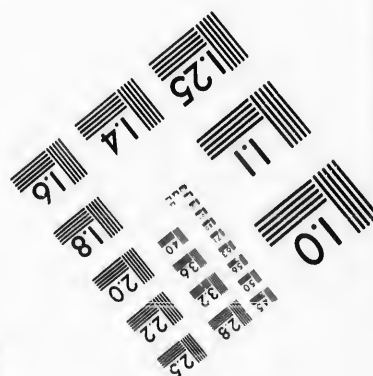
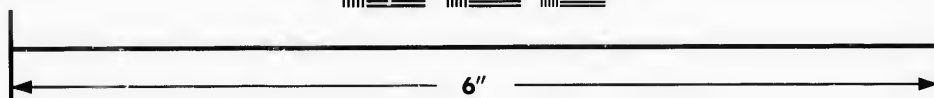
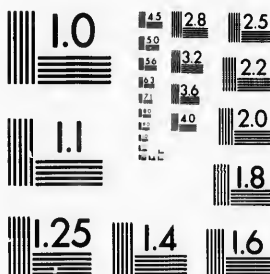


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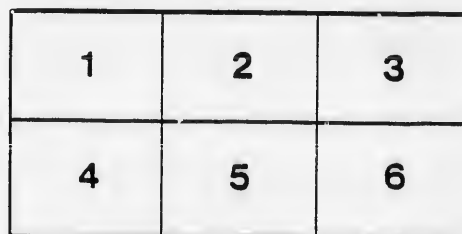
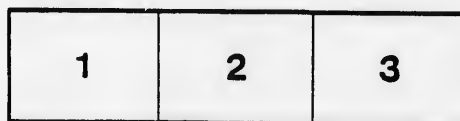
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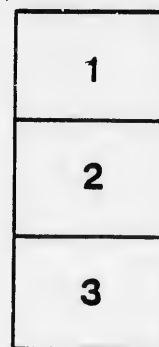
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From J. & A. Beaudry
FRUITS FOR THE COLD NORTH.

847

REPORT

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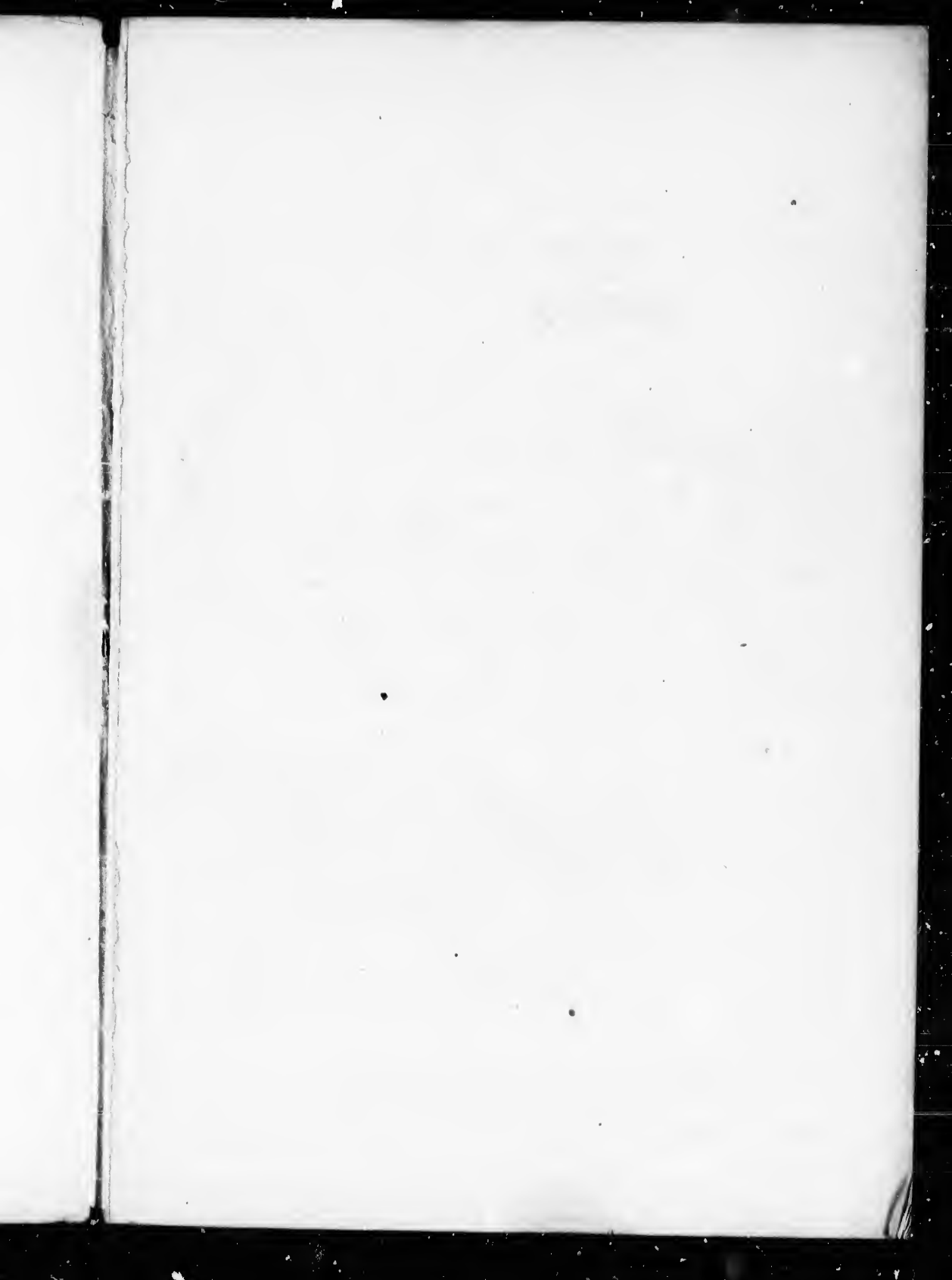
RUSSIAN FRUITS.

BY CHARLES GIBB,
ABBOTSFORD, QUEBEC.

WITH NOTES ON RUSSIAN APPLES IMPORTED IN 1870 BY U.S.
DEPARTMENT OF AGRICULTURE.

Reprinted from the Report of the Ontario Fruit Growers' Association for 1883.

Toronto:
PRINTED BY C. BLACKETT ROBINSON, 5 JORDAN STREET.
1884.



MAP OF PART OF RUSSIA.



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FRUITS FOR THE COLD NORTH.

RUSSIAN FRUITS.

BY CHARLES GIBB, ABBOTSFORD, QUEBEC.

With Notes on the Russian Apples imported in 1870 by the U.S. Department of Agriculture.

It may seem strange that the fruits of Russia are so little known in this country, scarcely known even in Germany, that the fruits of one part of Russia are often but little known in another.

Our fruits came to us, as it were, by chance. In the days of the old French colony, the peasants of Normandy and Brittany brought with them the seeds, and perhaps the scions of the apples they loved most in their native land. Later, the Englishman introduced his favourite fruits, and the Scotchman his; in time the matter became commercial, and we soon had under trial in Canada and in the Eastern States all the best fruits of the mild humid portion of western Europe.

That not until 1882 we should have begun to explore our own *like climates* in the old world seems strange indeed!

The fruits of western Europe and their pure offspring, born on this continent, as a rule, are not long-lived upon the western prairies above latitude $43\frac{1}{2}^{\circ}$, not a success above $45\frac{1}{2}^{\circ}$ in this Province, and that only in exceptionally favourable localities. In eastern Russia we find fruit growing a profitable industry in climates decidedly more severe than that of the city of Quebec. Hence we may expect to increase the area of fruit culture northward upon this continent very largely.

The uncertainty of these fruit trees of western Europe in the severer climates, had led to large importations by the State Agricultural College at Ames, Iowa. (See 7th Report Montreal Hort. Soc., p. 151.) Prof. Budd had gathered there the largest collection of fruits for severe climates, which I know to exist; but such was the uncertainty of nomenclature, such the difficulty of getting exact information as to their probable value, that the work of sorting out the best seemed a work of many years. Northern horticulturists were looking with great hope to the Russian fruits. The work could not be allowed to rest. Some one had to go to Russia. Mr. Budd and I went.

Those acquainted with Mr. Budd's work on the College farm at Ames, will readily see that several valuable lines of thought in this report are not mine but his.

To our Provincial and Canadian Governments I am indebted for the kind and hearty way in which they seconded my efforts by giving me such introductions to the Imperial Government as enabled me to follow up my work in Russia.

To the Department of Public Domains, and the Department of the Interior of the Imperial Government at St. Petersburg, I am indebted for the kind way in which they afforded us every assistance possible.

To our botanical and forestry friends my best thanks are due. In fact, one of the chief retrospective pleasures of my journey in Russia, was the kindness of my Russian friends, the kindness of my Polish friends.

Our work created some interest in Russia. Often, when speaking to people we happened to meet, we found that they knew all about our visit through notices in the Russian press.

At St. Petersburg it was intimated that a commissioner would, most probably, be sent next year to Canada and to the United States, to do work similar to that which we had done in Russia. Our fruits he will find pretty well catalogued, pretty well looked up. As soon as we know of his coming, means must be taken to insure his obtaining all possible information, and that in as short a time as possible.

Nomenclature in Russia is hopelessly confused. Different names are given to the same apple in different localities, the same name to different apples growing in adjacent districts. So many names, however formidable they may sound in Russian, mean merely round white, white sweet, white transparent, etc., names without individuality. Fortunately, a few names have been fixed by commercial demand, and are known by the same names throughout Russia.

NOTE.—The catalogue of apple trees imported by the U. S. Department of Agriculture from Dr. Regel, of St. Petersburg, in 1870, gives a fair, if not an exaggerated idea of the confusion in Russian nomenclature. Apples of Blue Pearmain, Anis, and Greening type turn out to be Duchess; even Red Astrachan seems to be Duchess. So that the same apple appears under many different names. Many, too, of the apples of eastern Russia, apples long and widely known, are not what their names represent them to be. The rendering of the Russian names into English sounds has been done from a Russian, not an English point of view. We must render these names *euphonically*, and thus retain the true music of the Russian language.

The translation of these names unfortunately is bad, in some cases wrong, as in 355, where Aport is translated Orange. In 339 Krimskaja Selonka is rightly translated Green Crimean; but in 439 K. Beel is White Krim, and in 563 Krimskoo is rendered Krintarter. Then again in 200 and in 436, Repka is translated Turnip, whereas in 410 it is translated Seedling, which must be nearly correct, for apples of fine quality are known as Repka. The translation was done at the Russian Embassy in Washington, but unfortunately the Russian who dictated this translation was not an apple grower, and did not know that he was disintegrating the foundation stones of Russian nomenclature in this country.

Printers' errors are innumerable. In the Russian columns the printer seems to have had it all his own way. We have *naliv*, *naliv*, *naliv*, *naliv*, which is rendered juicy or transparent. The Russian word for yellow is *scholti*, *schotoi*, *schaltui*, *solatoi*, *scholtoe*. Green is rendered, *schlenka*, *sclenka*, *selonka*, *selonnoe*, and *selennoe*. The Province of Livland is rendered Tierland. In 351 we have Cuadkaja for Sladkaja; and in 477 Ranette Kiluski is translated Queen of Kiev, or Kiev, as we would say; but who would suspect Kiluski of being Kievski: hence the Russian names have been dreaded. The

Russian language is as musical as Italian, and when the Russian names are properly rendered into English sounds it will divest them of half their difficulty. This matter *must* command the attention of the American Pomological Society at its next session.

A serious drawback to the fair trial of the Russian apple has been the habit of top-grafting it upon the crab. The Russian apple is not allied to the Siberian crab; and some varieties, especially the transparents, when top worked, seem to live under protest. Their fruit is smaller, and this gives an unfavourable idea of the Russian fruit. Such is the opinion of Mr. Tuttle, of Baraboo, Wis., and of Mr. Webster, of South Northfield, Vt., and others; and such is my own, after visiting a number of orchards in Wisconsin and Minnesota. Root grafted on crabs they do better, but the best stock for the Russian apple seems the hardy apple, not crab.

One great difficulty in Russian nomenclature arises from the strong family likeness of seedlings of like parentage. A hardy race of the apple, seemingly more nearly allied to the wild form than the cultivated apples of western Europe, has been grown for many centuries by seedling production, and has been reproducing itself from seed. Yet this is not strange news to us. Some families of apples, even when surrounded by apples of other types, have a strong tendency to reproduce themselves in their seedlings. The Gilpin or Little Romanite, Mr. Budd tells me, has been producing seedlings like itself in the West. The Calville family, too, is a striking example. Our Fameuse has a large progeny of strong parental likeness, and many think that two or more distinct varieties are commonly propagated under this name.

In Russia there is no standard of nomenclature, no authority that answers to the American Pomological Society or Downing, yet fruits received from that country must be propagated on this continent, as far as possible, under fixed, unchangeable names. The collections of apples on the farm of the State Agricultural College at Ames, Iowa, already number over 400 varieties, inclusive, no doubt, of many duplicates; additions, too, are being made from different parts of Russia. The collections received a year or two ago embraced most, not all, yet most, of the best varieties grown in Russia. We must have, on this continent, one fixed standard of nomenclature, and it would seem best that it should emanate from Ames.

The converting of the Russian names into English needs some thought. We have not the sounds in English to render them exactly. In this matter our aim must be simplicity. We need names our farmers can spell and pronounce rather than a laboured but more accurate rendering of the Russian sound. We have usually failed in with the spelling in the list published by the Department of Agriculture at Washington, especially where varieties sent out by them have become known. However, the sound "ov" or "off" positively must not be spelled "ou" or "ow" as in Antonouka, Titowka, and for convenience we have used "ov" as in Antonovka, Titovka.

But one book, I believe, has been written on Russian Pomology, that by Dr. Edward Regel, Director of the Imperial Botanic Gardens at St. Petersburg, and published in 1868. This book was criticized severely, at the time of its issue, by some of the European journals; but I cannot help feeling that the critics did not take a full view of the situation. Dr. Regel, in the fickle climate of St. Petersburg, was unable to test very many of the varieties he described, able only to describe them as received, and under such names as they were received by. The fact is, Dr. Regel did his full fair share towards the doing of a great

work, and as Mr. Budd observed, had this been followed up by the organization of a National Pomological Society, Russian nomenclature would now be in a very different state.

Mr. Shroeder, of the Agricultural College at Petrovskoe Rasumovskoe at Moscow, has very complete notes, compiled from specimens and information received from different parts of Russia. These apples were, for the most part, received for trial on the College Farm, but I regret to say, that the unusual cold of the winter of 1877 and the cold clay soil upon which they are planted, has been against them.

