```
% this is ../../crops/18r/planning/current_pedigrees/primary_recessives/les23-k16300_
% generated Friday, June 01, 2018 at 21:28:51 UTC (=1527888531.039019) by compute_pedigrees/1.

% Horizontal pedigrees, generations at same indentation.  S: Mo20W; W: W23; M: M14.
% !!! => cross was not by Toni; references to image locations on right.

% ?/les23-K16300

 10R0163:0000000 x 10R0163:0000000
      11R205:S0043411 x 11R0163:0037003
      11R205:S0043412 x 11R0163:0037005
      11R205:S0043414 x 11R0163:0037006
           11N3517:0030301 x 11N3517:0030301
                12N205:S0036102 x 12N3729:0004505        12N3729:0004505: [12n/bet/7.1-[433,434]]
                12N205:S0036109 x 12N3729:0004501        12N3729:0004501: [12n/bet/7.1-[431,432]]
                12N205:S0036406 x 12N3729:0004505        12N3729:0004505: [12n/bet/7.1-[433,434]]
                   13R4071:0015401 x 13R4071:0015401
                   13R4071:0015405 x 13R4071:0015405
                        15R205:S0002506 x 15R4247:0009302        15R4247:0009302: [15r/bet/11.8-[2670]]
                        15R205:S0002602 x 15R4247:0009302        15R4247:0009302: [15r/bet/11.8-[2670]]
                        15R205:S0002605 x 15R4247:0009302        15R4247:0009302: [15r/bet/11.8-[2670]]
                           16R4466:0004206 x 16R4466:0004206
                                17R205:S0001210 x 17R4625:0015809        17R4625:0015809: [17r/gimmel/2.8-[378]]
                                17R205:S0001211 x 17R4625:0015809        17R4625:0015809: [17r/gimmel/2.8-[378]]
                                17R205:S0001212 x 17R4625:0015804        17R4625:0015804: [17r/gimmel/2.8-[362,391
]]
                                17R205:S0001215 x 17R4625:0015804        17R4625:0015804: [17r/gimmel/2.8-[362,391
]]
                                17R205:S0003617 x 17R4625:0015808        17R4625:0015808: [17r/gimmel/2.8-[389]]
                                17R205:S0003703 x 17R4625:0015808        17R4625:0015808: [17r/gimmel/2.8-[389]]
                                17R205:S0003704 x 17R4625:0015808        17R4625:0015808: [17r/gimmel/2.8-[389]]
                           16R4466:0004207 x 16R4466:0004207
                           16R4466:0004213 x 16R4466:0004213
                   13R4071:0015413 x 13R4071:0015413
                12N205:S0037008 x 12N3729:0004501        12N3729:0004501: [12n/bet/7.1-[431,432]]
           11N3517:0030304 x 11N3517:0030304
           11N3517:0030306 x 11N3517:0030306
      11R305:W0044406 x 11R0163:0037005
      11R305:W0045012 x 11R0163:0037003
      11R305:W0046614 x 11R0163:0037003
      11R305:W0046906 x 11R0163:0037006
           11N3518:0030401 x 11N3518:0030401
           11N3518:0030407 x 11N3518:0030407
                12R305:W0003804 x 12R3733:0043004
                   13R3897:0015503 x 13R3897:0015503
                   13R3897:0015507 x 13R3897:0015507
                        14R305:W0000902 x 14R4249:0018605        14R4249:0018605: [14r/bet/22.8-[2293]]
```

[handwritten annotation: K16306]

[handwritten annotations: @, }, 4]

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                        15R4344:0007301 x 15R4344:0007301
                          16R305:W0000714 x 16R4475:0005105
                            17R4617:0013208 x 17R4617:0013208
                            17R4617:0013209 x 17R4617:0013209
                            17R4617:0013211 x 17R4617:0013211
                            17R4617:0013213 x 17R4617:0013213
                          16R305:W0001515 x 16R4475:0005105
                        15R4344:0007306 x 15R4344:0007306
                        15R4344:0007308 x 15R4344:0007308
                        15R4344:0007310 x 15R4344:0007310
                   14R305:W0000907 x 14R4249:0018605           14R4249:0018605: [14r/bet/22.8-[2293]]
                   14R305:W0000908 x 14R4249:0018609           14R4249:0018609: [14r/bet/22.8-[2299]]
                   14R305:W0001011 x 14R4249:0018609           14R4249:0018609: [14r/bet/22.8-[2299]]
               13R3897:0015510 x 13R3897:0015510
          12R305:W0003805 x 12R3733:0043005
          12R305:W0003806 x 12R3733:0043014
      11N3518:0030410 x 11N3518:0030410
  11R305:W0047901 x 11R0163:0037003
 11R405:M0043610 x 11R0163:0037003
 11R405:M0046504 x 11R0163:0037005
 11R405:M0046510 x 11R0163:0037006
     11N3519:0030501 x 11N3519:0030501
     11N3519:0030502 x 11N3519:0030502
     11N3519:0030503 x 11N3519:0030503
          12N205:S0037006 x 12N3737:0004703           12N3737:0004703: [12n/bet/7.1-[437,438]]
          12N405:M0037208 x 12N3737:0004711           12N3737:0004711: [12n/bet/7.1-[441,442]]
          12N405:M0037209 x 12N3737:0004703           12N3737:0004703: [12n/bet/7.1-[437,438]]
          12N405:M0038102 x 12N3737:0004706           12N3737:0004706: [12n/bet/7.1-[439,440]]
          12N405:M0038104 x 12N3737:0004706           12N3737:0004706: [12n/bet/7.1-[439,440]]
              13R4072:0015601 x 13R4072:0015601
              13R4072:0015604 x 13R4072:0015604
                14R405:M0001302 x 14R4251:0018805        14R4251:0018805: [14r/bet/22.8-[2275]]
                  15R205:S0000505 x 15R4373:0007409        15R4373:0007409: [15r/bet/11.8-[2638]]
                  15R305:W0000908 x 15R4373:0007409        15R4373:0007409: [15r/bet/11.8-[2638]]
                    16R305:W0001504 x 16R4477:0005305        16R4477:0005305: [16r/gimmel/30.7-[268]]
                    16R305:W0001611 x 16R4477:0005310
                    16R305:W0001612 x 16R4477:0005303        16R4477:0005303: [16r/gimmel/26.7-[100]]
                      17R305:W0001804 x 17R4641:0013415
                      17R305:W0001808 x 17R4641:0013415
                      17R305:W0001813 x 17R4641:0013415
                    16R305:W0001618 x 16R4477:0005311        16R4477:0005311: [16r/gimmel/26.7-[108],1
6r/gimmel/30.7-[266]]

