

Appendix to Mind the Gap – Jonckheere Double Stars Not Listed in the WDS

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Abstract: This paper describes the results of efforts to identify fifty-two Jonckheere objects for which no data could be found in the WDS.

A previous paper, “Mind the Gap – Jonckheere Double Stars Not Listed in the WDS” (Nanson and Knapp, 2016), described an effort to determine the cross-referenced identifications of a large group of Robert Jonckheere’s double stars which failed to turn up in a search of the WDS catalog sorted by discoverer ID. During that process fifty-two Jonckheere objects were discovered for which no information or reference could be found, meaning they were entirely absent from both the WDS catalog and WDS Notes file.

To identify those objects, we turned to Jonckheere’s 1962 Double Star Catalog (*Catalogue Général de 3350 étoiles doubles de faible éclat observées de 1906 à 1962*) and looked at his entry for each of the fifty-two objects. We found fourteen of his catalog entries included references to previous observers, often with that observer’s designation included. That group of stars have now been incorporated into the WDS Notes file under the WDS identification assigned to the original observer’s designation (*Example: B 1953 [WDS 05569-1836] has this note: J 1469. Identified by Jonckheere as BOS 1953 in his 1962 catalog*). Those pairs have been coded green in Table 1.

Another group of twenty-seven which lacked that information were identified by plugging Jonckheere’s projected 2000 coordinates into Aladin (Jonckheere’s 1962 catalog lists coordinates for 2000, 1950, and 1900). These twenty-five objects were easily matched up with pairs which had been discovered by previous observers. (*Example: SEI 155 [WDS 05174+3500] has this note: J 184*). This group has been coded blue in Table 1.

In the process of matching Jonckheere’s projected 2000 coordinates into Aladin, we found five pairs that

could not be matched definitively based on Jonckheere’s measurements. We found possible or probable matches with previously discovered pairs for each of the five pairs. (*Example: HJ 3280 [WDS 05590+1321] has this note: Probably J 1916*). These pairs have been coded red in Table 1.

That left six objects to which Jonckheere assigned catalog numbers, none of which are double stars. Two of those are red stars, one is a nova, and three are galaxies. These have all been assigned a WDS identification number and entered into the WDS catalog with an “X” code, which designates the object as a “bogus binary”, and also entered into the WDS Notes file with a comment clarifying and identifying the object (*Examples: J 2001 [WDS 06556+0624] has this note: Variable CL Mon. Red star; and J 2501 [WDS 09200+0103] has this note: Radio galaxy UGC 4956*). These five objects are coded black in Table 1.

With the completion of this work, all 3350 Jonckheere objects are now accounted for in the WDS, either directly in the WDS catalog, or indirectly in the WDS Notes file through association with the designation assigned to a prior observer.

Acknowledgements

Thanks to Wilfried Knapp, co-author on the Mind the Gaps Paper previously referred to, who provided the original impetus for this Jonckheere project. It would also be remiss at this point if we failed to mention the invaluable assistance provided by Bill Hartkopf for this endeavor. He supported the effort from the start and provided assistance along the way, as well as adding the updated information to the WDS.

The following tools and resources have been used

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for this research:

- Aladin Sky Atlas v9.0
- SIMBAD, VizieR
- Sky Tools 3
- Stelle Doppie Web Site (<http://stelledoppie.goaction.it/>)
- Washington Double Star Catalog

References

- Jonckheere, Robert, 1962. Catalogue Général de 3350 étoiles doubles de faible éclat observées de 1906 à 1962, Observatoire de Marseille and Journal des Observateurs, Place le Verrier, Marseille.
- Nanson, John; Knapp, Wilfried - 2016, Mind the Gap – Jonckheere Double Stars Not Listed in the WDS”, JDSO Vol. 12, No. XX, pp. xx-xx.

Table 1. *Green: Identified by Jonckheere with a prior discovery and/or designation. Blue: Obvious match with prior discovery. Red: Not a definite match. Black: Nebula, galaxy, or red star.*