This collection was very large and contained the greater part of the best apples of the steppe climates. It is much to be regretted that these notes of Mr. Shroeder's have not been published. Mr. Shroeder has not visited the orchards from whence the grafts and fruits were obtained, yet his notes we found singularly exact. Such was the opinion we gradually formed as we continued our work in the Russian orchards.

Pomology is a neglected science in Russia. What has been done seems to be local individual work, not united work. Strange this neglect on the part of a Government which has founded such botanic gardens, a Government which has done such noble work for future generations in its forestry department.

ON CLIMATES.

The true index to a climate is the flora of its botanic gardens; faulty only from the fact that these gardens are usually situated under the sheltering influence of some large town, and, therefore, not a true record of what might be grown in bleak exposures in the same latitude.

The same is true of the meteorological stations. They, too often, like our McGill College Observatory, record the temperature and winds of a sheltered city rather than that of the open country.

We frequently heard of very low temperatures in Russia, which do not seem verified by the Government records. Thermometers often differ at very low temperatures, especially when below forty. Yet the statements I quote in my report were made by careful observers, usually men on the forestry staff, and I therefore, with this caution, state the temperatures as given to me.

In this part of Canada we suffer from drought but not from diminished rainfall. I must explain this apparent contradiction. England is a land of verdure, the lawns are like velvet, the trees and thatched roofs covered with moss. What a contrast to our dry climate, and yet the annual rainfall of London is nearly thirteen inches less than that of Montreal. It is from aridity of air, and consequent rapid evaporation that we suffer.

In Russia we find fruit cultivated largely in climates where the conditions of extreme cold, dryness of air, and scanty rainfall are greatly intensified.

In the Government of Kasan, above latitude fifty-five, where the winter temperature is five degrees lower than in the city of Quebec, the rainfall a good deal less than one-half, the evaporation as great, we find apple growing a great commercial industry, the industry, in fact, in twelve peasant villages. This is the coldest profitable orchard region of the world, and the conditions of growth deserve study. The soil upon these exposed bluffs is a fine comminuted dusty clay, like a "loess." For retaining moisture,

for absorbing it, for holding frost without injury to the roots, there is no better. The dry fall here causes perfect maturity of growth; the thick, fine textured leaf does not suffer from the dryness of the air. It was Mr. Budd, whose microscopic study of the leaves of these climates first showed their peculiar cell structure. Thus we see that the apple tree of Kasan is a tree thoroughly adapted to the climate it lives in. However, the cold of Kasan seems more uniform than ours. In this Province we suffer from the warmth of the sun in late winter and early spring, warmth followed by sudden cold. This results in "bark-bursting" and "sun-scalding" of the trunk and the lower branches. Such injury is rare in eastern and middle Russia; but how much this is owing to climate, how much to the character of their hardy race of trees I cannot say. In Kasan, too, we find the cherry and the plum grown in fair quantity—that is, nearly all the peasants have some.

In the Government of Vladimir, climate scarcely different from that of Kasan, the cherry is grown in vast quantity and shipped by the car load. Upon what kind of soil I cannot say.

At Simbirsk, on the Volga, in lat. 54° , a climate just like Kasan, a degree less cold, and about one inch less rainfall, we find the pear grown in fair quantity though only of second-rate quality. These trees, too, are thoroughly adapted to that climate, trees of terminate growth, with very thick, close-textured, dark glossy foliage, just like the pears of northern China. Simbirsk and Toula seem to be the northern limits of pear culture east of the Baltic Provinces.

At Saratoff, on the Volga, in lat. 51° , where the winter temperature is but one degree milder than the city of Quebec, we find very large orchards, one of 12,000 trees. A pear orchard, too, of 500 trees, and most of the varieties in good health. Yet here we were told that the mercury at times became solid. So near is Saratoff to the desert steppes, so light the rainfall, that irrigation is necessary for profitable orcharding.

Kursk and Voronezh, in lat. 51° , are the most southern of the points of special interest in middle Russia. I fancy their climate to be rather colder than that of sheltered city gardens in Montreal, about as cold, I should say, as our exposed mountain slope at Abbotsford.

Kiev is decidedly milder; more like Toronto.

St. Petersburg is in lat. 60° , so far north that the stars cease to be visible during two months in summer; the sun is so short a distance below the horizon. A cold coast climate; a Gaspé or Anticosti climate, one would suppose. A cool, short summer, a long, changeable winter, not colder on an average than Montreal, but subject to greater extremes of sudden cold. Early terminate growth is the special characteristic needed here.

Warsaw is a cold north German, rather than a Russian steppe climate.

I have to tender my thanks to Mr. Robert P. Scott, Secretary of the Meteorological Office in London, for his kindness in having prepared for me a table of the temperatures, humidity, etc., of certain points in Russia and Germany, and by way of contrast, of Canada also.

These tables are a great help towards our forming a correct idea of those climates from which we may expect so many of our future fruits.

	MEAN TEMPERATURE.			Lowest Temp. in last Six Years.	Lowest Temp. in 1867.	Average Moisture in the Air.	Average Annual Rainfall.	Authorities.
	Years.	Wint'r. Sum'r.						
		Dec.-Feb.	Jun.-Aug.					
		Fahr.	Fahr.	Fahr.	Fahr.	%	Inches.	
		°	°	°	°			
St. Petersburg	{ 1743-1800 } { 1805-1875 }	17.2	61.2	-35.7 XII.76	-27.0 1.31	82 28	20.5 11	Verhauise des Russischen Reiches, Annales de l'Observatoire de Russie, and Reperitorium fur Meteorologie (Kantiz.)
Riga	{ 1795-1831 } { 1840-1875 }	24.0	62.6	-26.5 I.76	-12.8 XII.31	80 19	22.1 9	
Moscow	{ 1779-1792 } { 1810-1875 }	14.5	63.6	-38.4 XII.76	-36.4 II.1	80 11	23.4 11	
Kasan	{ 1812-1820 } { 1827-1875 }	9.0	64.5	-26.7 XII.75		77 9	17.3 8	
Simbirsk ...	1855-1864	9.9	64.8	-22.0 { II.77 { I.78		77 4	18.7 4	
Saratof.....	{ 1836-1857 } { 1872-1875 }	15.3	68.6	-26.7 XII.75		72 4	18.1 3	
Tula	1846-1847	15.4	64.9					
Orel	{ 1838-1845 } { 1851-1863 }	15.8	65.6				24.66 4	
Kursk	{ 1833-1837 } { 1840-1859 } { 1865-1868 }	17.2	65.0				16.81 18	
Voronesh...	{ 1862-1865 } { 1867-1869 } { 1873-1875 }	16.2	65.2	-34.2 I.80		78 11	27.7 7	
Kief	1812-1875	22.6	65.1	-23.6 II.80		77 11	22.9 11	
Warsaw	{ 1760-1763 } { 1779-1799 } { 1803-1875 }	25.7	64.2	-16.8 XII.79		80 11	22.2 11	
Berlin.....	16 years ? to 1868	31.3	65.0	-2.2 I.81		73 3	22.9 6	Doves Klimatologische Beitrage & Deutsche Seewarte obs'ns, 1876-81. Vienna obsn's. (1880 returns.) Klimatologische Beitrage. Canadian Ann. Reports. Toronto General Register, 1881. Greenwich observation.
Vienna	1775-1874	30.9	67.5	-4.4 XII.79	7.9 XII.10	72	21.1 34	
Reutlingen .	2 years.	34.5	65.0					
Montreal...	1870-1880	18.4	67.4	-25.2 XII.79		*73.97 8	38.53 11	
Quebec.....	1870-1880	14.2	63.9	-26.5 I.78			39.81 11	
Toronto	1841-1881	23.8	65.3	-15.1 II.81	-12.8 XII.13	77 41	34.75 41	
London						81 17	25.17 30	

The figures entered under the Relative Humidity and Rainfall are the number of years from which the means have been obtained.

The spaces left blank indicate that no information is available.

* This item kindly filled in by Prof. McLeod, McGill College.

The Roman numerals in lowest temperature column indicate the month, and the figures the year in which it occurred, as XII.76 means in December '76, I.76 means January '76; in the column of lowest temperature for 1867, the figures indicate the day of the month, as 1.31 means January 31st.

APPLES.

Anis.—This is the leading apple of the Volga, the apple tree most highly prized, most largely grown. To the enquiry, which are your most profitable varieties? the reply invariably was *Anis*,—I think, invariably, my notes show no exception nor do I remember one. Such was the verdict in all the orchards of the different towns and villages between Kazan and Saratof. We first met with it in that curious semi-oriental bazaar, the Nijni Novgorod fair. Here we find the Russian peasant orchardist bringing large quantities of it to the bazaar in dark boxes, usually willow bark boxes, holding about three bushels.

In the southern part of the Government of Kazan, in latitude 55°, the same latitude as Moscow, 430 miles to the east of it, in a continental climate, a climate of extremes, and yet 600 miles nearer the North Pole than the city of Quebec, there are twelve villages where the peasant proprietors are apple growers, the chief industry in fact is apple growing. When we were there the little trees were loaded with fruit, yet the thermometer had been down to forty below zero the winter previous. Five years before, during one day, the temperature on these exposed loess bluffs was - 40 Reaumur, or 58 below zero by Fahrenheit's thermometer. These low temperatures, however, do not seem verified by the meteorological records of the city of Kazan. Hearing of these low temperatures I looked for winter injury to the trees, but did not find any traces of it.

In answer to the query, which is the hardiest apple tree you have, the tree that has stood best the most trying winters? the answer, I believe, always was *Anis*. The general idea there is that it is of all kinds known, the apple tree that can be grown the farthest north, except what they call the Chinese apple, or as we would say, the Siberian crab, and these crabs, which are not common, are true Siberian *Prunifolias*, and not less hardy hybrids. In these villages the apple is grown, in a good season, certainly to the value of \$50,000. In this, the coldest profitable orchard region in the world, the *Anis* is noted as their hardiest tree.

Many species of trees become dwarfed towards the northern limit of their growth. The most northern pines and spruces, birches and poplars, are but little shrubs; in the same way we find this *Anis* in Kazan, especially when growing on thin soil and without cultivation, loaded with fine fruit, and this, evidently, not one of their first crops, and yet the tree is not more than six feet high. We find little trees planted two, three, and even four together in a clump like stalks of corn, three or four to a hill, and these clumps ten feet apart each way. This is strictly true of some orchards, not so of others; for upon richer and moister soil, the trees grew somewhat larger, and as we went southwards, at each town we stayed at, we found the *Anis* larger, until, at Saratof, we saw *Anis* thirty-five years planted which had attained a diameter of trunk of ten inches. In nursery it is a slow and crooked grower such as nurserymen hate to grow and hate to sell after they have grown them. In orchards a slow grower. Trees in different places, pointed out as thirty years planted, seemed very small. In old orchards at Khvalinsk and elsewhere, it was considered the most long-lived tree. We saw there trees seventy years at the very least. These were fourteen inches in diameter of trunk, branched low as the *Anis* usually

is, and, though some large limbs had been removed some years ago, yet the trees were sound in trunk and top.

The Volga is a very old apple growing region. I am told that old poems, written about the time when Rurik was upon the throne of Kiof, about 850, alluded to this. The maiden whose neck was like a swan, and whose lips were like cherries, had cheeks like a Volga apple. The high colour of the apples of this dry reigon is very striking.

A wild rugged race of apple trees have been grown here for many centuries from seedling production, until we have a number of seedlings much alike in tree and fruit, and hence it is that the name Anis is but a family name.

As we used to gallop past these peasant orchards in our Tarantass—a basket on wheels without springs, usually drawn by three horses abreast—we were always struck by the beauty, even when some distance off, of one variety of the Anis. This is the Anis Alui or Pink Anis, and, I suppose, the same as the Anis Rosovoi or Rose Anis spoken of at Simbirsk and other places on the Volga. It is an oblate of full medium size, or about the size of the Fameuse, the colour of our Decarie, mostly a deep pink with a light blue bloom. In these dry climates we may expect high colour. When we were on the Volga it was too early to taste it in good condition, and besides this, it is often picked too early, perhaps, to reach distant markets by a certain time. Whether it will colour and ripen on its way to market, like a Duchess, or whether, like our St. Lawrence, it will almost cease to mature after it is picked from the tree, I cannot say. The grain is fine, the flesh white and firm. It is really a dessert apple of fine quality. It often sells at two roubles per pood, that is one dollar per thirty-six pounds, when poorer fruit is selling at thirty cents, and under Russian caro it keeps till late winter or spring.

On account of its beauty and hence its salableness this Pink Anis is the most valuable of the family, and, therefore, when importing let us be sure to get it. It would seem to be the Anis of Mr. Shroeder, at Petrovskoe, but would appear not to be the Anis Alui of Kazan, of Dr. Regel, which is described as acid, and valuable only for cooking, unless this is Dr. Regel's verdict of its quality when grown in the cooler and moister summer of St. Petersburg.

There are other varieties of the Anis which differ but little in tree, yet differ more widely in texture of flesh, but they are not so pretty. At Simbirsk the Blue Anis is spoken of as the best for shipping very long distances as Perm and Siberia.

The Anis Belui, of Kazan, is not an Anis, but is an early autumn yellow apple of small size and fine quality. It is not a keeper, and yet is often gathered from the tree into a barrel of buckwheat hulls and put at once into a cold place, and thus kept till mid-winter and even later. As Mr. Budd suggests, this possibly is the Anis Koritschnevoe of Mr. Shroeder.

NOTE.—In the catalogue of the U. S. Department of Agriculture, No. 985, Red Anisette and Yellow Anisette, 987, are true varieties of the Anis. I saw them in fruiting in the orchard of A. W. Sias, Rochester, Minn., about 20th August last. The latter is partially red, the former perhaps a little more so. Also 382, Russian Green is a true Anis, but more of the Blue Anis type. 413, Skrischapel, is more like Red Anis. I saw it in the orchard of Mr. Underwood, at Lake City, Minn. 225, Getman's Bean, has the angularity, flatness and conicness of Anis, but with increased size. The habit of top-

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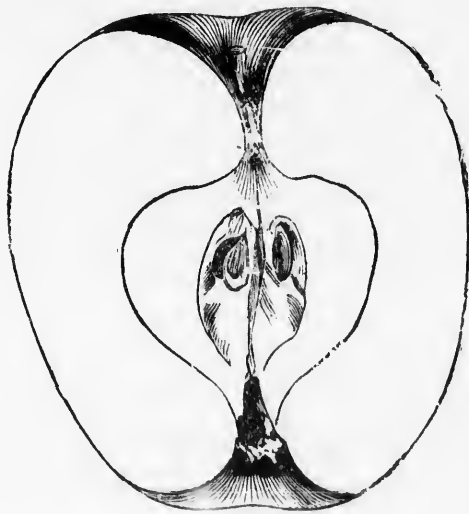
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grafting these varieties on crab stocks causes them to lose much of their individuality both in tree and fruit. 403, Sweet Anisette, and 425, Pointed Anisette, I know nothing of. 984, Koursk Anisette, as I saw it at Mr. Underwood's, is a small green fruit with scarcely any basin and with wrinkled calyx, not an Anis at all.

