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COMMUNICATION FROM THE OBSERVATORY AT LEIDEN.

Photographic magnitudes of bright stars near the North Pole, by *A. de Sitter*.

In *H. B.* 881 Miss PAYNE has published new photographic magnitudes of bright stars between + 80° decl. and the North Pole and compared her results with the mean values of earlier observations as indicated in *B. A. N.* 210. Miss PAYNE assigns these latter mean values to Leiden though this observatory is only one of the contributors.

According to Miss PAYNE a linear formula does not give a satisfactory representation of the relation between her own results and the mean values of *B. A. N.* 210. If we adopt $\pm$ m·027 as the mean error of the latter we obtain from Miss PAYNE's residuals $\pm$ m·097 for the m. e. of a Harvard magnitude.

On the other hand a least square solution gave the following linear formula for the reduction of the new Harvard magnitudes to the Leiden system:

$$m_L - 6{\cdot}910 = -\,{}^{m}{\cdot}0463 + {\cdot}9629\,(m_{Hpg} - 6^{m}{\cdot}910) + {\cdot}0032\,(I - {}^{m}{\cdot}415)$$
$$\pm\quad 72 \pm 104 \qquad\qquad \pm\quad 211 \qquad \text{(m. e.)}$$

The residuals give $\pm$ m·080 for the mean error of a Harvard magnitude, if we adopt for m_L the value $\pm$ m·044 as derived in *B. A. N.* 210. Accordingly there is no reason for not adopting a linear formula as above.

The mean error $\pm$ m·080 of the Harvard magnitudes corresponds to a weight of 3 in the scale of *B. A. N.* 210. Adopting this weight new mean photographic magnitudes of the stars contained in *B. A. N.* 210 were computed. The table below gives: B. D. number, colour-index, the new Harvard magnitudes *reduced to the Leiden system* and the new means *in the finally adopted system* (m_{pg}) *of B. A. N. 210.*

The means never had to be altered more than m·03; the mean error of the new means is $\pm$ m·026.

B. D.	I	m'_{Hpg}	m_{pg}	B. D.	I	m'_{Hpg}	m_{pg}
	m	m	m		m	m	m
83° 9	+ ·48	7·38	7·52	80° 123	+ ·12	7·83	7·84
81 13	+ ·57	6·83	6·91	80 125	+ ·50	5·48	5·66
82 20	+ ·14	5·71	5·69	80 127	+ 1·01	7·06	7·31
79 24	+ ·41	—	6·98	81 147	+ ·06	7·23	7·34
83 20	+ ·23	6·78	6·88	81 150	+ ·03	7·46	7·52
85 19	+ 1·34	5·42	5·61	83 104	— ·29	5·32	5·28
88 4	+ ·05	6·43	6·46	85 63	+ ·52	6·86	6·99
86 17	+ 1·18	7·11	7·29	82 113	+ ·76	6·14	6·30
80 35	+ ·31	7·24	7·46	80 133	+ 1·33	6·38	6·66
80 36	+ ·04	6·57	6·64	80 134	+ ·17	7·02	7·19
80 50	— ·05	7·00	7·00	80 140	+ ·24	7·41	7·48
80 55	+ ·01	6·94	7·00	84 88	— ·01	7·66	7·62
80 57	+ ·15	7·35	7·45	82 125	+ ·01	7·50	7·49
79 61	+ ·14	7·80	7·55	80 155	+ 1·43	6·35	6·50
80 64	+ ·08	6·16	6·11	85 74	+ ·32	6·62	6·73
80 65	+ ·22	7·02	6·99	85 78	+ ·02	6·52	6·58
85 41	+ ·97	7·74	7·80	83 141	+ ·08	6·95	7·05
82 51	+ ·95	7·18	7·34	79 173	— ·30	7·27	7·19
80 70	+ ·18	7·77	7·66	85 80	+ 1·61	7·53	7·67
85 45	+ ·16	7·67	7·73	86 79	+ 1·19	7·60	7·71
80 86	+ 1·35	6·95	7·11	79 208	+ ·08	6·88	6·75
79 86	+ ·04	7·17	7·24	82 177	+ ·13	6·76	6·70
80 97	+ ·16	5·97	6·02	79 212	+ ·40	6·11	6·03
79 94	+ 1·00	7·55	7·65	87 51	+ 1·67	6.49	6·75
84 59	+ 1·02	6·23	6·52	81 242	— ·10	6·31	6·18
86 51	+ ·36	6·09	6·17	82 201	+ 1·67	6·58	6·72

