSACK ALFALFA.

This is my No. 194 of my 1906 trip (S. P. I. No. 20714). A Sand Lucern (**Medicago media**), a hybrid alfalfa from the Voronesh or Voronezh province of the Don river region of southeastern Russia. This spontaneous or natural hybrid of M. falcata and M. sativa will sometimes have blue flowers on one branch, yellow on another, sometimes both colors on the same branch; a heavy seeder here the past three years. This stock descended originally from a single plant growing wild and in my opinion this hybrid condition should be continued and the colors not isolated by selection as it appears to add extra vigor.

This province is in the black soil region where Indian corn, sugar beets and watermelons are raised.