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‘Karlstein Red’

First selection of the young Czechoslovakia

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with editorial collaboration from Jitka Kissling

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Abstract

Description and history of this currant cultivar, which is an improvement of *Ribes rubrum* ‘Heros’.

To celebrate the centenary of its independence, the country was exhibiting in 2018 the crown jewels of the kings of Bohemia outside their fortress. Like Karel Čapek, who paid homage to beetroot, here we are celebrating another national treasure, born just a stone’s throw from the castle of Charles IV, a bunch of priceless, perishable rubies. ‘Karlstein Red’ will tell its tale: lost for a while, foreign hands returned it to its rightful place. Which leads us to dream for a moment of the meaning of national pride. Like all the old treasures that our friends the plants have brought us,

*We have shared it,
Thereby we have saved it.*



Identifying the cultivar

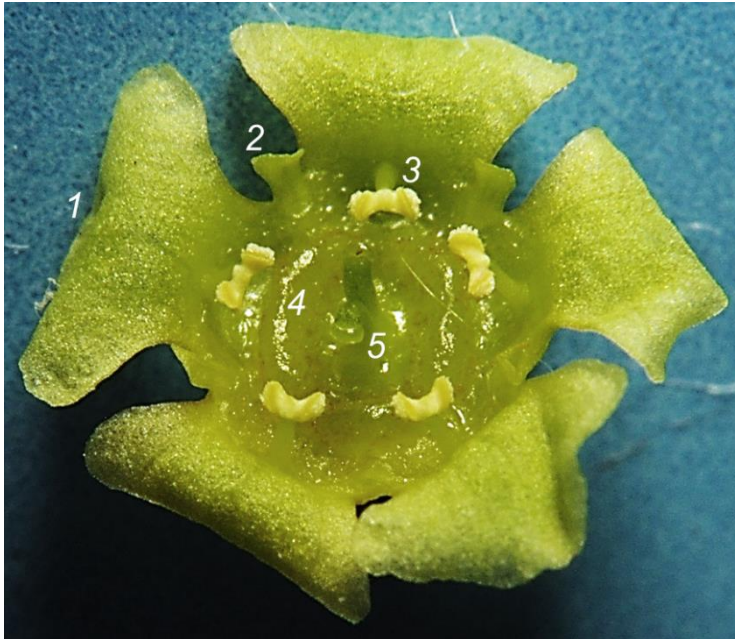
No notable difference from ‘Heros’

Originating from the cultivar ‘Heros’, it was also known as ‘Karlstein Heros’. It is no surprise then that out of about 300 characteristics observed, only 5 mediocre ones show a slight difference: these two cultivars can probably not be distinguished from one another morphologically. Selection has obtained more productive bushes with a less spreading habit, but this agronomic progress has escaped botanical observation. We subscribe to the pomology report of BLATTNÝ et al. (1971, 328): “According to our observations, ‘Karlstein Red’ is distinct from the ‘Heros’ variety currently grown here by the length of the bunches and the number of berries. As for the other characteristics and qualities, it is similar”. This as far as the identification goes. At a certain point, one has to be able to rely on the source that provides a clone. On the other hand, we can identify the pair ‘Heros’ and ‘Karlstein’.

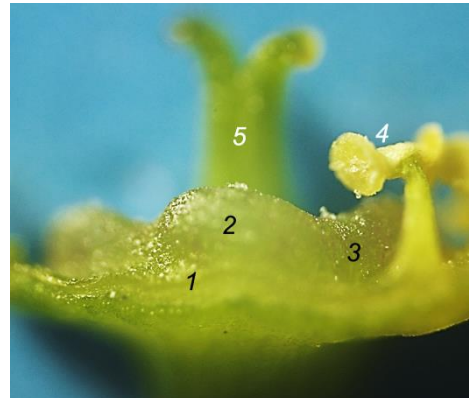
Almost everything from *Ribes rubrum*

The two previous miniatures about ‘Gabreta’ and ‘Prince Albert’ (KISSLING 2015 – 2020) have shown deep flowers with long stamens and rounded berry tufts: all features of the *Ribes petraeum* and *spicatum* species. Here we are in another microcosm:

- The flower is **patelliform** (in the form of a plate): hypanthium and calyx are wide open.
- The sepals are strongly **revolute** (turning towards the underneath of the flower) and generally completely **green**.