Anisovka.—Under this name Mr. Shroeder tells us of a medium-sized flat, yellowish green apple, with bright red sidè, grown a good deal about Moscow, and said to be a very good dessert fruit, that keeps a long time, in fact all winter. Further south it would not keep so long. Mr. Goegginger, at Riga, gives us a minute description of it, evidently the same apple, which he says is grown a good deal at Moscow, and to the south, and which proves hardy in these severe climates. However, he states its season to be from November to December. Its value to us would depend much upon its keeping qualities. The *Anisovka*, so named on the Volga near Kazan, is a sweet apple; that at Orel, Voronesh, etc., was thought to be the same as Anis or same as Vosnikovka, a small sweet apple said to be grown there in quantity. Such is the uncertain state of nomenclature.

NOTE.—185, Anisowka, of the Department of Agriculture Catalogue, as fruited by A. G. Tuttle, of Baraboo, Wis., is Duchess.

Antonovka.—This is the leading apple of the Russian steppes, the king apple of that vast prairie region from Tula to the south of Kharkof, from Kozlof to Kiev, a vast prairie region unsurpassed in fertility by any region on this continent. It is the leading apple



ANTONOVKA.

over a larger section of country than any other in Europe, than any other apple I know of. No apple holds so high a rank above others in any large section of this continent; and yet if the Baldwin were equally hardy I would much prefer it.

We first meet with *Antonovka* in the cold climate of Tenki, in Kazan, where it is

looked upon as the best of the "introduced" apple trees, and certainly the young trees we saw there were quite promising. In all the towns on the Volga we find the Antonovka noted as hardy as far as tried, and in some places tried long enough to be thoroughly relied upon.

It is, however, in central Russia that we find the Antonovka so highly prized. In the cold climate of Toulá, in latitude 51° , about 120 miles south of Moscow, yet 480 miles further to the north than the city of Quebec, we find it considered their hardiest and most productive apple tree. A young tree, twelve years planted, is pointed out as having produced its eight poods, or we might say bushels; and old trees, long past their prime, twenty-five poods. In one peasant orchard we find the few scattered survivors of a previous orchard, nearly all of these were Antonovka; strange that this had stood while other kinds alongside of it, intermingled with it, had been killed—killed by a cold winter, I think in 1867.

In the Government of Tambof, half-way between Moscow and Saratof, there was a large orchard of 2,700 trees, only 730 of which survived the winter of 1867, when mild warm rainy weather was followed by sudden cold. Antonovka, though injured, was not killed; it and Anis stood the best. That winter, at Orel, in February, the thermometer went down to -35 Rea.—that is, -46 Fahrenheit—and in exposed places, -37 Rea., or -51 Fahrenheit, and yet Antonovka there is, above all others, their leading apple, and the old trees we saw there were, as far as I can remember, in fine health.

At Voronesh we hear the same opinion, and hear of trees that have produced twenty-seven poods, or 972 pounds, nearly half a ton, and are told that, although "other apples have their faults, this has none." It has its faults, but I quote this to show the widely spread opinion of those who grow it.

At Kursk we still find it their leading market fruit, and on the Bogdanoff estates, find it being planted in quantity, as about the best investment the proprietors know of. Such investments scatter broadcast innumerable little dividends in the form of food and labour. What a blessing to a country is a horticultural aristocracy—it begets a horticultural peasantry—a home-loving, peace-loving, law-abiding peasantry. In horticulture we find the safest anchorage for a peasant population. We asked, at the Bogdanoff estates why they specially chose Antonovka, and were planting it so largely, and were told it was because it was always a cash article, wanted in quantity for the northern market, for confections, for drying, for bottling in water, etc., and a tree, in good soil, and in good seasons, can produce its twenty-five poods.

At the Forestry Convention in Moscow, Mr. Budd asked one of the members, who was from Kiev, what were their best commercial apples. He called three others, also from the Government of Kiev, and after consulting together, named Antonovka first; the second upon the list was the winter Citronenapfel, a German apple of good quality, but not hardy further north.

At Warsaw, where the climate is a cold north German, rather than a steppe climate, we find the Antonovka one of their leading apples, but not their best, and there not a late keeper. Throughout this vast steppe region, the Antonovka is "the" commercial apple, noted for its average annual bearing, its hardiness in extreme climate, its length of life, and fruitfulness in old age in these climates. It is also a first-rate nursery tree, a good

straight grower, healthy tree, nursery run, be over-rated centuries—meet a known. It does well, fall from the yellowish of in texture. but then it. It may, certainly. But few of apples. Its demand in a of being a good. Mr. Shroeder said till Mr. better keeper.

How long handle their upon an apple on the tree picked for a arrived at St. At Tula, on covered with open shed in.

This tree become large to our soil; of picking, I

NOTE.—Riga; they name. The out doubt, but a neighbour described by

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straight grower. In nurseries, when we found a number of rows of straight-growing, healthy trees, all of the same kind, it was sure to be Antonovka. Hence it has "a nursery run," just as the Ben Davis had in Wisconsin a few years ago, and likely thus to be over-rated; but in central Russia it has been a century on trial—perhaps several centuries—and the quantities of it to be found in the Russian nurseries are grown to meet a known demand. It is a prairie apple suited to rich prairie soils it would seem. It does well on clayey soils, and likes moisture. On dry sandy soil the fruit is said to fall from the tree, and to be small in size. The fruit is large, sometimes very large, yellowish oblong, somewhat conic, acid, or subacid, with slight sweetness, rather coarse in texture. When left upon the tree till fully ripe it is said to have a fine melon flavour, but then it ceases to be a long keeper. In quality it is not quite like any apple I know. It may, certainly, be rated as second quality for eating and, I hope, first for cooking. But few of the best commercial apples of this continent are of first quality as dessert apples. Its great fault is its colour, though this does not prevent its being in active demand in all the Russian markets; it is the colour to show bruises, yet it has the name of being a good shipping apple. At Warsaw it rarely keeps past Christmas. At Moscow, Mr. Shroeder cautiously says, till January or February. In central Russia it was often said till March, and, I think, even April was mentioned. I doubt if it will prove a much better keeper than our Fameuse.

How long an apple keeps depends very largely upon how it is kept. The Russians handle their fruit, pack it and keep it, with more care than we do. They seem to look upon an apple as a living thing to be kept alive as long as possible. If allowed to ripen on the tree it has a rich melon flavour, but then it will not keep. All apples in Russia picked for a distant market are picked rather earlier than we should pick them. When we arrived at Saratof, on September 11th, the apples were all picked and shipped to Moscow. At Tula, on September 18th, Antonovka was in huge piles in the orchards five feet wide, covered with basswood bark matting. At Orel, we find what has not been shipped, in an open shed in layers with straw between them.

This tree, on account of its good name and its good growth in nursery, is sure to become largely planted in this country. Its success will depend partly upon its suitability to our soil; but, and mainly, perhaps, to the length of time it keeps under our method of picking, packing, and shipping.

NOTE.—Mr. Budd has received the Antonovka from Moscow, St. Petersburg, and Riga; they all seem alike, judging from their leaf and growth, and would seem to be true to name. The fruit shown to me by Ellwanger and Barry, at Rochester, is Antonovka without doubt, but this was received by them from Moscow. Mr. Tuttle showed me trees in a neighbour's orchard, which the year before had borne fruit exactly like the Antonovka described by me.

I have strong hope that 236, the Antonovka of the Department Catalogue, is true to name.

Has the Antonovka run into varieties like so many other apples by seedling production? The answer to this question was usually in the negative, yet with one or two exceptions; and at Tula an apple was shown to us as the Doukavoya, which seemed to be none other than Antonovka; yet three fruit growers there each declared it to be distinct, and said it was as hardy and as productive.

Possart's Nalivia is said, at the Pomological School at Warsaw, to be a synonyme. Dr. Lucas, in one edition of his Pomology, held this view, and, in another edition, thought not; and this latter opinion is shared at Proskau and Riga.

Goeppinger, of Riga, after a good deal of correspondence, rather thought they were not identical. Mr. Fritz Lucas now inserts it in his catalogue as a synonyme.

NOTE.—I would be very loath to assume that Nalivia, or Possart's Moskauer Nalivia, described by André Leroy in his *Dictionnaire de Pomologie* is the same as Antonovka. Mr. Budd also has a Possart's Nalivia, from Warsaw, which he does not think to be Antonovka.

Aport.—This is the family of which our Alexander is a member; a large and widely scattered family, and often of strong family type. No accurate notes seem to have been taken of the places where they live and thrive. We cannot in this country expect to do such work; the most we can do is to find out what is good there, import and propagate it here.

It is named Aport because imported long ago from Oporto, in Portugal, just as another Russian apple which long ago found its way into Virginia, comes back to Russia via Germany, under the name of Virginischer Rother.

Some of the apples we find under this name show by their features that they are near relations of the Emperor Alexander, many others show no likeness whatever. Sometimes under other names we find typical apples, like the Borodovka Belui, of Orel, which is just like Alexander, but white. At Kursk, too, we find, under the name of Sklianka, a fruit of aport form, but almost without colour.

I am not sure that we saw the Alexander in Russia, though I believe it to be grown there. At Volsk we found a fruit very like it, only wanting in that slight flatness of the base which our Alexander has. In the Kozlof market we find an apple just like it, though perhaps slightly larger in calyx, but it proved somewhat tough in texture, a sharp acid mingled with sweet; a fine apple, and it would seem a pretty good keeper. At Orel we find another, alike in look, but sweet; not as good as that in Kozlof or Voronesh markets.

Mr. Shroeder describes Aport as a very large, flat, conic apple with a red side, of aromatic flavour, not productive; too heavy, and liable to be blown from the tree, yet grown a good deal to the south of Moscow, at Orel, Tula, etc., the best of the Aports. This, I suppose, is our Alexander, but I cannot be certain.

In the report of the Royal Horticultural Society of London for 1822 the Alexander is mentioned as having been received from Riga, and is stated to be a native of southern Russia. It was most probably received from the late M. Wagner, grandfather of M. Chs. Henri Wagner.

The Aport osenie or autumn Aport, Mr. Fischer, at Veronesh, says, is like Titovka,—in fact often difficult to tell apart, although the one is a summer and the other a winter fruit. This seems like the apple we saw under this name on the Volga at Tenki, at Prince Gagarin's, and very like the coloured print of the Aport osenie given by Dr. Regel. It is a large, oblong, handsome winter apple. It, and what we saw in Kozlof market, I should think the most valuable of the apples known there as Aport. Of the summer Aports I seem to know nothing. On the Volga we saw several kinds, always large,

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usually well coloured, and of fair quality, but none that specially struck me as of special value to us. I do not know that they have any just right to the name Aport, yet that name seems to be thought applicable to large apples.

NOTE.—I regret that I know but little of the Aports in the Department list. No. 166, Summer Aport has been fruited by Mr. A. Webster, South Northfield, Vt., an apple of no special merit, and not at all of Alexander family. 279, Winter Aport. Has been fruited by Mr. Sias, and is not an apple of Aport type. 252, Aport. 261, Aporto Turnip, and 355, Aport Herbst (unfortunately translated autumn orange), I know nothing about. The Riabinouka has been fruited by Dr. Hoskins, and is a fruit very, very closely resembling Alexander, but this was received by him from D. W. Adams, of Waukon, Iowa, and may not be 455, of the Dept. Catalogue. The Grand Duke Constantine, of Ellwanger and Barry fruited upon my own trees during my absence. Mr. J. M. Fisk, my neighbour, who watched it carefully, says it is just like Alexander in tree and in appearance of fruit, but that the flesh is different, and rather better than Alexander.

178, Barloff, as I saw it in Mr. Tuttle's orchard, has the size, form, colour, and distinctive features of Alexander, just like the one we saw and tasted at Orel in Russia; but that grown by Mr. Webster under this name and number is quite different. Those importing from Russia should include winter Aports and Kaiser Alexander, in their orders. Several large late keepers are known as Kaiser Alexander, and Dr. Regel, in his Russian Pomology, gives that name as a synonym to several apples of its type.

Arabka (Arabskoe).—Under this name there are one or more apples of decided promise. At Moscow, Mr. Shroeder tells us of a large conic apple of very deep colour, which is a long keeper. The tree he finds a little tender at Moscow, but says that it is grown a good deal in central Russia. In the market at Kozlof, we find what would appear to be this apple, in fair quantity, and known as Arabka, and specimens taken to Voronesh were recognized by Mr. Fischer, Director of the Botanic Gardens, who considers it a valuable cooking apple, that keeps till May; but he added that that which he had received from Riga, under that name, had proved to be Gros Mogul. At Volsk, on the Volga, in latitude 52°, we found in an orchard, about twelve trees in profuse bearing, of an apple known there as Tchougouнка, which means cast iron; the fruit was roundish, of a dark purplish red, covered with a light bloom, much like the Blue Pearmain. It was above medium in size, although the trees were so overloaded; a firm, solid, acid fruit, said there to keep two years. It also has the merit of holding on to the tree so firmly that I could hardly find a windfall. It and Steklianka were the only varieties in this orchard not yet picked, on the 8th Sept. At Saratof, on the Volga, we visited an orchard of 12,000 trees, where a week or two before they were employing 300 pickers and eighty-five packers to ship to Moscow 25,000 poods of apples. In a good year they either did (or could—I am not sure that I understood correctly) produce 85,000 poods, which is equal to 1,530 tons. From our description of the Tchougouнка at Volsk they supposed it to be the Arabskoe—which apple they thought highly of, and placed upon their list as *third* for profit. This Arabskoe has been long known at Saratof. The query is whether the trees I have spoken of as growing at Volsk and Saratof, are the same as the Arabka of Kozlof and of Mr. Shroeder; if so, the Arabka is likely to prove a valuable late keeper. A specimen picked at Volsk on the eighth Sept. was eaten by us at Warsaw on Oct. 4th; a crude, juicy, sharp acid. It had been carried for nearly four weeks in a

leather bag, which was usually full of books and apples—a bag which had its full share of rough usage, except when used for my pillow, and yet this apple had received no injury. This Volsk Arabka is really a remarkable keeper.

On the Bogdanoff estates, near Kursk, we were shown a Tchougounka, a large round apple not quite as dark as that at Volsk, and looking rather more like what we saw at Kozlof. This is found there to be a good cooking fruit, and a good keeper; but the tree is only fairly hardy—not ironclad, as we would say.

The Arabka, and Arabka Pelasatœ of Regel are altogether different apples; so, too, is that shown to us at Nijni Novgorod, an egg shaped, fair sized, hard, long keeper.