                      17R305:W0001702 x 17R4642:0013505             17R4642:0013505: [17r/gimmel/2.8-[37
2]]

                      17R305:W0001708 x 17R4642:0013510             17R4642:0013510: [17r/gimmel/2.8-[38
4]]

                      17R305:W0001709 x 17R4642:0013502             17R4642:0013502: [17r/gimmel/2.8-[37
```

6]]

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            16R405:M0001704 x 16R4477:0005305        16R4477:0005305: [16r/gimmel/30.7-[268]]
            17R405:M0002201 x 17R4643:0013613
            17R405:M0002210 x 17R4643:0013611            17R4643:0013611: [17r/gimmel/2.8-[35
9]]

            17R405:M0002213 x 17R4643:0013609            17R4643:0013609: [17r/gimmel/2.8-[37
5]]

            17R405:M0002215 x 17R4643:0013608            17R4643:0013608: [17r/gimmel/2.8-[38
1]]

            16R405:M0001708 x 16R4477:0005303        16R4477:0005303: [16r/gimmel/26.7-[100]]
            17R405:M0002502 x 17R4644:0013701
            17R405:M0002509 x 17R4644:0013708            17R4644:0013708: [17r/gimmel/2.8-[38
8]]

            17R405:M0002510 x 17R4644:0013703
            16R405:M0001711 x 16R4477:0005309        16R4477:0005309: [16r/gimmel/30.7-[265]]
            16R405:M0001713 x 16R4477:0005310
            16R405:M0001806 x 16R4477:0005311        16R4477:0005311: [16r/gimmel/26.7-[108],1
6r/gimmel/30.7-[266]]

            17R205:S0001217 x 17R4477:0016204        17R4477:0016204: [17r/gimmel/2.8-[373]]
            17R205:S0001218 x 17R4477:0016204        17R4477:0016204: [17r/gimmel/2.8-[373]]
            17R205:S0001219 x 17R4477:0016203        17R4477:0016203: [17r/gimmel/2.8-[363,387
]]

            17R205:S0001317 x 17R4477:0016203        17R4477:0016203: [17r/gimmel/2.8-[363,387
]]

            17R305:W0003807 x 17R4477:0016208        17R4477:0016208: [17r/gimmel/2.8-[370]]
            17R305:W0003813 x 17R4477:0016208        17R4477:0016208: [17r/gimmel/2.8-[370]]
            17R305:W0003903 x 17R4477:0016203        17R4477:0016203: [17r/gimmel/2.8-[363,387
]]

            17R305:W0003910 x 17R4477:0016204        17R4477:0016204: [17r/gimmel/2.8-[373]]
            17R305:W0003920 x 17R4477:0016208        17R4477:0016208: [17r/gimmel/2.8-[370]]
            15R305:W0002902 x 15R4373:0007409        15R4373:0007409: [15r/bet/11.8-[2638]]
            15R305:W0003002 x 15R4373:0007409        15R4373:0007409: [15r/bet/11.8-[2638]]
            15R405:M0001111 x 15R4373:0007409        15R4373:0007409: [15r/bet/11.8-[2638]]
            15R405:M0001112 x 15R4373:0007409        15R4373:0007409: [15r/bet/11.8-[2638]]
            15R4373:0007403 x 15R4373:0007403
            16R405:M0002008 x 16R4476:0005211        16R4476:0005211: [16r/gimmel/26.7-[110]]
            16R405:M0003107 x 16R4476:0005202        16R4476:0005202: [16r/gimmel/26.7-[90]]
              17R4621:0013302 x 17R4621:0013302
              17R4621:0013303 x 17R4621:0013303
              17R4621:0013307 x 17R4621:0013307
            16R405:M0003203 x 16R4476:0005210        16R4476:0005210: [16r/gimmel/26.7-[114]]
            15R4373:0007405 x 15R4373:0007405
            15R4373:0007407 x 15R4373:0007407
            15R4373:0007408 x 15R4373:0007408
          14R405:M0001306 x 14R4251:0018805        14R4251:0018805: [14r/bet/22.8-[2275]]
          14R405:M0001515 x 14R4251:0018809        14R4251:0018809: [14r/bet/22.8-[2298]]
        13R4072:0015608 x 13R4072:0015608
```

```
                13R4072:0015611 x 13R4072:0015611
            12N405:M0038105 x 12N3737:0004706          12N3737:0004706: [12n/bet/7.1-[439,440]]
            12N405:M0039401 x 12N3737:0004711          12N3737:0004711: [12n/bet/7.1-[441,442]]
        11R405:M0046512 x 11R0163:0037003
```