Jonckheere Catalog Number	Right Ascension		Declination		1962 Catalog Page Number	Description
	H	M	D	M		
184	05	17.4	35	00	p. 55	SEI 155, WDS 05174+3500. Jonckheere includes an 1895 measure made by SEI, although its PA doesn't match the Obs1 PA in WDS.
810	18	55.7	12	55	p. 252	COG 1, WDS 18557+1254. A and C match the BD numbers cited by Jonckheere; COG is listed as an observer for AB, AC, and CD pairs.
1164	20	11.9	35	51	p. 321	SEI 983, WDS 20119+3551. Jonckheere's 1896 data for AB is a close match to WDS Obs1 data; his 1915 AC data is an exact match with WDS Obs1 data.
1169	20	17.5	32	00	p. 328	SEI 1065, WDS 20175+3205. Jonckheere's 1893 data matches Obs1 data in WDS; SEI listed by J as observer for his 1893 data.
1244	21	23.7	04	21	p. 367	STF 2791, WDS 21237+0422. Identified by Jonckheere as STF 2791 on p. 367 of his 1962 catalog. Cites Struve's 1827 data.
1382	19	20.2	00	56	p. 272	BAL 1202, WDS 19203+0056. BD and HD numbers cited by Jonckheere match up with BAL 1202; his 1895 data matches OBS 1 in WDS.
1445	01	25.2	-04	08	p. 29	HJ 638 (aka BU 1361), WDS 01252-0412
1468	05	16.5	-15	31	p. 55	GAL 172, WDS 05164-1531; identified by Jonckheere as HD 34390 and GAL 172 on p. 55 of 1962 catalog
1469	05	56.9	-18	35	p. 71	B 1953, WDS 05569-1836; identified by Jonckheere as BOS 1953 on p. 71 of 1962 catalog
1503	07	51.0	-24	14	p. 153	HDO 110, WDS 07510-2414. Jonckheere labels it as the CD pair of BU 1319 (HDO 110 CD), which he also includes in his data.
1511	08	15.0	-00	01	p. 161	J 72. Listed under J 72 (WDS 08149-0001) on p. 161 of 1962 catalog, where Jonckheere writes: "Aussi [also] J 1151."
1517	08	23.7	-21	36	p. 164	B 2654, WDS 08237-2137. The BD number cited by Jonckheere matches that of B 2654.
1599	19	00.8	-24	39	p. 256	COO 230, WDS 19010-2439. COO 230 matches the ADS number cited by Jonckheere; Cordoba is referenced in J's notes.
1600	19	07.5	-24	09	p. 261	B 426, WDS 19075-2407. Referred to as B 426 on p. 261 of Jonckheere's 1962 catalog. Also, J's ADS number matches up with B 426.
1628	18	22.4	-20	18	p. 225	BHA 27, WDS 18223-2018. The BD number cited by Jonckheere matches BHA 27.

Table 1 continues on next page.

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Table 1 (continued). *Green: Identified by Jonckheere with a prior discovery and/or designation. Blue: Obvious match with prior discovery. Red: Not a definite match. Black: Nebula, galaxy, or red star.*

Jonckheere Catalog Number	Right Ascension		Declination		1962 Catalog Page Number	Description
	H	M	D	M		
1739	18	21.0	-17	15	p. 225	J 1627. Listed under J 1627 (WDS 18210-1714) on p. 225 of 1962 catalog, where Jonckheere notes "Aussi [also] J 1739".
1916	05	59.0	13	20	p. 72	Possible match with HJ 3280, WDS 05590+1321; proximity to BRT 1188 similar to Jonckheere's directions, PA not a good match, separation similar. (WDS Note File for HJ 3280 now reads "Probably J 1916").
2001	06	55.6	06	24	p. 120	Identified as a "red" star on pp. 120 and 318 of Jonckheere's 1962 catalog. Entered in the WDS as 06556+0624; Note File reads "Variable CL Mon. Red star."
2011	06	51.5	05	12	p. 115	Identified as a "red" star on pp. 115 and 318 of Jonckheere's 1962 catalog. Entered in the WDS as 06515+0512; Notes File reads "Variable CG Mon. Red star."
2023	06	33.1	12	27	p. 100	GCB 70, WDS 06333+1226. PA and separation match, as do Jonckheere's directions.
2066	08	53.4	-22	45	p. 171	DON 292, WDS 08535-2249. Identified as DON 292 on p. 171 of Jonckheere's 1962 catalog: "Aussi [Also] DON 292."
2301	08	11.8	-35	21	p. 160	Identified as "Nova Puppis" in Jonckheere's 1962 catalog, pp. 160 and 418. Entered in the WDS as 08118-3521; Note File for J 2301 reads "Nova Puppis = PK 252-00.1 = CP Pup."
2364	22	10.5	19	25	p. 380	BRT 2527, WDS 22104+1925. Identified as BRT 2527 on p. 380 of Jonckheere's 1962 catalog.
2371	22	32.0	28	47	p. 385	BRT 228, WDS 22320+2847. Probable match with BRT 228. Separation is close, PA of off by several degrees. WDS Notes File now reads "Probably J 2371."
2401	02	42.6	39	32	p. 37	WDS 02427+3932 : This is UGC 2180, which is identified as a nebula in Jonckheere's 1962 catalog, pp. 37 and 418. WDS Notes file now reads "Jonckheere says is two faint condensations of a nebula. Galaxy UGC 2180."
2436	06	46.6	04	37	p. 111	Possible match with UCAC4 473-023128 and 473-023127 . (This pair now identified as J 2436 with ID of WDS 06465+0435).
2437	06	46.7	13	05	p. 111	Possible match: J 2593, WDS 06468+1300. (WDS Note file for J2593 now includes "Probably J 2437").
2501	09	20.0	01	03	p. 176	Identified as a nebula in Jonckheere's 1962 catalog, pp. 176 and 418. Entered in the WDS as 09200+0103; Note File for J 2501 reads "Radio galaxy UGC 4956."
2557	19	44.0	-00	35	p. 294	RST 5142, WDS 19439-0034. BD number cited by Jonckheere matches that of RST 5142; J's 1943 data matches Obs1 data in WDS.
2585	18	54.0	15	15	p. 250	L 40, WDS 18540+1516. The BD number cited by Jonckheere matches L 40.
2589	06	02.7	00	14	p. 74	J 1362, WDS 06026+0014; note by Jonckheere on p. 74 of 1962 catalog: "Aussi [Also] J 1362."
2656	10	39.1	07	25	p. 184	J 1351 (WDS 10391+0726). Listed under J 1351 on p. 184 of Jonckheere's 1962 catalog.
2779	07	07.2	08	45	p. 130	J 3231, WDS 07077+0845. Date of discovery and PA match those of J 3231, separation is different by 1".
2794	07	15.0	09	56	p. 135	J 2457. Listed under J 2457 (WDS 07150+0956) on p. 135 of 1962 catalog, includes the note: "Aussi [also] J 2794."