NOTE.—No. 184, Arabskœ, of the Department of Agriculture Catalogue has been fruited by Mr. Tuttle, also by Mr. Budd, at Ames, Iowa, and is pronounced by them to be either Duchess or something very closely resembling it. The Arabskœ, however, of Ellwanger and Barry, is a large flattish fruit of deep pink colour, very beautiful, though only of fair quality. It is not the long keeper of the Arabskœ we saw at Volsk, and is more like that which we saw at Kursk, and yet probably not it. 315, Herrenapfel, has been fruited by Mr. Tuttle, and is described by him as an apple the size of Blue Pearmain, with much the same colour and bloom; a clear, strong, pleasant acid; a fruit that hangs well on to the tree, and keeps longer than Longfield. The Herrenapfels of the Riga catalogues are also of Arabskœ type. Mr. Goegginger described to me the Polnischer Herrenapfel as a medium-sized fruit, red all over, and of first quality. A good market apple from October till December. A hardy tree and good bearer.

Ar d.—I am not sure that there is any apple in this family of special value. They are a family of early apples, sweetish, and of medium size; but the trees have proved very hardy.

In Moscow, in 1877, during one week the thermometer ranged from -32 to -34 R.—that is, from -40 to -44 Fahr; and one day it fell to -35 R.,—that is, to $-46\frac{1}{2}$ Fahr. This was the register on the college farm at Petrovskœ, and caused sad injury to the young orchard, for here Mr. Shroeder had a heavy soil, which tended to produce late growth, as well as a severe climate to contend with. Of all the varieties in the orchard which stood the best? The Koritschnovœs and the Arcads; and of the Arcads the Dlennuï, or long Arcad seemed about the best. At Voronesh Mr. Fischer tells us of six kinds of Arcad, all much alike, early and sweet; but he says that the tree, though apparently hardy, does not live anything like as long as the Antonovka, of which latter he shows fine healthy trees forty years planted; whereas the Arcads usually die at twenty; that is, they die by degrees, branch by branch—one might suppose like our Canada Baldwin, on warm soils from sunscald, caused by early flow of sap, so that perhaps it needs heavier soil.

Dr. Regel, in his work, describes a Red Arcad, which is an apple of first quality that keeps all winter. The coloured print of it is perhaps the most strikingly beautiful in the book. I enquired in many places about this apple, but could get no information about it. An apple of such beauty is worth looking after.

NOTE.—In the Dep. Agri. list Yellow Arcadian appears under Nos. 188, 327, 231. One, or more of them—I do not know which—is noted as an early apple of from fair to inferior quality. No. 476 Red Arcade, has not fruited to my knowledge. 453, Beautiful Arcade, is a firm, white, somewhat juicy, sweet apple, which Mr. Tuttle thinks very

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favourably of. 592, long Arcade, a small or medium sized, flat fruit, with fine grained white flesh. Very pretty, and tree very hardy and productive. Season, late fall or early winter. So says Mr. Tuttle. 203, Arcade, 430, round waxen Arcade, and 864, smoky Arcade, I know nothing about.

Beresinskoe.—Mr. Shroeder speaks of this as a large whitish apple with yellow side, flesh firm but breaking; not able to bear carriage well, but a very fine autumn dessert fruit.

Beriosovka.—This we met and took a great fancy to in the Kozlof market. As we saw it there, it was a fruit of full medium size, oblate, red on one side in splashes and specks; very firm, yet breaking; very juicy, with a fine mingling of subacid and sweetness. The seeds were black on 13th Sept., yet it seemed likely to keep two months. At Voronesh we showed a specimen to Mr. Fischer, who pronounced it true to name, and, moreover, said it was a good, hardy, and productive tree and a fine fruit. Season late autumn.

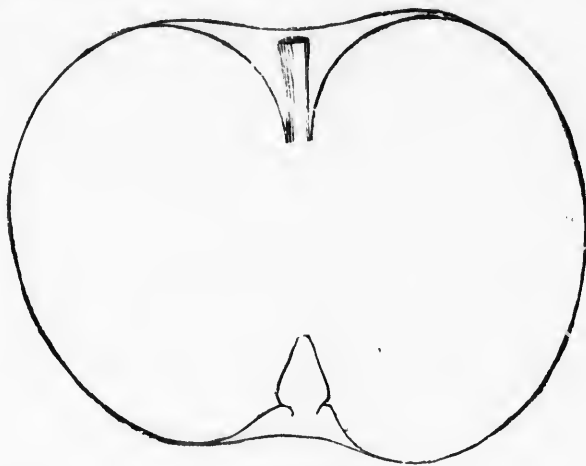
Blackwood (Tchernoe Derevo) is a tree long known upon the Volga. At Khvalinsk we saw trees of it at least seventy years old, and at Kazan trees thirty years of age. It is a heavy bearer, but not a tree of extra hardness. It does not sunscald, but its upper branches are sometimes killed, and this, no doubt, sometimes owing to exhaustion from heavy bearing. On the Volga it is the favourite late-keeping apple for home use. Were the tree hardy enough to be grown at Quebec it probably would prove valuable as a long keeper. Mr. A. Webster, of East Roxbury, Vermont, who has kindly given us, in the last report of the Montreal Horticultural Society, his opinion upon thirty-eight varieties of Russian apples, tested by him, says of the Tchernoe Derevo: "Fruit good, but not of special value—fall." Grown at the north, it is a fruit of very fine quality, and a pretty good keeper; such was our opinion as we tasted it on the Volga. It is one of those mild apples which seem specially to please the Russian palate. In the Volga region and in central Russia its quality is first-rate, and thus it is that, although of small size and unattractive colour, it sells at extra prices, and becomes very profitable. At Saratof, in the two largest orchards we visited, one of 12,000 and the other of 4,000 trees, the Blackwood was named second on their list for profit, second only to Anis. In Russia it sells at one and a-half roubles per pood, seventy-five cents per thirty-six lbs., when other apples are selling at forty kop., or twenty cents per pood, and it even has been sold up to five roubles per pood. Only, if picked early and kept in cool place would be a keeping apple with us, and if so, possibly a valuable apple for home use.

NOTE.—The Blackwood, fruited by Mr. Webster, is No. 407 of Department of Agriculture Catalogue, and from the description of tree and fruit I believe it to be true to name.

Bogdanoff.—This is an apple which has been grown upon the Bogdanoff estates, near Kursk, probably for two centuries. Hitherto it has been known under the name of Repka. There were about 300 trees of it in the orchard we visited. It is a stout, upright grower. Taking an average of years, the Antonovka produces more fruit per tree, but it does not keep so long. A large number of varieties have been tried, yet, next to Antonovka,

they consider it their most profitable winter apple. As a late keeping apple for home use they much prefer it to any other. The fruit is large, and in form, size, and striping, much like our St. Lawrence.

The flesh, when tasted on 21st Sept., was whitish, firm, juicy, crude, unripe, rather fine grained, a mixture of sweet and crude sharp acid. As a long keeping apple of fine quality, I have every hope of this being a very valuable variety.



BOGDANOFF.

A good, late keeping apple would be a perfect God-send to our Province and its like climates. Bogdanoff is a most promising variety, well-worthy of its name, which means God-given.

Bohemian Girl (Tsiganka, Zuiganka).—We saw this beautiful apple in the Voronesh market, a medium-sized semi-oblate fruit, blushed all over with deep pink. The flesh is white, but quite past season when we tasted it. It is a great beauty, and Mr. Fischer says a hardy tree. A summer apple well-worthy of trial.

Borovinka (Borovitski) must be looked upon as a family name. It was a member of this family that, long ago, migrated to this country and became known everywhere as the Duchess of Oldenburg. This apple we did not see in Russia. At Tenki, in the Government of Kazan, in a peasant orchard, we saw trees in full bearing of a fruit which both Mr. Budd and I looking carefully at it thought to be Duchess; but on tasting it we found it so fine in grain and so mildly acid, that we felt that no such difference in texture and flavour could result from change of soil and climate. At Prince Gagarine's, Borovinka, perhaps this one, is looked upon as one of the varieties long known, not like Arabka and Antonovka introduced of late years. In another village near there we found another apple just like Duchess but sweet, or to say the least sweetish.

The cut of Bogdanoff was taken from a rather large specimen. The other cuts are of fair average size. Antonovka, Titovka and Sapieganka, are copied from the "Sad i Ogorod" by Prof. Jankowski, of Warsaw. The others I traced from specimens.

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Mr. Shroeder, at Petrovskoe, describes the Borovinka as a large, round, pretty, striped apple, good for dessert or cooking, and says it is grown a good deal in middle Russia. We did not see the Duchess there or any apple like it. We find apples grown at Tula, Orel, Voronesh etc., called Borovinka, which are not of Duchess type at all, more like white Koroshavka. At Orel, however, we find a Borovinka somewhat like Duchess, acid and in season till December or January, and said to be valuable and grown there in some quantity—so say my notes, though the apple has gone out of mind. On the Volga is given a flat autumn striped apple which finds its way in quantity into the Kazan and Nijni markets also called Borovinka, an apple, I think, worthy of being introduced.

NOTE.—The Duchess appears under many different names in the Department of Agriculture Catalogue. No. 1, Red Astrahan, as fruited in the old Moulton orchard, now owned by Mr. Spaulding, at Minneapolis, would seem to be Duchess. No. 184, Arabian, fruited by Mr. Tuttle, is also Duchess. No. 187, Glass Green, as fruited both by Mr. Tuttle and Mr. Spaulding is either Duchess or an apple only to be known from it by its being two or three weeks later in ripening. 185, Anisowka Anisette, is another, also fruited by Mr. Tuttle. 490, Clay apple, Mr. Spaulding says, is like Duchess, but more juicy and less acid, and rather finer in the grain, and seems to colour later. Another in Mr. Spaulding's orchard, whose number was lost, though in appearance like Duchess, was sweetish, reminding me very much of the sweet Duchess which we came across in the Government of Kazan. 579, summer Lowland, Mr. Tuttle finds like Duchess in appearance, but a pleasant subacid of excellent quality. It ripens a month later than Duchess. Of apples less decidedly Duchess in character there are many in the Department Catalogue. However, of those named Borovinka, Nos. 278, 548, and 874, I knew nothing. No. 245 fruited by Mr. Budd is like Duchess but later.

Charlamovskoe.—Mr. Shroeder speaks of this as a large, flat cooking apple with a red side, a variety he thinks highly of. Whether this may be that grown by Mr. Webster, in Vermont, and described in the Montreal Horticultural Report, page 53, I cannot say.

Mr. A. G. Tuttle, Baraboo, Wisconsin, has an apple received by him under this name, which Mr. Tuttle says, "has the beauty of Duchess and quality of Domine and keeps through winter." Mr. Tuttle, I believe, has got hold of a valuable fruit.

Crimean Apple (Krimskoe).—This is the name under which we find, in different places, apples believed to have been brought from that region.

On the Bogdanoff estates, near Kursk, we find an oblong, egg-shaped, red apple below medium in size, firm in flesh, and sharp acid, mingled with sweet; the tree is pretty hardy there, and, if I remember rightly, the fruit is a long keeper. At Volsk, the Krimskoe, though good in colour, keeping and quality, was too small and conic to be valuable. At Kluchiche, near Kazan, at Marquise Paulucci's, we saw a large roundish striped apple, something like Duchess, not ripe; the tree was said to be fairly hardy in that extreme, climate, and further south noted for its immense fruit.

Good Peasant (Dobryi Krestianin).—This apple is highly prized by the Russian people, and sells well in their market in spite of its unattractive colour and small size. Our Pomme Grise, though long valued for its fine quality, does not sell at extra prices in the Montreal market, and, I fear, this Good Peasant would fetch but small prices when placed alongside better looking fruit. The tree, both in leaf and bud, is crab-like; its leaf is prunifolia in form, yet slightly pubescent. Near Kazan we saw trees of it more than thirty

years old. At Volsk, Khvalinsk, Tula, Voronesh, everywhere almost we went, either on the Volga or in middle Russia we found it a great favourite. People seemed to go into ecstasies over its delicious flavour. Mr. Shroeder, at Petrovskoe, does not find it quite hardy, though at Tula 120 miles further south, we saw a few fine old trees of it. Let us look upon it as a crab, a large sized green crab of fine quality, for it certainly is as hardy as some of our hybrid Siberians, and I think we shall find it a useful crab for home use for rather severe climates.

Grand Mother (Baboushkino) is described by Mr. Shroeder as a beautiful bright red medium sized oblate apple of fine quality. At Voronesh, Mr. Fischer says it is a good and productive tree, and an excellent large sized apple that keeps till March. Mr. Regel describes it as an apple of first quality that keeps till May. What we saw under this name were about medium size, flat rather, with a large thick stalk; flesh white, firm, breaking, juicy, fine grained, unripe, but showing every sign of fine quality, and of being a long keeper. Its appearance is against it, yet these hardy long keepers deserve thorough trial.

Grushevka, or pear apple tree is probably so called from its pear like pyramidal form of tree. It is spoken of by Mr. Shroeder, as a hardy and productive tree, planted a good deal for market in central Russia and bearing a small early white fruit. On the Bogdanoff estates we see trees of it, with their pubescent leaves of prunifolia form like the Good Peasant. Here it is spoken of as their earliest apple, white, sweet, of medium size, and good quality. At Tula we are told it is their earliest apple. Evidently from all we hear rather a favourite. The German *Grushevka* Mr. Shroeder says is much like it, but a little better in quality, and a week later. That called *Grushevka* at Kazan was a hard, yellow, fall fruit; neither must we confound it with the *Gusevka* of Regel which is described as a large winter cooking apple, but it is without doubt the *Grushevka* *Moskovka* of Dr. Regel.

Kalamas.—Under this name we saw in one of the peasant villages, in the Government of Kazan, an apple of medium or large size, deep red, with a light bloom, the beautiful colour of the pink Anis, but larger, and marked with little dots. The flesh was greenish white, crude and unripe. Such a beautiful fruit, thriving in so cold a climate should not be lost sight of.

Koritschnovoie Ananasnoe (literally the Cinnamon Eneapple).—This Mr. Fischer says is a small flat fruit of dark brownish red colour, and very fine flavour. The tree, too, has proved very hardy at Voronesh. Mr. Shroeder speaks of its hardiness, its earliness, and aromatic flavour. At Orel, too, we hear it well spoken of. A fine flavoured early apple it would seem. The Kor. Anan. of Regel seems very different.

Koritschnovoie Polasatoe.—This is the tree that stood the extreme cold of 1877, at Petrovskoe, when the thermometer went down to 44° below zero. Mr. Shroeder says that it is much like *Ananasnoe* but striped, and ripens a month later, and keeps longer. This apple we saw to some extent in central Russia. In the markets, when piled in pyramidal form, stalks upwards, they look like small *Duchess*. However, the basin is more shallow, the form more conic. It has a peculiar flavour and is quite good. A fall fruit which has proved quite profitable in cold climates.

