30. COMMISSION DES VITESSES RADIALES STELLAIRES

PRÉSIDENT: M. W. W. CAMPBELL.

MEMBRES: MM. Adams, Deslandres, Frost, Hamy, Harper, Henroteau, Jones, Joy, Moore, Newall, J. S. Plaskett, Salet.

I. The past three years have witnessed a gratifying degree of activity in the determination and publication of stellar radial velocities, under the auspices of the observatories at Ann Arbor (Michigan), Mount Hamilton (California), Mount Wilson (California), Ottawa (Canada), Santiago (Chile), Victoria (Canada), and Williams Bay (Wisconsin), with results of great value in the study of the stars: as individual moving units, as members of binary systems, and as members of groups; and of apparent differential motions within the atmospheric structures of individual stars, such as Cepheid variable stars and certain bright-line variable stars.

With duties to consider whether there should be co-operative plans for the systematic extension of radial-velocity determinations to stars other and fainter than those hitherto observed, and, if so, to advise as to the assignment of stars and sky areas to different observatories, as to the limiting magnitudes to be adopted, as to spectral classes involved, and as to methods to be employed: it is recommended that Commission No. 30 appoint a small Sub-Committee of its members, said Sub-Committee to serve and advise in case of need.

The Chairman of this Sub-Committee could wisely be asked to serve as the executive officer of a central office, without salary or stipend from the Union, to receive and disseminate information relating to this field of endeavour; for example, to supply information as to spectroscopic binary stars, either in observation at some observatory or in need of observation, with purpose to avoid undue duplication of effort, and to offer advice to astronomers who may seek it.

II. Inasmuch as the Commission of the International Astronomical Union on Standard Wave-Lengths is expecting to place before the Union, at the Leiden meeting in July, 1928, a very consistent system of wave-lengths of the iron-arc spectrum, and as the revision of Rowland's Table of Solar Spectrum Wave-Lengths by St John and his associates will be completed in 1928, it is recommended that Commission No. 30, on Stellar Radial Velocities, appoint a small Sub-Committee of its members to study and to report upon the problem of replacing the Rowland System of Wave-Lengths by the International System in all radial-velocity determinations; and also to prepare a corresponding list of wave-lengths for the lines observable in stellar spectra of Classes O, B and A.

III. In accordance with the terms of the Report of Commission No. 30, adopted at the meeting of the Union held at Cambridge in July, 1925, the Chairman appointed a Sub-Committee of Commission No. 30 to prepare a short list of stars whose observed radial velocities would serve as convenient standards of comparison in the determination of the radial velocities of other stars at the various observatories engaging in this activity. The Sub-Committee has consisted of Edwin B. Frost, Yerkes Observatory (Chairman); Joseph H. Moore, Lick Observatory; and H. Spencer Jones, Cape of Good Hope Observatory. Following is the

REPORT OF SUB-COMMITTEE ON STANDARD RADIAL VELOCITIES

The Sub-Committee of Commission No. 30, to which was entrusted the selection of a list of stars suitable for service as standards in the determination of

radial velocities, offer the attached list. This has been planned to include stars well-distributed over the sky and of different spectral types, adapted to different degrees of dispersion of the spectrographs employed. A few of the stars have been chosen with reference to the needs of observers in the Northern Hemisphere and others for observers in the Southern Hemisphere, but about 24 of the 28 stars on the list will be available for most observers in either hemisphere.

For each star of the list is given a value of the radial velocity which, while perhaps not final, seems to represent our present knowledge as based on the available determinations*. Careful consideration has been given to the subject of systematic errors in the radial velocities determined at different observatories. There is reason to believe that the Mt Hamilton, Santiago and Cape determinations, quoted extensively in this list, have been freed from the effects of serious errors of this nature, through the methods of observation and reduction employed. For a few other observatories data are at hand, from measures of spectrograms of the moon and planets, or from other sources, which furnish the probable correction that should be applied to their results. The following systematic corrections have accordingly been applied. To all Columbus observations, a correction of $-1{\cdot}6$ km./sec.; to the Bonn observations (with the exception of those of α Persei by Goos and of Arcturus by Küstner), a correction of $-1{\cdot}0$ km./sec.; to the Pulkowo observations made prior to 1904, a correction of $+0{\cdot}76$ km./sec.; and to Mellor's observations at Detroit, a correction of $+2{\cdot}8$ km./sec.