Flower of 'Karlstein', typical of *Ribes rubrum*. 1= green sepal, 2= petal, 3=stamen, 4= nectariferous ring, 5= bifid style



Disc profile. Note the faint anthocyanin wash. 1= hypanthium, 2= tall callus facing a petal, 3= lower ridge opposite a stamen (4), 5= style

- The stamens are **short** and their anthers are almost **2 times wider** than tall.

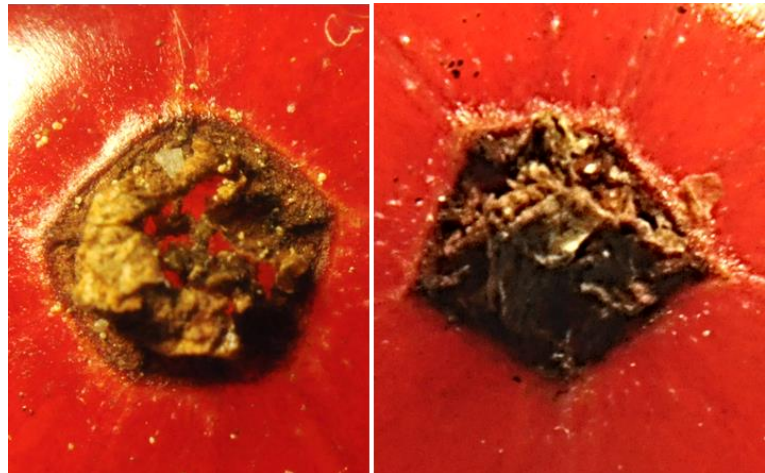
- The nectariferous disc here has a **pentagonal ring**: 5 large humps (*calluses*) facing the petals are

loosely connected by 5 lower straight *ridges* facing the stamens.

- The style is **short**: $d = 13-15\text{mm}$ compared with $18-23\text{mm}$ in the cultivars closely-related to *spicatum* and $26-32\text{mm}$ in wild *petraeum*.

- Most of the berry tufts are **pentagonal** and some are even *sharply pentagonal*.

These traits point to *Ribes rubrum*. This is the main parental species of the ancient cultivated red currants.



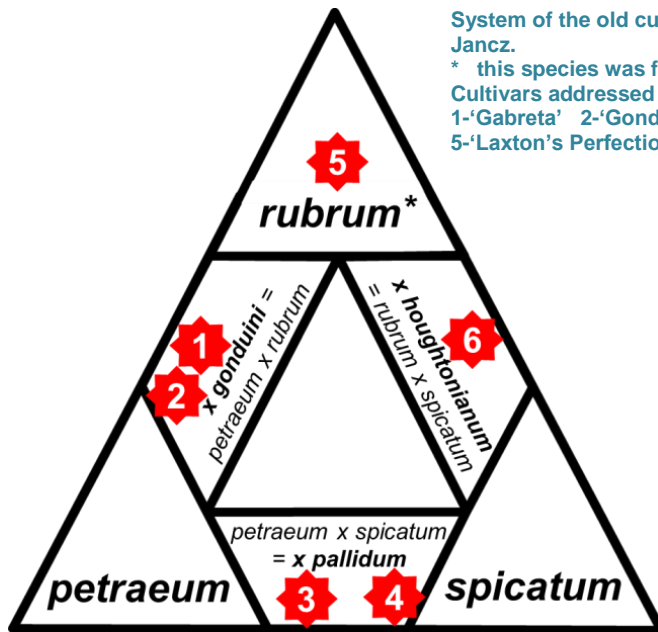
Pentagonal berry tufts, blunt and angulate, typical of *Ribes rubrum*

This inheritance is obviously also expressed in the characteristic physiological and agronomic properties of *Ribes rubrum*. The bush is low (barely more than a metre high), the branches are slender, bud burst and flowering are early so are subject to damage from late frosts, so the cultivar is more suited to growing on plains rather than in cold areas; the foliage is sensitive to fungal diseases and starts to fall in the summer, but the berries are relatively sweet.