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Lead apple (Svinovka).—Mr. Shrooder says is a small, hard green cooking apple that keeps till the new year, or till new apples—I am not sure which. We hear of it at Ore! and at Voronesh, and as Mr. Fischer says, it is much like Zelonka.

NOTE.—Longfield (Langerfeldskoe, English Pippin).—At Mr. C. H. Wagner's, at Riga, Mr. Budd was told that this apple was a seedling which had been grown by an Englishman on the Volga, and had become known as the Englishman's Pippin (Englischer Pepping), and is said to have been grown a good deal in the Livonian Provinces of Russia. It is an apple which 'as always come to us true to name. Mr. Budd received it from Moscow, also from the Department of Agriculture as 161, Longfield, and 587, English Pippin. In tree and fruit they are without any doubt alike. The tree is hardy, but not as hardy as Duchess. It is an early winter fruit of fine quality and bright attractive colour. Its fault is its size, which is often below medium. Mr. Tuttle considers that the finding of this tree alone has repaid his trouble in testing such a large number of the Russian apples, and says that on account of its regular annual bearing, good quality, and bright attractive colour, he would not hesitate to plant it largely for market purposes.

Malite (Mali).—This name has been given to a number of apples on the Volga, grown in quantity from Kazan to Saratof. In the Government of Kazan, a little red Malite is one of their favourite market apples. It is medium or small in size, flat and often ribbed. The flesh is white, crisp, tender and juicy. Many of the peasants in the villages near Kazan, place it among their five best for profit, and grow it in quantity. At Simbirsk a Malite has the same bright dark colour, but with a bloom like pink Anis and yellowish flesh; a fine grained, juicy apple, with firm but breaking flesh and sprightly flavour. At Saratof, Malite, I know not what kind, is named among their few best apples, and is one of the kinds growing there for a very long time. We find other apples, too, more or less of this type. At Simbirsk we find a large fall fruit somewhat resembling Duchess, and of good quality, quite unlike other apples named Malite, and perhaps worthy of trial.

Red Koroshavka (Koroshavka Alui) is one of those strikingly beautiful apples one cannot forget. It has the colour of our Victoria, a bright deep pink, and any part not so coloured is as nearly as possible pure white. It is usually of medium size, often above, regular in outline, and never ribbed like pink Anis. Like Victoria, its flesh is a pure white, and on 29th August, firm, crude acid, not ripe enough to fairly judge. This tree, like the Anis, when grown in the north is dwarf in habit, and where broken down by weight of snow, sound at the heart, and evidently a young and abundant bearer. At Tenki it was said to keep till January.

At Simbirsk we hear of a Koroshavka Alui which may be this. The Koroshavka of Regel is a long stalked little fruit very different from this or white Koroshavka.

Reinette Kurski.—Mr. Shrooder describes this as a medium-sized, flat, irregular, ribbed, yellow apple, named from the town of Kursk. Not hardy at Moscow, but a good tree further south, and a really good dessert fruit that keeps till spring. The query to my mind is whether this may not be the Reinette Russki which we saw at Kursk, but which they would not admit to be the Reinette Kurski. It is a five-sided apple of the size of our Fameuse, with red on one side. A fruit of fine quality, apparently a keeper, and perhaps valuable.

Roshdestvenskoe.—I can only quote Mr. Shrooder's opinion that it is a medium-sized or largish apple of high conic form, much like a gilliflower; a dark, dull green with a

dark red side. A good table and cooking apple, and a pretty good keeper. The tree is not hardy at Moscow, but does well further south.

Romenskoe, named from the town of Romna.—This Mr. Shroeder says is a round, solid olive-green fruit, with dark red side. Not hardy at Moscow, but valuable further south. It is pretty enough to sell, and is a fair dessert and good cooking apple that keeps till spring.

Serinkia (Sierianka).—This is said to be the Lehmapfel (or grey apple) of Germany, and is a very popular apple in the Baltic provinces, where it has been grown some say for a century or two. In Livonia, Courland and Poland, it has been planted in large quantity, and evidently is a favourite fruit. It has been propagated in quantity by the nurseries in Riga. It is a stout, straight and moderately vigorous grower. The fruit is of medium size, yellow with a little red, and is said by everyone to be of excellent quality. Unfortunately we did not see the fruit. In middle Russia, too, at Orel and Voronesh, we hear it spoken of as a good hardy tree, and an excellent dessert fruit.

Skrischapfel.—Dr. Regel speaks of this as an excellent table apple that keeps until the following summer, and says that the tree endures the coldest winters at St. Petersburg, and has been grown at Moscow, Tula, etc. Mr. Shroeder says it is a medium or small-sized apple, striped (but perhaps this only on one side, I am not sure), a very hardy tree, an apple of really good quality; good for dessert and cooking, that keeps sometimes till August. The tree has branches like a Scott's Winter, which cannot easily be torn out. The fruit, as we saw it, green, with a little dull red beginning to appear on one side, and very heavy. Flesh greenish, juicy, rather tender, crude, and but very mildly acid, when ripe lacking acid one would think, otherwise quite good. A good late keeper for cold climates.

NOTE.—This is not the Skrischapfel of the Department of Agriculture which I have noted under the head of Anis.

Skrute (Beel Skrute) is a profitable apple on the Upper Volga. A good-sized white apple, with red marblings, showy and very popular, but so variable in quality that I have thought there must be more than one apple in the markets under this name. Often its cavity is very shallow, and the stem like a peg that has been driven in, but this is not always so. Though fine-grained and juicy, it is sometimes woolly and flavourless, so that I cannot recommend it, in spite of its wide popularity in those cold climates.

Sklianka (Steklanka Zelonka).—In this family there are some apples of the Rhode Island Greening type which promise to be very valuable.

Mr. Shroeder describes the S. Ostrovkaya, as a small conic green apple with a dull red side, long stalk and corrugated basin; good for cooking and dessert. It keeps till summer, and is a good hardy Russian tree, grown more in the south-west, a variety considered valuable by Mr. Shroeder. The S. pesochnoe, or Sandy Sklianka, Mr. Shroeder says is a sour cooking fruit of medium size; greenish yellow, with some red, that keeps till or into winter. We probably met with both these apples, and yet we cannot be sure.

At Volsk we saw trees of this Sklianka type, bearing profusely, and yet full medium in size; surely the fruit would be large when bearing in moderation. It was green, rarely with some red on one side; very firm, crude, acid, with some slight sweetness

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The tree seemed quite hardy at Volsk, and there seemed no doubt as to its bearing or keeping qualities. I believe we saw this same fruit in the Saratof market.

The Zelenka Moldavka of Voronesh is an apple I wish to draw special attention to. The specimen we had was large and oblong; a solid apple with a texture somewhat like a Rhode Island Greening; firm, acid, with very little sweetness. We got it at Voronesh on 13th Sept., and this description was made when it was tasted at Warsaw on Oct. 4th. It had been kept in our apple bag, but had not suffered. Mr. Fischer showed us trees which seemed hardy and healthy; the fruit has the points of a first-rate cooking apple, and is a fair eating apple; a variety of great promise.

Dr. Regel describes several varieties of Sklianka, among other the Sklianka Revelskaya, a yellowish fruit with a little red on one side, grown at Pskov, Petersburg, and other places; usually hardy, but sometimes injured in severe winters. The S. Zelonka, a small, green, very productive cooking apple, grown near Dorpat and the Baltic provinces, generally. S. Medovka (or Reinette Voronesh), received from Voronesh, green and later a greenish yellow; an excellent table apple, roundish, and of full medium size. It keeps all winter, and the tree is hardy at St. Petersburg in severe winters.

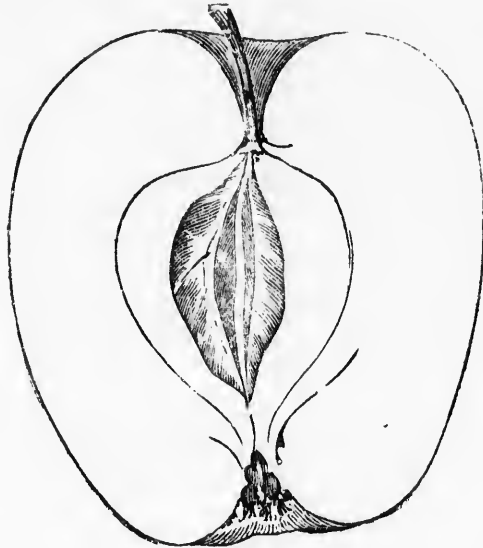
At Tula, Orel, Voronesh, etc., we see or hear of long keeping Greenings, under the name of Sklianka and Zelonka, which are considered valuable in these cold climates. Of those we saw the Zelonka Moldavka of Voronesh, and the Sklianka of Volsk would seem the most promising.

NOTE—472, Ostrokoffs, of the Department of Agriculture, a small green apple, very conic, very wrinkled towards the calyx, and without basin, which I saw at Mr. Underwood's, is probably true to name. No. 597, the Sandy Glass, is also perhaps true to name.

Titovka (Titus apple).—A large, handsome fruit, to be seen in quantity in all the markets of the Volga, and of middle Russia. It looks like a large, ribbed, elongated Duchess, and on account of its large size and attractive colour, very salable, and therefore valuable. At Simbirsk it is considered one of the most profitable. At Tenki, near Kazan, it is a success, both in nursery and orchard, and from what we saw would seem to have been grown there for many years. At Tula we saw one very old tree of it, a survivor of an ancient orchard, killed by a severe winter many years ago. It is therefore a tree that thrives in the severest climates. It would not be safe to assume it to be quite as hardy as Anis or Antonovka, yet it is not very far from it. The flesh is coarse, but juicy and mildly acid; quite good; not at all disappointing; rather better than Duchess, because less acid. In season it is one of the earliest, yet is a summer or late summer fruit. We might reasonably expect this to become one of the great commercial apples of our country.

NOTE.—No. 230, Titovka (Titus Apple), of Department of Agriculture is not the fruit above described, but seems to be that described and pictured by Dr. Regel in his work; the same as that sent by Mr. H. Goegginger from Riga to Mr. Wm. Evans, of Montreal, this last October; the same, too, as that sent out by Ellwanger and Barry, and which they describe as a large apple, resembling Twenty Ounce, and which they say is the most showy

of the new Russians tested by them so far. This Titovka is in appearance more like Zolotoreff, No. 275 of Department of Agriculture Catalogue, but not it. Mr. Budd and I tasted and compared them last August.



TITOVKA.

Ukrainskoe.—I was very much struck by a young tree I saw at Vilna, in full bearing. It looked as if bearing a crop of uncoloured Northern Spy. At Orel we hear of it as a hardy tree, and a good apple, but not as productive as some other kinds. Mr. Shroeder also notes it as a light bearer, but says the tree is hardy, and that it is a good cooking and second quality eating apple, which ships and keeps well. At Saratof we are told of an apple under this name that has been grown there for a very long time, said to be quite hardy in that climate, and to keep till March, and it is noted there as one of their profitable market fruits. In the milder climate of Warsaw, our friends say, Why grow *Ukrainskoe*, a green apple, when you might as well grow a red one. Colour in an apple is a very good point, yet I feel that any good late keeping apple that thrives upon the Russian steppes is worthy of trial.

NOTE.—No. 290, *Ukrainskoe*, of Department of Agriculture, as I saw it fruiting at Mr. Underwood's, seemed true to name.

Vargul.—A firm, flatish, conic apple of yellowish colour, with some red on one side, of extra quality, and keeps till May or June,—so says Mr. Shroeder. I do not think we saw it, yet we heard of it often in middle Russia. At Tula an amateur friend puts it among his five best varieties. At Orel, at Voronesh, and Kursk, we hear an apple well spoken of under this name.

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be the same. Mr. Shroeder has both, and describes this as a medium sized yellowish green apple, good for cooking or table; a long keeper, and tree hardy at Moscow.

Virginischer Rosenapfel.—It is strange how a fruit may wander to distant lands, and generations after, return to its native land unrecognized. We first saw this in the nursery of the Pomological School at Proskau, and Mr. Budd declared that it must be the "Fourth of July." We then looked up the cast of the fruit in the museum, and so it seemed to be. Why should it have the name Virginia unless it had been there, and how in those early days get there except *via* England. Yes, we may suppose it to have been included in those importations from Russia, made during the lifetime of the late Andrew Knight, and thence found its way to Virginia. Its name becoming lost, it was grown westward and northward in America as the Fourth of July, and returns to Russia, the land of its ancestors—even if not the land of its birth—as the *Virginischer Rosenapfel*.

White Koroshavka.—This is a favourite apple in the markets at Nijni Novgorod and Kazan, and is grown in fair quantity along the Volga for market purposes. It is an early apple, yet not one of the earliest; a fair sized white fruit with little marblings and stripes of red; tender, rather juicy, and so mildly acid as to incline to be almost sweet, but nice and pleasant, invariably good, and therefore better in quality than *Skrute*, though perhaps hardly grown in as great quantity. We find it grown largely in the villages in Kazan, and apparently quite hardy there, so that its hardness one need not have doubts about; yet a friend at Simbirsk in a trying soil and situation finds in the long run that neither the white nor red *Koroshavka* are equal in hardness to the *Anis* and *Antonovka*, yet for all that a hardy tree, and, I would say, a good summer apple, lacking neither in beauty nor in good quality.

Of the coast apples in Russia I seem to know very little. We had no opportunity of seeing them in bearing. The climate is not our climate, yet their experience is valuable. Dr. Regel selected out of a long list, forty-one kinds which he recommended, and out of these he marked ten kinds with double stars. These ten kinds are *Antonovka*, *Aport* (autumn), *Borovinka*, *Belui Naliv*, *Red Summer Calville*, *Koritschnevoe* (*Zimmetapfel*), *Koritschnevoe Ananasnoe*, *Polosatoe Novgorodskoe*, *Skvosnoe Naliv*, *Skrischapfel*, *Titovka*.

NOTE.—There are many other apples in the United States Department Catalogue which deserve special mention.

The Early Transparent family are very numerous. There are the white, yellow, and green Transparents, *Red Duck*, *Sweet Pear*, *Charlottenthaler*, and others. The yellow Transparent, 334, has been taking the place of *Tetofsky*, and now 342, *Charlottenthaler* for size and earliness, rather bears the palm.

Count Orloff, of Ellwanger and Barry (whether received from Department of Agriculture or from Moscow I cannot say), is white *Astrachan*, and *Grand Sultan* very like it; so also is 333 *Red Transparent*, as fruited by Mr. Sias, but sweeter and with more colour.