The procedure adopted for the weighting of the observations obtained at different observatories and with instruments of different dispersions must necessarily at the present stage be somewhat arbitrary. Half-weight has been assigned to an observation at Columbus or Cambridge, and to any observation obtained with one-prism dispersion. The pioneer spectrographic observations at Potsdam by Vogel and Scheiner have not been included, since they are not comparable in accuracy with modern determinations.

In combining the results obtained at different observatories it has seemed inadvisable to assign a weight to the value for each observatory equal to the number of observations upon which it depends, especially when that number is very large, since it is desirable to avoid undue influence from the presence of possible residual systematic errors. The following arbitrary scale of weights has therefore been adopted:

1– 9	observations;	weight equal to number of observations
10–11	,,	,, 10
12–13	,,	,, 11
14–15	,,	,, 12
16–18	,,	,, 13
19–21	,,	,, 14
22–25	,,	,, 15
26–30	,,	,, 16
31–36	,,	,, 17
37–43	,,	,, 18
44–50	,,	,, 19
More than 50	,,	,, 20

* The task of compiling the data from the different observatories has been performed for the Sub-Committee by Mr Moore, from the large collection of this material available at the Lick Observatory and from data supplied from the Cape and Yerkes Observatories.

The two visual binaries Sirius and Procyon have been included in the list since these stars have been extensively observed and, on account of their brightness, they may prove to be more convenient for some observers. The orbit of Sirius is well determined, and the numerous observations of the radial velocity of the bright component permits an accurate determination of the velocity of the system. For Procyon, however, the orbital elements are provisional, and for this reason only the two series of velocity observations which cover a considerable portion of the period have been utilized.

The results as given should be regarded as preliminary. With the steady accumulation of material, improved methods of weighting can be adopted and better determinations of systematic errors arrived at.

Your Sub-Committee trust that from this list enough suitable stars will be found, so that observational material will be accumulated adequate for the future study of the systematic differences between the results obtained with different telescopes and spectrographs. It is hoped that at the same time these standard stars will be found convenient for those who are testing new equipments for the measurement of radial velocities. The Sub-Committee further beg to suggest that unpublished observations of stars in the list of proposed standards should be promptly put into print, or communicated to the President (or eventually the Secretary) of Commission No. 30.