The three-specific pattern of ancient cultivars

So, we have looked through the parental species that were involved up to the early 20th century: three wild European species plus their hybrids. They can all be represented in the form of a triangle in which the corners are the species and the sides the groups of hybrids.

Unfortunately, we must address a **problem of nomenclature**. LINNAEUS was the first to give the species a binomial name, in 1753: *Ribes rubrum*. This name was disputed for a large part



System of the old cultivated red currants. *Ribes* L. subgen. *Ribesia* (Berl.) Jancz.

* this species was formerly also called *vulgare* (see the text).

Cultivars addressed so far :

1-‘Gabreta’ 2-‘Gondouin Red’ 3-‘Prince Albert’ 4-‘Earliest of Fourlands’
5-‘Laxton’s Perfection’, ‘Heros’, ‘Karlstain Red’ 6-‘Houghton Castle’

of the 20th century by various authors, who preferred synonyms: *vulgare*, *sativum* and *sylvestre*. This was incorrect, *rubrum* has priority.

Within *Ribes rubrum* it becomes more complicated

When many cultivars descend from the same species, they have little room for genetic diversification and it will be more difficult to distinguish them than cultivars originating from different species: easy as it was to distinguish ‘Gabreta’ from ‘Prince Albert’, the pomology of the

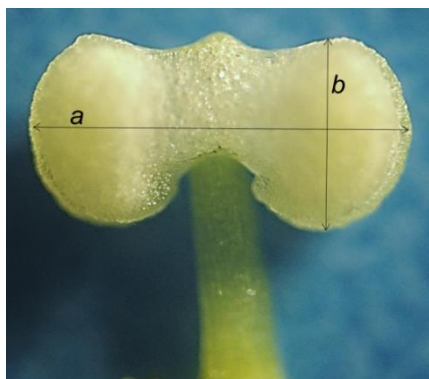
rubrum cultivars is an altogether trickier matter. To make it easier, first one separates them into three practical groups according to berry colour: in the wild, *rubrum* is only known as having red berries, but horticulture has produced it with “white” (no anthocyanins) and pink berries. Another practical trait has been retained since 1900 to divide up the red group: the colour of the disc (JANCZEWSKI 1909, 317 – BUNYARD 1920, 43sq. – KISSLING 2016, 64). In a wild population it varies, the disc is green in one clone, purple in another (“red eye” in vernacular) and pinkish in a third one. But in clones the anthocyanin wash is stable, so it enables the cultivars to be characterised. Three groups can be identified: one has a strong purple wash, one has a green disc from bud stage and one has a pink disc in the bud, which becomes paler as the flower opens.

– It is to this last group, small in number, that the pair ‘Heros’ and ‘Karlstain’ belong: their **pale pink disc** distinguishes them from most of the *rubrum* cultivars with red berries.

– The **anther** has a **record relative width**: the **a/b** ratio is 1.90-1.95 as opposed to 1.59 to 1.85 in a dozen or so other red *rubrum* cultivars with a green or pale disc. This does not seem much, but with a mean deviation of only 0.05, this difference is reliable.

– The uppermost **calluses of the nectariferous ring** facing the petals reach 5.2-5.9mm, compared with only 3.5-4.7mm (exceptionally 5.2mm) in the other cultivars with a pale disc.

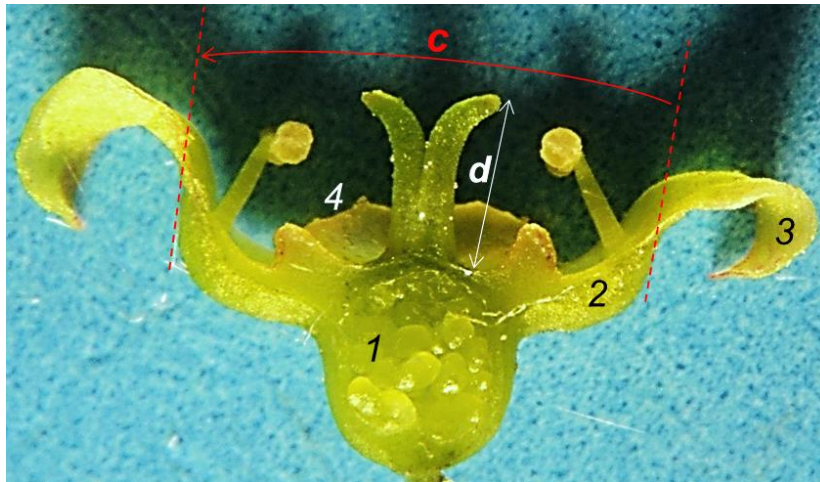
– The sepals, below the point where they inflect, form a low cup shape, the angle of which goes down to as much as **C= 0°**, while this cup is more open in all the other red *rubrum* cultivars (**C=10-115°** apart from the exception of 0° for ‘La Turinoise’).