Table 1 concludes on next page.

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Table 1 (conclusion). *Green: Identified by Jonckheere with a prior discovery and/or designation. Blue: Obvious match with prior discovery. Red: Not a definite match. Black: Nebula, galaxy, or red star.*

Jonckheere Catalog Number	Right Ascension		Declination		1962 Catalog Page Number	Description
	H	M	D	M		
3001	13	38.5	-10	44	p. 196	PGC 48213. Identified as a nebula in Jonckheere's 1962 catalog, pp. 196 and 418; aka MCG -2-35-11. Not entered into the WDS Notes file at the time this paper was completed. Aladin shows J 2000 coordinates are 13h 38m 29.6s -10° 42' 16".
3216	19	39.5	41	38	p. 289	FOX 29, WDS 19395+4138. Jonckheere's AB and BC data are close matches with WDS data. BD +41 03441 is nearby per Jonckheere's notes.
3228	05	55.0	-07	00	p. 70	J 1915, which is also HJ 33, WDS 05569-0700; note by Jonckheere on p. 70 of 1962 catalog: "BC = J 3228."
3284	07	54.6	-00	08	p. 155	BAL 1121 (WDS 07545-0011); Jonckheere's 1893 data matches Obs1 data in WDS.
3306	05	14.0	39	57	p. 54	HU 1100, WDS 05139+3958 (Also cataloged as ES 280); Jonckheere's BD and HD designations match those of HU 1100
3333	02	00.2	-01	39	p. 33	BAL 9, WDS 02003-0138. Jonckheere's entry includes 1891 data, which matches WDS Obs1 data, and his BD designation also matches with BAL 9.
3334	04	09.3	-01	22	p. 44	BAL 290, WDS 04094-0125. Obs1 data almost an exact match with 1899 data shown by Jonckheere; also matches his BD designation.
3337	06	45.7	-05	20	p. 110	BRT 383, WDS 06456-0521. Jonckheere's BD number matches that of BRT 383, his 1894 data is almost an exact match with Obs1 data in WDS.
3339	07	09.7	10	09	p. 132	Likely match: BRT 1223, WDS 07100+1008. Jonckheere's 1961 data is a close match to 2004 WDS data. (WDS Notes File for BRT 1223 now reads "Probably J 3339.")
3341	18	04.9	03	11	p. 218	BAL 2471, WDS 18049+0311. Jonckheere's 1910 data are almost exact matches of WDS Obs1 data for 1910, magnitudes match.
3343	19	37.2	-16	09	p. 286	BRT 635, WDS 19371-1607. Jonckheere's 1905 data matches Obs1 in WDS.
3345	20	28.5	07	44	p. 336	BRT 2186, WDS 20284+0746. BD number cited by Jonckheere matches that of BRT 2186; his 1908 data is a close match to 1908 Obs1 data in WDS. The WDS Notes file for BRT 2186 now reads "AKA J 1299. J 3345. Damm match to J 1299 believed incorrect."
3347	20	44.8	20	32	p. 349	BRT 2484, WDS 20447+2032. Jonckheere's 1893 data is almost an exact match with WDS 1893 Obs1 data.
3348	21	13.5	-09	06	p. 363	BRT 515, WDS 21135-0905. Identified as BRT 515 on p. 363 of Jonckheere's 1962 catalog.
3349	21	49.5	-02	11	p. 375	BAL 266, WDS 21496-0208. Jonckheere's 1896 data is almost an exact match with WDS 1896 Obs1 data.
3350	22	17.2	17	25	p. 382	BRT 1358, WDS 22172+1725. BD number cited by Jonckheere matches that of BRT 1358.
3351	22	39.0	10	37	pp. 387-88	BRT 3369, WDS 22390+1037. Jonckheere's 1912 data matches WDS 1912 Obs1 data.
3352	22	42.9	11	00	p. 388	STF 2933, WDS 22428+1100. Jonckheere's BD designation matches that of STF 2933.