The Sub-Committee's Recommended List of Standard Velocity Stars

Star	No. obs.	Observation period	Mean observed velocity	Wt	Range of observed velocity	Observatory
Alpha Cassiopeiae	12	1896–1921	− 4·1 ±0·13	11	− 4·9 to − 3·1	Lick
	12	1897–1903	− 2·9 ±0·58	5½	− 6·0 to + 4·1	Columbus
$0^h\,34^m\cdot8$	7	1904–1909	− 3·0 ±0·23	7	− 4·1 to − 1·5	Bonn
+55° 59′	10	1912–1913	− 3·1 ±0·56	5	− 6·4 to + 2·1	Detroit (1-pr.)
2·47 K0	41		− 3·4			
Beta Ceti	15	1897–1922	+13·3 ±0·24	12	+11·0 to +15·2	Lick and Chile
$0^h\,38^m\cdot6$	4	1905	+13·8 ±0·11	4	+13·4 to +14·2	Bonn
−18° 32′	51	1910·8	+12·9 ±0·05	20		Cape
2·24 K0	70		+13·1			
Alpha Arietis	12	1896–1918	−14·1 ±0·10	11	−14·8 to −13·3	Lick
$2^h\,01^m\cdot5$	7	1897–1903	−14·4 ±0·34	3½	−16·9 to −13·2	Columbus
+22° 59′	13	1901–1911	−13·8 ±0·15	11	−15·0 to −11·8	Yerkes
2·23 K2	11	1902–1903	−15·8 ±0·40	5	−19·6 to −13·2	Cambridge
	15	1902–1909	−12·3 ±0·22	12	−14·5 to − 9·8	Pulkowo
	39	1903–	−15·1 ±0·10	18		Cape
	10	1904–1913	−14·0 ±0·32	10	−17·0 to −11·6	Bonn
	3	1905	−14·3 ±0·10	3	−14·5 to −14·0	Lowell
	4	1906	−14·9 ±0·51	4	−16·5 to −13·5	Ottawa
	10	1912–1913	−12·8 ±0·60	5	−17·4 to − 9·9	Detroit (1-pr.)
	2	1913	−13·7 ±0·3	2	−14·0 to −13·4	Paris
	5		−15·0 ±0·7	2½		Mt Wilson (1-pr.)
	131		−14·1			
Alpha Ceti	7	1897–1926	−25·3 ±0·18	7	−26·2 to −24·1	Lick
$2^h\,57^m\cdot1$	4	1904–1907	−24·4 ±0·26	4	−25·0 to −23·3	Bonn
+3° 42′	16	1908–	−25·8 ±0·19	13		Cape
2·82 Ma	27		−25·4			

Star	No. obs.	Observation period	Mean observed velocity	Wt	Range of observed velocity	Observatory
Alpha Persei	23	1896–1918	− 2·1 ±0·11	15	− 3·6 to − 0·8	Lick
$3^h\ 17^m{\cdot}2$	44	1900–1903	− 0·8 ±0·31	9½	− 7·3 to + 7·5	Cambridge
+49° 30′	49	1900–1908	− 3·4 ±0·12	19	− 6·9 to + 0·7	Potsdam
1·90 F5	19	1902–	− 1·6 ±0·25	14	− 3·6 to + 2·0	Yerkes
	26	1902–1909	− 1·8 ±0·26	16	− 5·8 to + 1·6	Pulkowo
	5	1904	− 1·0 ±0·42	2½	− 3·4 to + 0·3	Columbus
	37	1904–1906	− 1·7 ±0·10	18	− 3·6 to 0·0	Bonn (Goos)
	5	1905	− 2·5 ±0·16	5	− 3·3 to − 2·0	Lowell