Another family, and a very important one, is that to which 177 *Green Streaked*, 285 *Turnipy Juicy*, 971 *Vassilis Largest*, and 275 *Zolotoreff*, belong. They are all large and showy, often as large as *Alexander*; a little coarse in texture, but good, salable, fall market apples. No. 230 *Titovka*, of the Department Catalogue, seems to belong to this family. Also 378 *Hibernal*, which is rather later in season. The tree, too, in the opinion of Mr. Tuttle, is unusually hardy, as well as a very vigorous grower.

Of sweet apples, No. 164 *Heidorn's Streaked*, 178 *Barloff*, and 453 *Beautiful Arcad*, are spoken very favourably of by Mr. Tuttle. *Heidorn's* is a good sized, striped, handsome fruit, with a slight aromatic flavour; very good. Mr. Webster and Dr. Hoskins

think highly of 351 Prolific Sweeting, a yellow fall fruit of medium size. Tree of Tetofsky type, and a very heavy bearer.

Of dessert apples 372 St. Peter, and 304 Sweitzer are among the best. Later in season Borsdorf, Longfield, etc.

One of the latest keepers is No. 410 Little Seedling. The tree is of Duchess type and an abundant bearer of fruit said to keep well till warm weather, when it becomes tender, juicy, and of fair flavour. It lacks size, owing to its habit of overbearing.

ON FRUITS IN CENTRAL EUROPE.

Our work in Russia was an endeavour to find out what fruits had stood the test of climates as severe as our own.

In central Europe another field of work presented itself, viz., what varieties, valuable in these milder climates, are worthy of trial here?

Our journey from London onwards was a constant succession of visits to horticultural and botanic gardens, pomological and forest schools, steady, rapid work, without time even to arrange our notes.

At Verrieres, near Paris, in the gardens of M. Henri de Vilmorin, gardens full of botanic rarities, we specially noticed that the apple trees which had been selected for cordon training, included many kinds whose leaf and early terminate growth betokened northern ancestry. We noticed this, too, in the nurseries of M. Simon Louis, at Metz.

At the Jardin des Plantes, in Paris, we had a grand opportunity to study the different races of the pear,—a large collection, botanical as well as horticultural, including different races from China, from Japan, India and different parts of Europe, and their hybrids. Mr. Budd is the one man who has taken up this botanic question of races, and applied it practically to northern horticulture.

By noting certain characteristics of race one might collect in the milder parts of Europe, varieties of the apple and the pear, with the assurance that a large part of them would prove hardy in severe climates.

At Reutlingen, in Wurtemberg, we visited the pomological school of the late Dr. Lucas, so well-known to pomologists by his works and his life-long labours. At the time of our visit he was fast declining, and on our arrival at Proskau we heard of his death. From Mr. Fritz Lucas, his son and successor, we received lists and notes of those fruits which had stood uninjured during their late trying winters.

At the late Pomological School at Kosteneuberg, near Vienna, we met Prof. Stoll, who has also a thorough knowledge of the fruits best adapted to the colder and more elevated parts of Silesia and Transylvania.

At the Pomological School at Troya, near Prague, in Bohemia, we found a very large collection of fruits adapted to mild climates.

At Proskau, near Oppeln, in Silesia, is the pomological school of eastern Prussia. The climate here is more severe, its elevation is 720 feet, its soil is cold, its south winds passing over the Carpathians are cold, and, I believe, dry. Most of the tender plants we had found further south are wanting. Director Stoll finds it necessary to study the question of hardiness, and hence we find his opinion very valuable for north Germany.

At Warsaw, the pomological school under Prof. Jankouski, is doing a grand, good

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work ; in fact the best pomological work we saw in Russia. The climate, however, of the city gardens is but very slightly more severe than at Proskau.

After leaving Warsaw, we scarcely found any tree or shrub which would be likely to prove tender in Montreal or even at Abbotsford, until, on our return westwards, we reached Kiev.

For the present, I will merely describe a few of the best late-keeping apples of Germany.

Batullenapfel Rother.—This belongs to a family almost new to us. We saw it, for the first time, at the pomological school of Dr. Lucas at Reutlingen, and were at once struck with its small, thick, plicated leaf. A singular fact, too, in regard to it, is that it grows readily from cuttings. We saw cuttings of it treated just as currant cuttings usually are, growing well at Reutlingen.

At the Kosteneuberg Pomological School, near Vienna, Prof. Stoll draws our special attention to it, and says it has been grown for at least one hundred years in Transylvania. It is of medium size, often largish, whitish or yellowish, with red sides, pretty good quality, a very healthy, hardy tree in those climates, and a very abundant bearer. At Proskau we hear further good opinions of it. Its keeping qualities are variously stated. At Proskau they say till February. At Kosteneuberg till April. At Traja they say till June.

The Weisser Batullen is said to be just like this except that it has less colour, and some think they are the same.

Baumann's Reinette.—At Warsaw, Proskau and Reutlingen we hear high opinions of this fruit. Mr. Lauche, of Potsdam, Berlin, in his *Deutsche Pomologie*, says that its bearing, beauty and quality makes it deserving of very extensive cultivation, and says further that it is a fine grained, crisp, juicy apple, of characteristic, acidulated, spicy flavour. A valuable apple for family use, in season from January till March or May, but too small for market.

Bohnepfel Grosser.—This has been long grown by the peasants of the Rhine and in Wurtemberg, yet Mr. Lucas does not mention it among his favourite kinds, probably from its lack of fine quality. It has the same thick, plicated, pubescent leaf as the Batullen, and would seem of the same race, and like it unusually productive. It is valued for drying, baking, and cider. It is a medium-sized apple with a red side, harsh and sour until spring, when it becomes sweeter, but without aroma. Its long keeping and heavy bearing alone merit its extensive cultivation.

Boikenapfel has been long known in the neighbourhood of Bremen, long grown and highly esteemed, and has been well recommended for general cultivation in Germany.

It has a snow white, firm, fine grained flesh, good fair size, though mostly green in colour. An excellent table apple for family use, in season from January till June.

Champagner Reinette.—A little dessert apple of rather fine quality which has been planted rather largely, says Mr. Lauche, in Germany since 1857, when it was recommended for general cultivation. It keeps till June. Dr. Stoll, at Proskau, gave us a specimen on July 28th. The tree, I fear, is not quite as hardy as some others. At Riga, not at all hardy. This, therefore, cannot be the Champagnskaya Pipka we heard of as hardy and

valuable at Orel and other places in central Russia. Mr. Shroeder described a Champanskoe as a rather large, flat conic, greenish yellow apple somewhat striped. A winter fruit of very fine quality and a hardy, though a crooked growing tree.

Danziger Kantapfel has been growing, says Mr. Lauche, in Germany and Holland under many names. "A fine-fleshed juicy apple of aromatic, acidulated sugary flavour." A valuable home-use table fruit that keeps till January.

Gulderling Langer Grüner.—A largish green apple tinged with red, grown in quantity in Silesia. It keeps till May and is then a fairly good eating apple. Earlier in the season it is too acid.

Grüner Fürstenapfel, (*Green Princes' Apple*), is grown largely about Hanover and Berlin, in Pomerania, and on the Rhine near Coblenz, and in cold districts among the Carpathian mountains; a small or medium-sized green apple that keeps till May or June, and, though lacking beauty, yet very productive and, therefore, largely grown. The tree seems hardier than some others.

Landsburger Reinette.—A rather large yellowish fruit with dull red sides, second quality or almost first, some say, for table; it bears abundantly, and keeps till January or, some say till March. Mr. Goegginger says not hardy at Riga.

Muscat Reinette.—This is one of the best of the German apples. It is highly prized and largely cultivated in Germany, Holland and France. It is a medium-sized yellow fruit, splashed with red, distinguished by its strong aromatic and sugary flavour. It keeps till spring. The tree is hardy in north Germany, but, Mr. Goegginger tells me, not at Riga.

Purpurrother Cusnot.—Prof. Stoll, of Kosteneuberg, tells me that this tree is grown in very large quantity in Bohemia and Silesia, and is said to prove very hardy and productive in the colder parts of these districts. Oberdick called attention to its wonderful productiveness, says Mr. Lauche, and since then it has been recommended in Germany for general cultivation. A dull red fruit of medium size, of a slightly cinnamon, sugary flavour. It is in season from December to May, and is said to be "the" apple of its season in some of the German markets. I regret to say that Mr. Goegginger has found it not hardy at Riga.

Stettiner Gelber.—This is said to be a finer and preferable apple to the Stettiner Rother. It is a medium-sized, sometimes largish apple of good quality that keeps till spring and is grown largely for markets in some districts in north Germany. A specimen of it was given to us to taste, by Dr. Stoll, at Proskau, on July 28th; of course at that late date it had lost flavour.

Stettinger Rother has been grown somewhat at Warsaw, and in great quantity in the north-eastern Baltic provinces of Germany, whence it is shipped up the Vistula, and is the commonest apple in the Warsaw market in March and April.

Winter Citronenapfel (*Citronat*).—At Kiev, where it is slightly colder in winter, and where the winter changes are more extreme than at Warsaw, this is considered their best winter apple, next to Antonovka. Such was the decision of four members of the Forestry Association, residents of the Government of Kiev, who consulted together and gave this as their decision to Mr. Budd at the Forestry Convention at Moscow.

It is a large red apple, yellow only in the shade, a fruit of high quality, that keeps

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till March. It was not mentioned at Proskau among their best winter apples, but is a great favourite at Warsaw, especially for home use, for its tender flesh does not bear distant carriage. It did not seem hardy at Kursk, yet, like many of these German apples, valuable where the climate is not too extreme.

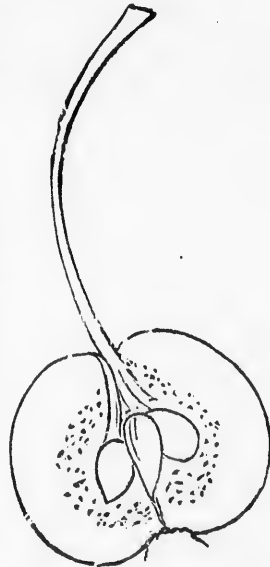
PEARS.

It may be a cause of surprise when I say that a pear is the best tree I know of for maintaining a dark, glossy, healthy foliage when planted on dry soil, in a climate where the summer sun is hot, the nights cool, the air excessively dry, and the winters very cold. Yet such is the case. In the public square at Simbirsk, in latitude 54° , on the Volga, a climate as severe as the city of Quebec, the wild pear is a fine ornamental tree, and seems the tree which suffers least from dryness of air and diminished rainfall. I must add, too, that the one tree of largest diameter of trunk which I happened to see during a journey of nearly 1,000 miles on the Volga, was this wild form of pear; a tree at Saratof, nearly three and a-half feet in diameter of trunk, measured near the ground.

At Simbirsk it was that we first met with extensive pear culture in extreme climates. Here there must be in orchard, I should think, 10,000 trees, and those mainly of two wild forms—one a Bergamot, usually about the size of the cut, or somewhat smaller, usually sweetish, perhaps with slight acid, usually lacking in juice, sometimes very slightly astringent and fair for cooking; sometimes very rough and quite unfit for cooking. The tree is a good upright grower, and its dark glossy foliage is very ornamental. Mr. Budd picked a leaf off thirty trees, and really could not distinguish one from another. The leaf is smooth-edged, with scarcely a trace of crenation.

The other wild form of pear found on the Volga, bears a small pyriform fruit, which it yields in quantity. Sometimes it is fit for cooking, but usually too astringent. It also is a fine tree. Its leaves are serrated. These two wild forms promise to be of great value to us, as the stocks upon which to graft our future pear orchards. These pears should be grown, if for nothing else, to produce seeds for growing hardy stocks, for it is an undoubted fact that a hardy stock increases the hardiness and early maturity of growth of that which is grafted upon it.

In Poland we find another wild form of pear, a common tree and a tree of large size. The leaf is fine in texture, though not very thick, and sharply serrated upon its edges. Its foliage is not as well adapted to a very dry climate as that of the Volga pears; nor is the tree as hardy, yet hardy enough for a good stock for our climate, and, for this purpose, it should be imported into this country in large quantity from the Warsaw nurseries. We saw the wild pear growing in quantity between Kharkof and Kiev, but whether this same race or not I cannot say.



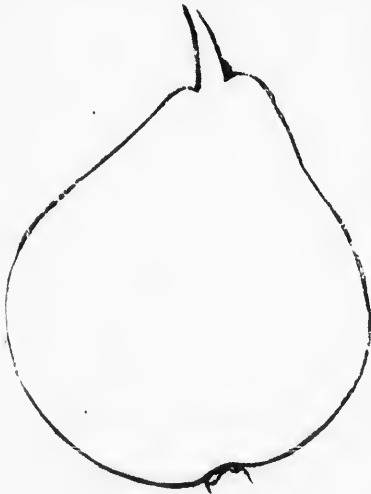
WILD BERGAMOT OF THE VOLGA.

NOTE.—Mr. A. Faller, of Minneapolis, who lived some years on the Amur, described to me a pear, grown in that region, just like this wild Volga Bergamot. He also mentioned a large green pear the size of the Bartlett, quite uneatable when picked, but after being kept three months very juicy and very nice. This must be a form of the *Pyrus Ussuriensis*, the wild pear of the Ussuri branch of the Amur.

At Reutlingen, in Wurtemberg, we find the perry and cooking pears to be of a different race from these of western France, whence American nurserymen have obtained their pear roots. Reutlingen is a fruit-growing neighbourhood, and, on account of its elevation, cold above its latitude. The orchards, here, have suffered severely during the last unfavourable winters, but these pubescent-leaved pear trees have stood the test much better than the apple.

Tonkovietka.—This I will speak of first, as it is the hardiest pear tree I know which bears an edible fruit. In Moscow the severe winter of 1877 killed all the pear trees in the college grounds to the snow line. This, however, seemed about the hardiest—hardier, even, than *Bessemianka*. We find trees of what is said to be it in some peasant orchards in the cold climate of Tula, 120 miles south of Moscow. We again hear of it at Simbirsk as a pretty good pear that bears well. Mr. Shroeder, who looks at fruits from a high standard of quality, says it is a fairly good eating pear, but not equal to *Bessemianka*. The *Tonkovietka* shown to us at Saratof was not the same; a larger and better fruit, but tree not hardy there. The name means slender stalk—a name which possibly may be applied to more than one pear.

Bessemianka is known also by the German name of *Kernlose*, which means without seeds. It is by far the best pear grown in the severer parts of Russia. At Moscow it suffers during winters of extra severity, yet, in sheltered places, it sometimes does pretty well. At Tula they say it stands their usual winters; now and then they have a winter



BESSEMIANKA.

when it is not injured. There we saw a number of trees looking quite healthy. It is "the" pear tree there, and yet they say not as productive there as it is fifty miles further south. At Simbirsk it is considered not quite hardy. It grows for about ten years, bears fairly, and is injured or killed by some severe winter. At Saratof, we find trees seven or eight inches in diameter of trunk, which appeared quite hardy, and said to bear good crops. We find an orchard here of 500 large pear trees, all but one variety in good healthy condition, and this in a climate as cold as the city of Quebec, and so dry that irrigation is necessary for profitable orcharding. Here the *Bessemianka* was considered one of their best.