Anther typical of both ‘Heros’ and ‘Karlstain’



Moderately pink nectariferous ring in the opening bud. It will fade. Note the prominent calli (1) in front of the petals (2)



Floral profile of 'Heros'.
 1= ovary,
 2= hypanthium,
 3= revolute spread out
 sepal,
 4= nectariferous ring
 with faint pink wash

All in all, we have reached the limits of our ability to identify through morphology. For the red *rubrum* with a pale disk, it is to be hoped that molecular genetics will provide a molecular identification key based on the reference clones – which the morphological and historical pomology will help to select.

Tracing its history

In the beginning there was 'Laxton's Perfection' introduced in 1910 by the Laxton brothers in Bedford (UK) (BLATTNÝ et al. 1971, 361). Although it is morphologically different (green disc from the bud stage and open habit), this is what will have been used in the first wave of selection for 'Heros' (according to BLATTNÝ et al. 1971, 328). This was the work of the German nurseryman Hermann Rosenthal (1869-1940) between 1912 and 1927. He founded the "Heros" nursery in Rötha (why should he not play with his own name?), which survived the vicissitudes of East Germany and celebrated its centenary in 2010 (ENGELHARDT 2010). In the year when Rosenthal put 'Heros' on the market, a Czech nurseryman with a lot of experience from elsewhere in Europe from periods spent working in Italy and France set up a nursery at Kozolupy, behind Karlstein castle (TEMPÍR 1997): it also survived political crises and we look forward to it celebrating its centenary in 2027. Its founder, Bohumil Košák (1900-1984), who was in contact with Rosenthal, introduced 'Heros' to the country in 1929 and set about improving it. The pomology of BLATTNÝ et al. (op. cit.) states that this was by massal selection. This ancient procedure, which usually involves several generations of sowing in respect of a parental model to be improved, would be somewhat unusual in red currant selection. Sowing red currant seeds, quite the reverse, usually results in an initial expansion of genetic diversity in which one hopes to find original types. It is true that from a cultivar of a basically pure species and not from an interspecific hybrid the seedling population would not be very scattered genetically. Nonetheless, it is surprising that the pale pink wash of the disc, so variable in the wild and hardly noticeable to the non-botanist, has persisted from 'Heros' to 'Karlstein' if a sowing really occurred. In short, the procedure for this historic selection deserves a study in the archives of Mr. Košák and Mr. Rosenthal, if they have been preserved: perhaps a nice subject for a Czech university?

'Karlstein Red' was registered in 1963. At the same time, its creator was invited to co-author the pomology of small fruits of BLATTNÝ et al. (op. cit.), which can be considered as one of the best in the world. The awareness of this collective work seems to be moving like the new wave of the Czech cinema by the momentum that led to the Prague Spring.

In 1974 a clone reached the great collection at Brogdale Farm in Faversham (UK)¹.

¹ <http://www.nationalfruitcollection.org.uk/full2.php?varid=8603&&acc1=1974&&acc2=242&&fruit=redcurrant>

In 1982, STEVE MCKAY, a young Californian charismatic professor founded an alternative school of agriculture in Anderson Valley, California (BENBROOK et al. 1988, 38-39, 45). Among its features are its openness to Europe and developing countries and its choice of the *Ribes* genus as teaching material (BRAKKEN 1989). Its collection of over 200 cultivars of *Ribes* includes the 'Karlstein's Red' from Faversham. That is how the clone reached the Corvallis gene bank (Oregon, USA) on 8 November 1989², a few days before the Czech Velvet Revolution. The clone was subsequently conserved in Palmer (Alaska).