	3	1906	− 2·1 ±0·54	3	− 3·4 to − 0·6	Ottawa
	5	1910–1913	− 4·7 ±0·47	5	− 7·5 to − 1·4	Bonn
	10	1913–1914	− 2·9 ±0·50	5	− 7·2 to − 0·1	Detroit (1-pr.)
	19	1913–1914	− 5·1 ±0·27	14	− 7·9 to − 2·9	Paris
	245		− 2·5			
Alpha Tauri	10	1896–1923	+54·9 ±0·09	10	+54·4 to +55·6	Lick
$4^h\ 30^m{\cdot}3$	1	1897	+49·2	½		Cambridge
+16° 18′	5	1901–1904	+55·4 ±0·41	5	+53·7 to +56·8	Yerkes
1·06 K5	113	1903–	+54·0 ±0·05	20		Cape
	5	1904–1905	+54·3 ±0·62	2½	+52·1 to +57·0	Columbus
	11	1905–1910	+55·2 ±0·10	10	+53·9 to +55·8	Bonn
	13	1911–1913	+54·1 ±0·38	11	+51·3 to +56·3	Paris
	10	1912–1913	+53·7 ±0·53	5	+50·0 to +56·8	Detroit (1-pr.)
	168		+54·4			
Beta Leporis	19	1897–1918	−13·8 ±0·12	14	−14·9 to −12·5	Lick and Chile
$5^h\ 24^m{\cdot}0$	6	1902–1906	−12·6 ±0·15	6	−13·5 to −11·7	Yerkes
−20° 50′	14	1904–	−14·3 ±0·26	12		Cape
2·96 G0	3	1905	−13·0 ±0·08	3	−13·2 to −12·8	Lowell
	42		−13·7			
Alpha Leporis	9	1899–1919	+24·5 ±0·38	9	+21·6 to +27·5	Lick and Chile
$5^h\ 28^m{\cdot}3$	10	1919·2	+24·3 ±0·20	10		Cape
−17° 54′	19		+24·4			
2·69 F0						
Alpha Carinae	74	1903–1920	+20·7 ±0·05	20	+18·3 to +21·5	Chile
$6^h\ 21^m{\cdot}7$	40	1903–	+19·7 ±0·10	18		Cape
−52° 38′	114		+20·2			
−0·86 F0						
Beta Gemi-	10	1897–1917	+ 3·6 ±0·13	10	+ 2·7 to + 4·7	Lick
norum	7	1897–1903	+ 1·6 ±0·35	3½	− 0·7 to + 3·0	Cambridge
$7^h\ 39^m{\cdot}2$	12	1902–1911	+ 3·9 ±0·34	11	+ 0·9 to + 8·4	Yerkes
+28° 16′	26	1903–1910	+ 4·6 ±0·14	16	+ 3·0 to + 6·8	Pulkowo
1·21 K0	5	1904	+ 3·7 ±0·59	2½	+ 1·3 to + 6·7	Columbus
	15	1904–1913	+ 3·4 ±0·30	12	+ 0·2 to + 5·8	Bonn
	65	1904–	+ 3·3 ±0·10	20		Cape
	3	1905	+ 3·3 ±0·05	3	+ 3·2 to + 3·4	Lowell
	14	1906	+ 2·6 ±0·18	12	+ 1·4 to + 4·4	Ottawa
	10	1912–1913	+ 4·7 ±0·38	5	+ 2·6 to + 7·7	Detroit (1-pr.)
	4		+ 4·8 ±1·0	2		Mt Wilson (1-pr.)
	171		+ 3·6			
Alpha Hydræ	14	1897–1922	− 3·9 ±0·25	12	− 6·5 to − 1·6	Lick and Chile
$9^h\ 22^m{\cdot}7$	4	1904–1907	− 3·5 ±0·23	4	− 4·4 to − 2·9	Bonn
−8° 14′	50	1904–	− 4·6 ±0·07	19		Cape
2·16 K2	68		− 4·2			