Again, in central Russia, at Orel we find a great many trees, both young and old, and find it considered the best because the most reliable.

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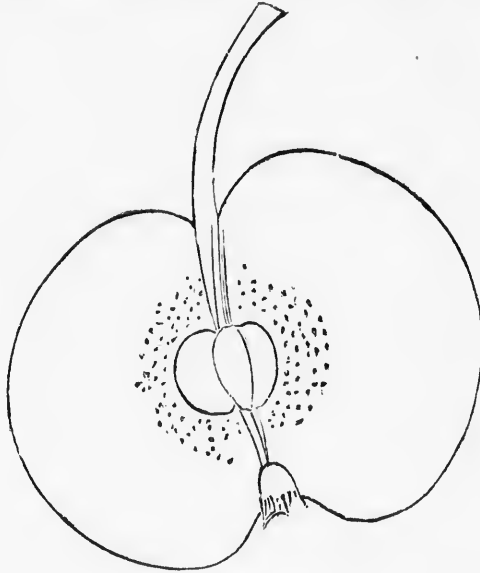
The same story at Voronesh. At Kursk, in the peasant gardens and nurseries near the town, we see large old trees of it ; we see large numbers of young trees, and a large supply of it in their little nurseries.

It is the most widely known, and the most largely grown pear in central Russia.

The tree is an upright grower, has large, dark, thick leaves, but very slightly crenated, almost smooth-edged, a leaf that stands aridity of air well. One fault this tree has, its branches easily break off from weight of snow, and thus often leave large scars upon the trunk.

The fruit is green, with some russetty brown, tender, rather juicy, gritty at the core, with few or no seeds, quite free from astringency, mild and pleasant, though not to say buttery. Season, I should think, early October.

Bergamot.—Of this family I will speak next. In the markets on the Volga below Simbirsk, we find a small, round, early Bergamot, but it rots at the core so badly that I cannot recommend it. There is, however, a large winter, or rather fall Bergamot, worthy



AUTUMN BERGAMOT OF THE VOLGA.

of trial, and perhaps this may be the Bergamotte Osenii of Regel. At Simbirsk we saw eight or ten trees of it, about four inches in diameter. At Khvalinsk and Saratof we also saw healthy old trees.

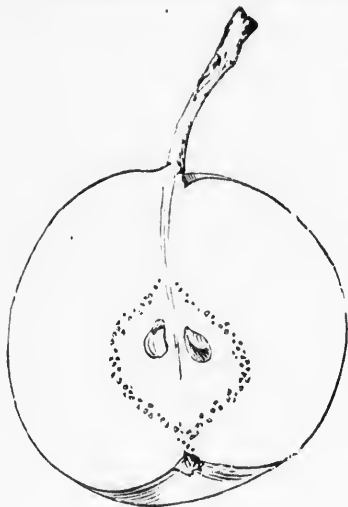
The fruit is green, with tendency to a little colour on one side, and on an average it is about the size of our Fameuse apple. The flesh is sweet, rather lacking in juice, but quite free from astringency. It has a tendency, though slight, to rot at the core ; but if picked carefully and early, it may be kept into winter.

At Warsaw, we find in the market in fair quantity, a small, round pear, which, on

enquiry, we are told, is the *common Bergamot*, and that there are large old trees of it in exposed situations near there. We also saw large healthy trees of it in the Warsaw gardens. It is an autumn pear of very much finer quality than that grown on the Volga, although the tree has not been tested in as severe climates, nor does it show the same hardy, wild character.

NOTE.—Whether any of the Bergamots I describe are the same as those sent out by Dr. Regel I cannot say. The St. Petersburg and Moscow collections are growing side by side at Ames, and light will be thrown upon their identity or otherwise. Bessemianka, if I remember correctly, appeared true to name, from several different sources. Tonkovieta is apt to be true to name. Rothe Bergamotte and Bergamotte Rouge, from different parties in Warsaw, proved not alike at Ames. Also the Russian pears fruiting in the Pomological Gardens at Warsaw, do not altogether agree with my notes from Moscow. I fear a good deal of confusion in this matter.

Sapieganka.—This is the Bergamotte ronde d'été, introduced, I believe, from Italy, about the 15th century, and named after a Polish nobleman. There are a good many trees of it about Warsaw. I am told that in one garden not far from the city, there are 185 old trees, of which the largest are two feet in diameter of trunk.



SAPIEGANKA.

At Vilna, where the climate is more severe than Warsaw, we saw ten or twelve old trees about one foot in diameter and one two feet. At Riga, some say "as hardy as an oak," others say pretty hardy. At Voronesh, Mr. Fischer spoke strongly of its hardiness there, although I have forgotten if we saw any trees there. At Orel it has not proved hardy. The verdict generally is a hardy tree and a long-lived healthy tree and a good fruit, but not capable of bearing quite as low temperatures as Bessemianka.

Red Bergamot (Rothe Bergamotte, Bergamotte d'automne, Lero.).—From the engravings of this pear given in Lauche's *Deutsche Pomologie*, it is a

query in my mind whether this may not be the common Bergamot I have spoken of above, as growing about Warsaw. At any rate I saw one fine old tree pointed out as this Bergamotte Rouge, and was told there were many more like it in the neighbourhood. Our attention was first directed to it by Mr. Stoll at Vienna, and we learn that it has been grown largely in Silesia, and somewhat in Sweden. It is spoken highly of at Proskau and Riga, and is a pear of fine quality, recommended for all kinds of soil. It ripens in September and October, and is well worthy of trial.

Moskovka probably deserves mention, a small pyriform pear, juicy, mild and non-astringent. We saw a good many trees of it at Simbirsk, large old trees, some of them somewhat injured, yet some thought it hardier even than Tonkovieta. A good, little, early, cooking fruit.

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Of pears without names I will next speak. If the fruit is long in shape it is called Doula, if small Grusha. Another is named Dolgostebelka, which means long stalk, but as all the Russian pears except the Bergamot have long stalks, such names have no individuality. Under the name of Gliva, which is akin to Doula, we find great variety; one which I tasted at Moscow, and which I was assured was grown there, was as rich and buttery as a Bartlett. At Orel, under the name of Doula Doukavoya, we find good healthy trees bearing a large, but uneven-sided, very sweet pear, juicy, and very nice. The same tree we saw at Simbirk; the same unmistakable fruit again on the Bogdanoff estates, near Kursk. A valuable pear for cold climates.

Bezi de la Motte (Wilding Von Motte).—In Iowa, it has been stated by Swedes, that this pear grew far north in their native land. At Burlington, Iowa, Mr. Avery has been very successful in growing what he called the Crassane Bergamotte, a pear known at Warsaw and in the Baltic Provinces, but said there not to be very hardy. It would now seem that Mr. Avery's trees are, as Mr. Downing has positively affirmed, the true Bezi de la Motte.

The fruit is medium, sometimes large and tolerably round, buttery, melting, and of delicate sweet flavour. Mr. Goeschke, of Proskau, in his book, "Der Obstbau," says, a delicate dessert pear, but needs good soil, sheltered position and favourable weather to bear well. It ripens about 18th October, and keeps a long time. At Burlington, Iowa, this variety is promising, yet must not be ranked among the ironclads.

Delices de Jodoine.—In the Pomological Garden at Warsaw, we find one tree of this variety, erect in growth, leaves very dark in colour, thick, pubescent, and in fact just like some inferior, but hardy Doulas and Glivas planted along side of it. The fruit, says Dr. Hogg, of London, in the "Fruit Manual," is three inches long, and the flesh is "half-melting, sweet, sugary and aromatic." All authors agree that the fruit is good. The foliage of this tree will not suffice from aridity of air; if of early maturity of growth, then a tree of decided hardness. This tree is well worthy of a trial in the north.

Confessels Birne is a tree with a large, close-textured leaf, grown in quantity in the colder parts of Silesia where the thermometer goes down to 20° and 22°. The quality of the fruit I do not know. I only know that it is grown chiefly for drying.

Fondante de Bois (Holzfarbige Butterbirne).—This pear we saw bearing heavily in the garden of the Pomological School at Warsaw, and in other gardens in the neighbourhood; also in the colder climate of Wilna. At Warsaw it is one of the few that have stood the test of trying winters, and one of the best for planting in open exposure.

Fondante de Bois is a synonym of the Belle de Flandres, or Flemish Beauty. In the catalogue of the Royal Horticultural Society of London, published in 1842, it proved so. Another pear, however, introduced from the continent, proved different, and yet the description of it is not like this. Different climates work wide differences in the appearance and quality of fruits. Still, Mr. Budd says, surely not Flemish Beauty or anything like it. I, too, have known the Flemish Beauty in different climates, have grown it in quantity in southern Pennsylvania in a garden I once owned there, have eaten some bushels of it in my lifetime, and cannot believe it to be the same as this Fondante de Bois. Considering the value of this pear in Poland it ought to be introduced.

Grumkower Winterbirne.—This pear has been long known in eastern Prussia, and about eighty years ago was sent westward, and in 1857 was recommended for general cultivation. It is spoken well of at Warsaw as a tree that has stood the test of trying winters, not merely in the sheltered city gardens, but in exposed places. It is a long pyriform pear, green, and mottled light and dark, with but slight colour; the flesh is tender, buttery, but somewhat lacking in sweetness, not equal to Flemish Beauty I would say. It is in season in October and November, and the tree requires moist soil.

Liegel's Winterbirne.—This, I am told, has been planted very largely in the colder parts of Bohemia, among the mountains, where it has become a large export product. It is sent in large quantity to Berlin as a winter dessert pear. It is, said Mr. Lauche, probably of Bohemian origin, and in 1853, at Naumberg, it was recommended for general planting. It has fine-grained, melting flesh, of agreeable and somewhat spicy flavour, and is in season from November to January. It has not yet been planted outside Bohemia as largely as it deserves.

Leon Gregoire is another of about equal hardiness. It is hardier than Zepherin Gregoire, which is one of the hardiest of its class. Mr. Lauche says it was grown in Belgium by Xavier Grégoire from seeds of Napoleon, and says it is melting, rich in juice, and of an acidulated, sweet and slightly spiced flavour. A good sized pear of fair quality which keeps till November, or later.

Pasovka is one of the hardy Polish pears, long known and planted to a fair, or rather, large extent. The fruit is long and narrow, yellow, often with a red side, of fair size, very pretty, pretty good quality, and very good for cooking. It ripens in August.

Pound Pear (Pfundbirne. Funtovka).—There are many pears of this class. At Riga, the nurseries speak of the Pfundbirne as a hardy and productive tree, which bears a large, green cooking fruit, in season in September and October.

Salzburg.—We were struck with the healthy growth and thick leaf of this tree when we first saw it in the Pomological Gardens near Prague, in Bohemia. At Proskau, Director Stoll kindly drove us to where it had been planted as a roadside tree; large, healthy, upright trees.

However, as we follow northward, we find this tree is not as hardy as others. At Riga, it is somewhat tender; at Warsaw, it has been grown a good deal, yet it suffers at times. It is a pear of medium size and rather fine quality. The tree is possibly hardy enough for a sheltered city garden in Montreal, but is more likely to be of use in climates like Brockville, Kingston and Toronto. It is said to be a pear of fine quality.

Sugar Pear (Zuckerbirne, Zaharna, Saharnaya).—Under these names, which mean the same, we find many varieties of a healthy, hardy race, well worthy of trial. Wurtemberg, Warsaw, Riga, Orel, etc., all have their sugar pears. They are usually productive, fair quality for eating, good for cooking, and would be very salable upon our markets.

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CHERRIES.

The cherries of northern Europe best adapted to severe climates belong to a family which is scarcely known upon this continent. I will describe a few of those that have been found of greatest value at the north.

Vladimir.—First in importance are the cherries known all over Russia under this name. Like the *Osthheim* and the *Brune de Bruxelles*, they are usually bushes rather than trees, and have narrow, small, but finely textured thick foliage. It has been named *Vladimir*, I suppose, because in that government its culture has attained such vast proportions. The fruit we saw not only in the markets, but sold in the streets in all the larger towns, where the consumption of this cherry is very large. We did not visit the cherry districts in *Vladimir*, as the crop had been already picked and marketed when we arrived there. We tried, however, to get some estimate of the extent of its culture there. Are there 10,000 trees? I ask. More than 100 men have 15,000 each, and such was the tenor of other statements from those who know the country well. What is the amount shipped? I ask. In reply I am told that entire cars, and in some special instances, entire trains have been loaded with this one product. At the village of *Viazniki* the chief industry of the neighbourhood is cherry culture. We find it in all the northern markets in great quantity. It seems to be cut off the tree with scissors, leaving about an inch or less of stalk attached to the fruit, and thus picked it stands carriage well, and then keeps for some little time after arrival.

In the peasant villages in the government of *Kazan*, and in all the towns we stayed at on the *Volga*, wherever a peasant had any apple trees, he was sure to have also a patch of this *Vladimir* cherry, sometimes carefully thinned, seldom in a high state of culture, and often grown into a thicket; everywhere it was grown in fair quantity, and in all the markets, though past its season, a few were still to be found. Again in central Russia, everywhere it is the most largely grown variety, the popular market variety, although at *Voronezh* and *Kursk*, we find fruits more of the *Guigne* type, not quite hardy, yet bearing finer fruit. As far south even as *Kharkof* and *Kiev* it is the popular kind, and in the more southern climate of *Kiev*, still retains its dwarf habit of growth. In one garden there we saw it planted under plum trees, just as currant bushes in city gardens often are with us.

The tree, if I may so speak, is of bush form, and when it becomes too old to bear profitably, the older parts are cut away, and new sprouts take their place. It is usually grown in sod, and under such lack of culture brings good returns, hence its great value to us as a tree for careless cultivators. It can be grown from seed, as it often is, but as it varies somewhat, it is better to propagate from the best by sprouts. Sometimes, though rarely, it is grafted. Some trees are erect in growth, others weeping; both forms are widely scattered. The weeping is usually considered the best, but not invariably so. Some have red flesh, but as a rule the flesh is deep, purplish red; the skin, when fully ripe, a reddish black, and when fully ripe, almost over-ripe, a rich mingling of acid and sweetness. When quite over-ripe it loses its acidity, and combines with its sweetness somewhat of the peculiar but pleasant bitter of the commoner kinds of *Guigne*.