B. D.	I	m'_{Hpg}	m_{pg}	B. D.	I	m'_{Hpg}	m_{pg}
°	m	m	m	°	m	m	m
81 252	+ 1·07	7·51	7·51	80 544	+ 1·69	—	7·32
80 238	+ ·73	7·24	7·23	86 269	— ·08	4·44	4·39
84 168	— ·09	7·47	7·43	85 294	+ ·26	7·65	7·74
79 265	— ·05	5·47	5·39	86 272	+ ·17	5·72	5·94
84 169	— ·02	6·34	6·39	82 540	— ·18	7·18	7·21
89 13	+ ·18	7·06	7·14	84 412	+ ·36	7·51	7·61
82 235	— ·04	6·31	6·25	83 536	— ·01	6·18	6·18
85 128	+ ·38	7·68	7·67	79 604	+ ·27	6·62	6·65
82 253	— ·06	6·74	6·71	83 547	+ ·07	6·82	6·88
80 272	— ·12	7·45	7·39	82 572	— ·04	6·75	6·83
83 233	+ ·30	7·23	7·28	80 609	+ ·17	7·84	7·67
79 294	+ ·05	7·84	7·73	83 552	+ ·14	6·49	6·57
84 196	+ ·29	6·41	6·53	84 451	+ ·15	6·77	6·84
81 282	+ ·29	6·66	6·68	81 699	+ ·44	7·80	7·81
83 256	+ ·33	7·26	7·33	80 650	— ·13	6·60	6·67
81 362	+ 1·51	5·71	5·92	84 462	+ ·31	7·33	7·41
83 262	+ ·98	7·49	7·50	84 463	+ ·54	7·46	7·57
84 234	+ ·21	5·66	5·72	81 706	+ ·50	7·27	7·39
83 297	+ ·26	5·67	5·62	79 675	— ·15	7·38	7·38
81 343	+ 1·03	7·37	7·45	80 657	+ 1·11	7·38	7·56
81 349	+ ·10	6·66	6·69	82 617	+ 1·08	7·40	7·64
80 347	+ ·44	7·78	7·70	80 659	+ 1·13	6·35	6·50
86 161	+ ·21	7·32	7·36	80 660	+ 1·03	6·72	6·94
88 64	— ·09	7·31	7·32	83 588	+ ·18	6·29	6·32
81 373	+ ·19	6·35	6·32	81 718	·90	5·51	5·73
86 170	+ ·27	7·51	7·52	80 672	+ 1·30	6·55	6·64
86 176	+ ·51	6·62	6·74	83 596	+ ·26	7·34	7·47
80 380 }	+ ·16	7·14	6·98	80 679	+ ·27	7·04	7·15
80 381 }				80 688	+ ·06	7·37	7·36
87 107	+ ·36	6·56	6·64	80 690	+ ·12	6·22	6·19
88 71	+ ·27	6·49	6·50	86 319	+ ·03	7·34	7·36
81 400	+ ·29	7·54	7·51	79 701	+ ·52	7·78	7·74
80 389	+ ·57	7·58	7·54	79 707	+ ·84	6·80	6·89
86 182	+ ·19	7·23	7·29	83 618	+ ·21	7·18	7·24
81 402	+ ·10	6·47	6·42	82 673 }	+ ·52	6·93	7·03
84 289 }	+ ·18	4·55	4·84	82 674 }			
84 290 }				83 630	+ ·08	7·39	7·47
81 416	+ ·98	7·09	7·20	85 383	— ·10	5·05	5·21
85 222	+ ·43	7·58	7·64	85 384	+ 1·25	7·54	7·73
83 397	+ 1·00	6·91	6·93	81 775	+ ·36	7·26	7·35
86 201	+ ·38	7·48	7·59	87 205	+ ·07	7·35	7·41
81 482	+ ·82	7·58	7·57	79 739	+ 1·13	7·56	7·76
80 448	+ 1·46	7·38	7·62	80 731	+ ·69	—	7·49
81 495	+ ·04	7·05	7·11	82 700	+ ·04	7·50	7·46
83 431	+ ·64	6·45	6·15	82 703	+ 1·47	5·93	6·17
80 480 }	+ ·38	6·74	6·84	84 517	+ 1·37	7·00	7·25
80 481 }				83 640	+ 1·62	5·97	6·26
82 463	+ ·32	7·22	7·21	79 761	+ ·22	6·67	6·84
85 263	+ 1·03	7·75	7·81	79 769	+ ·12	7·21	7·27
81 523	+ ·98	7·70	7·80	83 647	— ·15	7·58	7·58
80 487	+ ·35	7·09	7·15	85 399	+ ·25	6·67	6·79
83 453	+ ·22	7·53	7·56	85 401	+ ·30	7·45	7·52
85 269	+ ·15	6·97	6·99	86 344	+ ·14	5·77	5·75
84 351	+ ·43	7·38	7·42	85 403	+ ·11	7·06	7·14
84 361	+ ·22	7·20	7·23	80 780	— ·09	7·84	7·75
80 519	+ ·60	7·44	7·51	82 743	+ ·07	6·59	6·57
82 498	+ ·79	5·46	5·28	85 409	+ ·15	6·61	6·73
81 568	+ 1·05	7·55	7·65	82 748	+ ·11	7·31	7·27

ERRATUM in *B. A. N.* 160.

Page 286, first line above the figure, for: $\frac{\mu}{\sqrt{\frac{1}{2}n \cdot a}} \cdot \frac{P}{2\pi}$ read: $\frac{\mu}{a\sqrt{\frac{1}{2}n}} \cdot \frac{P}{2\pi}$.