Star	No. obs.	Observation period	Mean observed velocity	Wt	Range of observed velocity	Observatory
Epsilon Leonis	12	1897–1908	+ 4·5 ±0·14	11	+ 3·7 to + 6·3	Lick
$9^h\ 40^m{\cdot}2$	5	1898	+ 6·2 ±0·54	2½	+ 4·9 to + 9·2	Columbus
+24° 14′	4	1903	+ 3·3 ±0·56	2	+ 2·0 to + 5·0	Cambridge
3·12 G0p	9	1903–1913	+ 4·7 ±0·38	9	+ 2·7 to + 8·4	Bonn
	14	1903–1911	+ 5·9 ±0·17	12	+ 4·6 to + 8·4	Yerkes
	3	1912·5	+ 5·0	3		Cape
	3		+ 4·1 ±0·7	1½		Mt Wilson (1-pr.)
	50		+ 5·0			
Eta Leonis	10	1903–1925	+ 2·1 ±0·26	9	− 0·2 to + 3·2	Lick (8·3-pr.; 2·1-pr.)
$10^h\ 01^m{\cdot}9$						
+17° 15′	5	1902–1909	+ 3·3 ±0·37	5	+ 2·0 to + 5·2	Yerkes
3·58 A0p	4	1904–1913	+ 2·1 ±0·34	2	+ 1·2 to + 3·5	Yerkes (1-pr.)
	3		+ 1·0 ±1·1	1½		Mt Wilson (1-pr.)
	22		+ 2·4			
Beta Virginis	8	1897–1926	+ 4·9 ±0·14	8	+ 3·9 to + 5·6	Lick
$11^h\ 45^m{\cdot}5$	5	1902	+ 6·6 ±0·26	2½	+ 5·4 to + 8·7	Columbus
+2° 20′	4	1906	+ 3·9 ±0·11	4	+ 3·4 to + 4·2	Bonn
3·80 F8	5	1911·2	+ 4·1 ±0·16	5		Cape
	22		+ 4·7			
Gamma Crucis	11	1904–1920	+21·4 ±0·22	10	+19·4 to +23·1	Chile
$12^h\ 25^m{\cdot}6$	17	1904	+21·3 ±0·22	13		Cape
−56° 33′	28		+21·3			
1·61 Mb						
Beta Corvi	16	1897–1920	− 7·1 ±0·15	13	− 8·4 to − 5·5	Lick 9; Chile 7
$12^h\ 29^m{\cdot}1$	32	1908–	− 7·8 ±0·11	17		Cape
−22° 51′	48		− 7·5			
2·84 G5						
Alpha Bootis	56	1897–1920	− 5·4 ±0·05	20	− 6·9 to − 4·3	Lick 45; Chile 11
$14^h\ 11^m{\cdot}1$	32	1897–1903	− 6·4 ±0·20	8½	− 9·2 to − 1·4	Cambridge
+19° 42′	7	1902–1904	− 5·3 ±0·26	3½	− 7·3 to − 4·1	Columbus
0·24 K0	37	1902–	− 4·4 ±0·13	18	− 7·2 to − 1·2	Yerkes
	85	1903–1910	− 4·8 ±0·10	20	− 7·8 to − 0·6	Pulkowo
	13	1904–1913	− 4·9 ±0·21	11	− 7·1 to − 2·7	Bonn
	18	1904–1905	− 4·8 ±0·27	13	− 5·7 to − 4·5	Bonn (Küstner)
	109	1904–	− 5·2 ±0·09	20		Cape
	5	1905	− 4·7 ±0·17	5	− 5·5 to − 4·0	Lowell
	35	1906–1908	− 5·2 ±0·10	17	− 6·9 to − 3·4	Ottawa
	49	1910	− 5·6 ±0·10	9½	− 8·5 to − 3·3	Ottawa (low dis.)
	38	1911–1913	− 5·4 ±0·12	18	− 7·4 to − 4·5	Paris
	10	1912–1913	− 4·2 ±0·55	5	− 7·6 to − 0·9	Detroit (1-pr.)
	494		− 5·1			
Delta Ophiuchi	14	1897–1926	−19·9 ±0·17	12	−21·8 to −18·6	Lick 10; Chile 4
$16^h\ 09^m{\cdot}1$	4	1907	−18·1 ±0·38	4	−18·2 to −15·1	Bonn
−3° 26′	8	1908–1920	−19·4 ±0·41	8	−21·3 to −16·4	Cape
3·03 Ma	3		−17·5	1½		Mt Wilson (1-pr.
	29		−19·3			
Alpha Trianguli Australis	15	1904–1920	− 3·4 ±0·17	12	− 5·6 to − 1·1	Chile (13·3-pr.; 2·2-pr.)
$16^h\ 38^m{\cdot}1$	12	1904	− 3·8 ±0·20	11		Cape
−68° 51′						
1·88 K2	27		− 3·6			