If the cultivation of this *Vladimir* cherry proves such a profitable industry to large

numbers of people in Russia, in a climate as severe as the city of Quebec, why might it not prove equally profitable in like climates here? It certainly should be introduced, and that in quantity for immediate trial; and if successful there is no reason why we should not have several Canadian Vladimirs, with their millions of cherry bushes, and their canning establishments, and good cheap cherries in all our markets.

Ostheim (Ostheimer Weichel).—I am told by Director Stoll, of Proskau, that this is a native of the Sierra Nevada mountains in Spain, where it was found at elevations of 5,000 and 6,000 feet, and that it was brought to Germany in 1687 by a German Professor, whose name is known, though I cannot give it, and who grew it in the neighbourhood of the town of Ostheim, whence its present name. Those who assign to the cherry an oriental origin, and cite Pliny that it did not appear in Italy until after the defeat of Mithridates, King of Pontus, in B.C. 65, hold that it must have come to Spain from the East, but this is mere conjecture. In foliage, and in habit of growth, it is much like the Vladimir, and must be nearly related to it. In Germany it has been largely grown in some places for the manufacture of cherry wine, or cherry brandy, and it seems strange that a cherry, so largely grown there, should be almost unknown on our continent. In the catalogues of Canadian or United States nurserymen, it is not to be found. However, Mr. E. Myer, a German colonist, who settled in Minnesota, at St. Peter, about fifty miles south-west of St. Paul, brought with him the sprouts of this cherry, which have been fruiting in that severe climate. (See Iowa Horticultural Society's Report 1881, p. 371.) In colour the Ostheim is like Vladimir, a dark red, becoming, when very ripe, a dark purplish red. When we tasted it at Warsaw, we found it but mildly acid and rather rich. Dr. Hogg says; "Flesh very dark, tender, juicy, with a pleasant, sweet and subacid flavour." M. Goeschke, in *Der Obstbau*, says: "An excellent, agreeable, sweetish-sour flavour. A first-class dessert fruit, and particularly in demand for preserves." M. Simon-Louis, in his *Guide Pratique*, says: "De première qualité à parfaite maturité," and "extra-ordinairement fertile."

There seems no doubt as to its hardiness, productiveness or quality, and like the Vladimir it is worthy of extensive trial.

Braune de Bruxelles (Brüsseller Braune. Ratapia of Hogg).—This is another of dwarf habit of tree, and like foliage. The fruit is large, what we saw, I might say, very large, but it was upon a young tree bearing one of its first crops. It is dark brownish red in colour, and a rich acid, which tones down but little except when over ripe. On account of its large size and good colour it sells in the Warsaw markets at one-fourth more than Ostheim. The tree is hardy, but not as hardy as Vladimir or Ostheim.

Double Natte (Doppelte Natte) is another often recommended to us. It is, I think, of similar foliage, but not quite as hardy as some others, and yet reported hardy at Orel. Usually not a heavy bearer, but very delicate in flavour, and a great favourite with many.

In central Russia we find many varieties superior in fruit, though not so hardy nor such reliable bearers. At Tula, varieties known as the rose, white rose, dark rose, black and white Spanish are recommended; and yet the query suggests itself whether they may not have been planted on an incline and beat down as the Reine Claude plums are. At

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Voronesh, many have been selected, but not under known names. Among them the Proseratchnaya Rosenia, a rosy cherry of transparent type, propagated by grafting. At Simbirsk we hear of a cherry almost black, and larger than Vladimir, known as Roditelskaya. At Khvalinsk, a cherry known as the Turkish, seemed hardy, and said to bear very large fruit.

Among the cherries grown in Russia, at Kursk and Voronesh, and southwards, we find trees whose foliage would appear to be crosses between the Griotte or sour cherry, and the Guigne or sweet cherry, of heart or bigarreau type. As a class they are not equal in hardiness to Vladimir or Ostheim; yet most valuable in climates of moderate severity.

Of other German cherries, I would mention Szklanski, or Glaskische'doppette, a Polish seedling, said to be a hardy and good bearer, of fruit the size of Ostheim, and much like it in flavour, but red in colour, and with yellowish flesh. Leigel's Fröh Weichel, a fair-sized tree of Ostheim foliage, dark purplish skin and flesh, and much of Ostheim character. The Kleparovska, another Polish cherry, from Galicia, near Lemberg, has proved very hardy at Warsaw. Shatten Amarel, a large dark red cherry of mild flavour, and of Ostheim foliage. A short stalked Amarel, of which I cannot give the proper name, which is coming into great favour about Berlin and other places. Amarel Tardive, a weeping tree of Ostheim leaf, dark purplish red, and somewhat acid. Rose Charneux, a large, red, delicate, watery, mild flavoured fruit. Lutovka, a large, good, yellow fleshed, red cherry, and a hardy tree.

In the German or Amana colonies on the Iowa River, in Johnson county, Iowa, colonies which moved to their present place from the State of New York, Mr. Budd tells me that there is grown in quantity, in each of their seven villages, a variety of the bird cherry, which bears young and abundantly a fruit which they value for cooking. It has thick, dark foliage, and pendulous branches, and does not sprout after it commences to bear heavily. The fruit is about as large as a good-sized black currant, with a stone no larger than an ordinary bird cherry. It is a pleasant acid, rather too acid to eat raw, but so valued for pies as to be grown largely.

Dr. Hogg, also, mentions a variety of the native *Cerasus vulgaris*, under the name of Peramdam, which has been grown in one place in Lincolnshire for two hundred years or more. Dr. Hogg has himself a tree of it one hundred years old, and yet not more than seven feet high. A small round fruit, half an inch in diameter, pale red, and of agreeable lively acidity. Its hardiness, of course, I know nothing of.

Our wild red cherry, or pigeon cherry (*Prunus Pennsylvanica*), has been recommended as a stock for the cultivated cherry. If suitable, certainly no stock could be hardier or more readily procurable. Botanically, it is said, of all our native species, to be that most nearly related to the European cherry. We are greatly in need of a hardy, cheap stock. The experience of Mr. W. G. Waring, of Tyrone, Pa., as given in Report of Iowa Horticultural Society, 1880, is very encouraging.

What I would urge in this matter is the introduction in quantity of the Vladimir and Ostheim into this country for extensive trial.

PLUMS.

In all our most northern rambles in central Russia, we find the plum grown in fair quantity, and supplying a certain amount to the local markets. In the severe climates of Moscow, Vladimir and Kazan, we find plums, and some of them are of really fine quality; and we are told that in the village of Gorbatovka, forty miles from Nijni Novgorod, they are grown in large quantity for the Nijni and Moscow markets. These plums belong to a family more or less nearly related to the Quetche or Prune plums of Germany and Hungary. Like the Vladimir cherry, these northern forms of the plum are dwarf in habit of tree, often bushes, and this seems to be a provision of nature; for, in these cold climates, if a plum bush is killed to the ground new shoots soon grow and bear. Of these plums there is great variety; some are red, others yellow, but mostly blue; they differ widely in flavour, some I would say, equal to Lombard, some are early, some late; they are usually without any astringency of skin, and usually free stone. I was not prepared to find such plums in the cold climates of Russia. The improved varieties of the wild plum of the north-western States, I had expected to be the future plums of the Province of Quebec. I have some of them, heavy and reliable bearers, but of medium quality only. There are much better varieties than those I have, for instance, the Desoto and others; yet, these non-astringent, fleshy, free stone Russians, have a combination of good qualities which entitle them to extensive trial in our cold country. I would say, however, that they will prove as easy a prey to the curculio as other European kinds, while the North-West Chickasaw, though not too thick-skinned to prevent puncture, is, as Mr. Budd observes, so juicy, as usually to prevent the inserted eggs from hatching.

These Russian plums are grown, no doubt, sometimes from stones, but usually from suckers. Most of the horticultural gardens or nurserymen have made small collections of the best they have found. By thus obtaining roots of the best, from a number of points, we may, more or less, get the best of these Russian seedlings.

One of the commonest in the northern markets is a long, dark, dull red, prune-shaped plum, tapering toward the stock, not rich, but non-astringent, and a really good cooking fruit. The Skorospelkaya Krasnaya, at Petrovskoe, is said to be about the best of these red kinds, and the tree one of the hardiest, but season a little later than some other red. Mr. Shroeder has six kinds he recommends, three of which we saw in fruit, but before they were ripe. The Volga valley, too, has its plentiful supply of plums. Especially at Simbirsk, we find them in great quantity and variety. At Voronesh, Mr. Fischer specially recommends the Moldavka, a large violet plum, not to say juicy, but of medium quality, rather a large tree, grown from suckers, and found to be very productive; I counted 150 plums on one branch. Here, too, we find the Yellow Egg, whether our old Yellow Egg or not I cannot say; tree seemingly hardy, but either from want of proper ripening of wood, or from some other cause, not a good bearer.

At Tula, we find quite a variety in the peasant orchards, and among them Reine Claude. Yes, in Russia, we find a family of Reine Claudes, red, white, and blue; and Mr. Lauche, in his *Deutsche Pomologie*, describes such varieties. They are of very fine quality, extra quality. In the cold climate of Tula, they are planted at an angle of forty-five degrees or so, and bent down to the ground before the snow falls. Thus protected by a

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covering of snow they often bear bountifully. When too old to bend down they are allowed to take their chances, often bear a crop or two and then die. A whitish plum, known as the white Hungarian, has also proved successful, as well as the white Otschakovskaya and the white Vengerka. At Orel, we find a collection of the best under names which mean large blue, large yellow, etc. At Kursk, we find the Reine Claudes planted more freely, but unless laid down, they are not reliable, though they may sometimes bear a good crop in the sheltered peasant gardens around Kursk. At Kiev, we find more of the German and French varieties, and, therefore, notes from that climate are less valuable to us.

The *Prunus Spinosa*, of Russia, is very interesting, and quite common as far north as any other plum. The peasants always said it was not a plum, but called it by the Russian name for thorn. There is a large fruited variety of it, round, blue and really good for cooking, far better than our Canadian wild plum for that purpose. We saw it begetting heavily in many places.

A dwarf variety of the *Spinosa* should be introduced into our gardens as an ornamental curiosity. The fruit is quite small, blue, covered with a bright blue bloom. I have seen it for sale in the markets, but fear it would be very sour. The bushes are seldom more than three feet in height, and I have seen little round-headed bushes, not more than eighteen inches in height, loaded with lovely blue fruit. Strikingly curious and beautiful.

APRICOTS.

Let us add the Apricot to our list of hardy fruits as soon as possible.

Mr. Maximowitch, Curator of Botanic Gardens at St. Petersburg, who has spent many years botanizing that vast country eastward to the Amur, says that in Soongaria, in eastern Turkestan, at the eastern end of the Altai range, it is growing in quantity, and that the boars, and the bears, and the natives, fight it out as to who is to have the fruit. The fruit is small, that is, about one inch in diameter, but sweet, and pretty good.

In the southern parts of the province of Manchuria, there is, says Mr. Maximowitch, a variety of apricot different from those in cultivation. They do not thrive well near the coast, but in sheltered situations inland they grow in great quantity. They are really good, and are sold in quantity in the Pekin market. Could we not get the pits of this apricot expressed to us by our Consul at Pekin? Surely this might be done.

CURRENTS.

The *Ribes Alpinum* of Siberia we tasted at Moscow. A fruit of ordinary size, a rich carmine in colour, and quite sweet, with a very slight bitter. Worthy of introduction.

GRAPES.

There are large vineyards on the Don, and in the Crimea, and in other parts of southern Russia, which we did not visit. Good wines are made in these vineyards, and the grapes sent to the northern markets are very fine and mostly of Chasselas type. The vines, however, have been imported from Germany.

MULBERRIES.

We did not succeed in finding the Russian mulberry in the colder climates. At Voronezh, in the Botanic Gardens, we saw two varieties in bush form, one of which was like the Russian mulberry. *M. Tartarica* we saw in the Botanic Garden at Vienna, fourteen inches in diameter of trunk, and twenty-five feet high, showing that it attains to a good size.

The Mennonites in Manitoba brought their mulberry from the shores of the Sea of Azof. They have grown it as a hedge plant, but it is not hardy there. In Cottonwood county, Minn., it has been planted in great quantity, and does well in that climate. Mr. Maximowitch says there is a hardy Mongolian variety, which, however, may be difficult to get. Mulberries are very plentiful in Amur, of good size, and of good quality, so Mr. Fallor, of Minneapolis, tells me.

MELONS.

Russia has long been celebrated for its melons. The best we saw belong to types we have not.

Musk Melon.—In the markets we used to find a melon about fourteen inches long, netted, the flesh very deep, and a creamy white in colour, and of the highest quality. I call it a musk melon merely because I do not know what else to call it. Those who abstain from musk melon are not likely to object to these. Like the Khiva melons, which one of the Emperors of China always enquired about on the arrival of the caravans, this is a keeping melon, and may readily be kept till Christmas. It may be a little late in ripening. However, on September 2nd we found fine specimens in the Simbirsk market, said to be grown on the lower Volga, probably at Tsaritsin, Sarepta, or Astrachan. In the Kursk and Voronesh markets we also find them sent from the south. These melons are grown in Russia, where the summer is longer than ours, yet not with such hotbed care as we can give them, and they seem to be picked early. They cannot, therefore, be so very late. Next autumn will test their value in this climate.

Water Melon.—Nearly every barge that is being towed up the Volga has somewhere a small deck load of water melons. In all the markets we find them in great quantity. They are a great staple article of food. They are all alike, round, about ten inches in diameter, a creamy white in colour, with red flesh, and of fine flavour. Those who have grown the Russian netted cucumber alongside of the finer English frame varieties, may have noticed the hardy take-care-of-itself character of the Russian plant. Just such a hardy nature I expect to find in this Russian water melon. It grows without care in vast quantity, apparently as readily as pumpkins do with us, that is at Saratof and southwards. At Kursk and Voronesh it is not quite so large. It is a melon of fine quality likely to do well in the hands of not very careful cultivators.

FINIS.

Our journey to Russia has shown how necessary such a journey was. It has set us upon the right track, and will greatly hasten the introduction and dissemination of the best of the Russian fruits—a matter to which all our northern horticulturists were so eagerly looking. We have but broken ground; the work will continue by importations, by correspondence, by the interchange of seeds and scions.

It was so fortunate, too, that Mr. Budd was himself able to leave his college duties for so long a journey.

Every useful point of knowledge gained will be utilized in Iowa. All promising varieties will be fairly tried in different localities, the most promising scattered broadcast as soon as possible. The other north-western States will soon take action in the matter. Ontario will do something especially for her colder districts.

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When will our own Province (Quebec) have a propagating centre, where the fruits adapted to each county may be propagated and distributed to each county, as prizes by the county agricultural societies.

The action taken by our Provincial Government will be an accurate test of the interest taken by our Government in the people's welfare.