During this time in this country the cultivar was conserved at the famous institute of Bojnice, specialised in small fruit breeding. Therefore at the time of the separation of Czechoslovakia in 1993 it was "exiled" in Slovakia³. If it was no longer in the Czech Republic's collection, it was no doubt to be found in many gardens, albeit unknown.

In 2011 the American gene bank kindly sent two cuttings of the Faversham clone and in 2012 Dr. CAGÁNOVÁ, the esteemed head of the ship in distress at Bojnice, also sent some cuttings. The two clones have since been saved at the Czech Holovousy gene bank.

The cultivar is much less well known than 'Heros', despite being an improvement of it. Nevertheless it is shown at the Royal Horticultural Society garden at Wisley⁴, on sale at Chris Bowers' nursery at Wimbotsham (UK)⁵, under multiplication at the nursery of old varieties at Bojkovice (CZ, www.stareodrudy.org), conserved at the Pro Specie Rara (CH) associative collection (<https://www.prospecierara.ch>) and is on its way to the nursery at Kozolupy, where it was first grown.

*Happy, who like Ulysses or that lord
That raped the fleece, returning full and sage,
With usage and the world's wide reason stored,
With his own kin can wait the end of age.*

(Joachim Du Bellay, 1558 – translated by G.K. Chesterton)

But we – humans and plants – have not all had the opportunity to cross the oceans of human disgrace. Some have only survived in the memory of books. For example: can any good soul be found to have saved the 'Šír Seedling' from Chlumec nad Cidlinou, that VANĚK (1941, "Popular Pomology", 91) said was so good?

Living with it

The weakness of our population (1 clone of 'Heros' and 2 of 'Karlstein'), the unfavourable sub-montane climate of our orchard for *R. rubrum* and our botanical tendency limit the scope of this evaluation. Take it as it is. It confirms anyway what has already been published (MÜLLERS 1936, 170 – SORGE 1953, 68 – LUŽA et al. 1967, 56 – BLATTNÝ et al. 1971, 329-331 – KEIPERT 1981, 111):

- 'Heros' gives more than it can support: under favourable conditions its slender branches are so loaded with bunches of currants as to bend down to the ground. 'Karlstein Red' seems equally generous to us but its branches are sturdier and resist the weight of the racemes.
- Like 'Heros', this cultivar is very demanding: it needs lots of manure and watering and a rather warm climate to give of its best.
- Like 'Heros' again, it does not shoot spontaneously from the stump, its regeneration has to be stimulated by intensive pruning of older branches.

As the fruit is moderately sweet, both juicy and able to set without the use of pectin, it is versatile, whether raw or cooked. One thing is certain: each year we note that the currants of

² <https://training.ars-grin.gov/gringlobal/AccessionDetail.aspx?id=1451301>

³ <http://www.vuood.sk/geneticke-zdroje/ribezla-cervena-a-biela/>

⁴ <https://www.rhs.org/gardens/wisley/garden-highlights/the-orchard?compactView=true>

⁵ <https://www.chrisbowers.co.uk/product/karlstein-red-redcurrant-bush/>

its ancestor 'Laxton's Perfection' (and 'Laxton's No.1') have a rather unpleasant wild-berry after-taste, which 'Heros' or 'Karlstein' do not have.

Assessing it

The ancient spirit of plant improvement welcomed the appearance of new forms somewhat passively and tried to improve them. Going round in circles about the *Ribes rubrum* species presented no problem. Until the 19th century, when interspecific varieties appeared ('Prince Albert', 'Houghton Castle', 'Gondouin Red'), no-one guessed that they were hybrids. It was only in the 20th century that people became aware of **interspecific hybridisation**, to create something new and make the most of *heterosis* (an enhancement frequently provided by heterogeneous genotypes). Interspecific hybridisation has been the driving-force behind red currant improvement for more than 50 years, and there will soon be no more pure species cultivars. 'Karlstein Red', a monospecific *rubrum*, is thus one of the last examples of the old school. This does not mean that it has no fine qualities – productivity, flavour and aesthetics. It is still at least recommended for home gardens. The desire for local produce in response to the frustration of loss of identity in all parts of Europe should also not be ignored: this child of the First Republic can become a good companion in Czech gardens, kitchens and hearts.



Under intensive care, 'Heros' and 'Karlstein' may yield plenty of fruits

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