Star	No. obs.	Observation period	Mean observed velocity	Wt	Range of observed velocity	Observatory
Alpha Herculis	12	1897–1922	−32·6 ±0·28	11	−35·9 to −31·2	Lick
$17^h\ 10^m{\cdot}1$	4	1909–1912	−30·7 ±0·53	4	−32·7 to −28·9	Bonn
+14° 30′	3	1914·3	−32·5	3		Cape
3·48 Mb	5		−31·2 ±1·2	2½		Mt Wilson (1-pr.)
	24		−32·0			
Delta Sagittarii	19	1899–1920	−20·0 ±0·11	13	−21·4 to −19·1	Lick 11; Chile 8 (6·3-pr.; 2·2-pr.)
$18^h\ 14^m{\cdot}6$						
29° 52′	21	1910·7	−19·8 ±0·10	14		Cape
2·84 K0	40		−19·9			
Alpha Lyræ	12	1900–1911	−14·2 ±0·25	11	−15·9 to −12·4	Lick
$18^h\ 33^m{\cdot}6$	13	1902–1911	−12·8 ±0·24	11	−15·1 to −10·7	Yerkes
+38° 41′	20	1912–1913	−12·4 ±0·33	7	−15·3 to − 8·5	Detroit (1-pr.)
0·14 A0	45		−13·2			
Gamma Aquilæ	13	1896–1926	− 2·4 ±0·23	11	− 4·6 to − 0·1	Lick
$19^h\ 41^m{\cdot}5$	10	1902–1903	− 1·3 ±0·25	10	− 2·1 to + 1·7	Pulkowo
10° 22′	11	1902–1907	− 1·7 ±0·17	10	− 3·0 to − 0·4	Yerkes
2·80 K2	4	1903	− 1·9 ±0·60	2	− 3·3 to + 0·9	Cambridge
	6	1903–1906	− 1·6 ±0·25	6	− 3·7 to − 0·8	Bonn
	3	1905	− 2·1 ±0·28	3	− 2·7 to − 1·3	Lowell
	5	1906	− 1·7 ±0·11	5	− 2·1 to − 1·3	Ottawa
	4	1909·2	− 3·0	4		Cape
	56		− 1·9			
Beta Aquarii	10	1896–1925	+ 6·8 ±0·13	10	+ 6·2 to + 7·9	Lick 8; Chile 2
$21^h\ 26^m{\cdot}3$	4	1904–1906	+ 5·6 ±0·20	4	+ 5·2 to + 6·5	Bonn
−6° 01′	30	1910·8	+ 5·8 ±0·11	16		Cape
3·07 G0	44		+ 6·1			
Epsilon Pegasi	11	1896–1923	+ 4·7 ±0·18	10	+ 2·9 to + 6·2	Lick
$21^h\ 39^m{\cdot}3$	10	1902–1906	+ 6·4 ±0·15	10	+ 5·1 to + 7·3	Pulkowo
+9° 25′	10	1902–1911	+ 5·8 ±0·13	10	+ 4·9 to + 6·5	Yerkes
2·54 K0	3	1903	+ 3·3 ±0·55	1½	+ 2·3 to + 4·9	Cambridge
	5	1903	+ 4·5 ±0·76	2½	+ 3·7 to + 9·5	Columbus
	5	1904–1907	+ 5·0 ±0·15	5	+ 4·5 to + 5·8	Bonn
	4	1905	+ 6·1 ±0·27	4	+ 5·5 to + 7·3	Lowell
	3	1906	+ 5·9 ±0·22	3	+ 5·5 to + 6·5	Ottawa
	10	1909·3	+ 4·8 ±0·19	10		Cape
	10	1912–1913	+ 5·0 ±0·31	5	+ 3·0 to + 7·5	Detroit (1-pr.)
	3		+ 6·1 ±0·2	1½		Mt Wilson (1-pr.)
	74		+ 5·4			
Iota Piscium	9	1896–1924	+ 5·6 ±0·18	9	+ 4·6 to + 8·0	Lick
$23^h\ 34^m{\cdot}8$	5	1909–1913	+ 4·3 ±0·21	5	+ 3·3 to + 5·0	Bonn
+5° 05′	3		+ 2·1 ±0·5	1½		Mt Wilson (1-pr.
4·28 F8	17		+ 4·8			

Visual Binaries

Star	No. obs.	Observation period	Velocity of system	Wt	Observatory
Alpha Canis Majoris	101	1896–1926	−7·45	20	Lick
$6^h\ 40^m{\cdot}7$	10	1901–1902	−7·93	10	Yerkes
−16° 35′	36	1903–1912	−7·55	17	Cape
−1·58 A0	4	1909–1910	−7·67	4	Mt Wilson
	151		−7·59		

The velocity of the system was derived on the basis of Aitken's elements and Boss' mass ratio.

The radial velocity of the bright component may be computed from the following data:

$$V = -2{\cdot}36 \cos (v + 145°{\cdot}69) - 6{\cdot}43$$
$$P = 50{\cdot}04 \text{ years}$$
$$T = 1894{\cdot}133$$
$$e = 0{\cdot}594$$

Star	No. obs.	Observation period	Velocity of system	Wt	Observatory
Alpha Canis Minoris	114	1897–1926	−3·15	—	Lick
$7^h\ 34^m{\cdot}1$	119	1909–1924	−3·67	—	Cape
$+5°\ 29'$					
0·48 F5	233		−3·41		

The velocity of the system was derived from the observed radial velocities by using the following provisional elements:

$$T = 1885{\cdot}50 \qquad \omega = +51°{\cdot}7$$
$$e = 0{\cdot}304 \qquad i = +27°{\cdot}0$$
$$P = 40{\cdot}23 \text{ years} \qquad K = 1{\cdot}20 \text{ km./sec.}$$

The radial velocity of the bright component may be computed from the following formula:

$$V = 1{\cdot}20 \cos (v + 51°{\cdot}7) - 3{\cdot}18.$$

Edwin B. Frost
Joseph H. Moore
H. Spencer Jones
Sub-Committee

17 *February*, 1928

Comments by the Chairman of Commission No. 30 upon Sub-Committee's Report

To gain a better impression of the systematic influences of the results obtained at the 13 observatories, respectively, upon the "standard velocity" values derived by the Sub-Committee, I have constructed the following table, by the method described below in some detail for the first line thereof.

Nineteen of the twenty-eight stars were observed at Bonn. The 19 Bonn velocities quoted in the Sub-Committee's Report are found to be, on the average, 0·15 km./sec. greater than the "standard velocities" deduced for these 19 stars from all observations of them secured at the several observatories specified.

The 19 Bonn velocities are based upon a total of 169 individual observations. The sum of the weights assigned by the Sub-Committee to the 19 Bonn subgroups is 139. The weighted mean departure of the 169 Bonn velocities from the "standard velocities" of the 19 stars is + 0·20 km./sec.

https://doi.org/10.1017/S0251107X00013146 Published online by Cambridge University Press

	No. of stars observed	Average residual by stars obs.—mean km.	Total number of observations	Units of weight	Average residual weighted obs.—mean km.
Bonn	19	+0·15	169	139	+0·20
Cambridge	8	−1·54	106	32½	−0·60
Cape	23	−0·34	807	311	−0·32
Columbus	9	+0·41	56	27½	+0·37
Detroit	8	+0·36	90	42	+0·38
Lick-Chile	28	−0·01	648	341	0·00
Lowell	7	+0·16	26	26	+0·18
Mt Wilson	9	−0·17	33	18½	−0·25
Ottawa	7	−0·19	113	53½	−0·34
Paris	4	−0·70	72	45	−0·98
Pulkowo	6	+0·90	172	84	+0·84
Yerkes	12	+0·54	159	125	+0·52

One conclusion to be drawn from these tabular data is that the radial velocities of the 28 stars deduced by the Sub-Committee from the observations made at 13 observatories, and recommended by the Sub-Committee for provisional adoption by the International Astronomical Union as Stellar Radial Velocity Standards, seem to be, as a system, in good accord with the Lick Observatory system of radial velocities, as published recently in *Publications of the Lick Observatory*, vol. **16**.

W. W. CAMPBELL
President of the Commission

22 *February*, 1928

https://doi.org/10.1017/S0251107X00013146 Published online by Cambridge University Press