

:STARS OBSERVED WITH I.U.E.

From 1978 to the beginning of 1985, the number of stars with luminosity class from Ia (brightest supergiants) to V (dwarfs) (excluding WC, WN, Symbiotic stars ...and another "strange" stars) that have been observed with I.U.E. in high dispersion mode are 2560. In order to determine how many of them belong to each spectral type and luminosity class we have performed a statistical study of the I.U.E. Archive. We have selected stars in the following classes in the I.U.E. object classification: class 13 (supergiants O), class 23 (B0-2 III-I), class 24 (B3-5 III-I), class 25 (B6-9.5 III-I), class 32 (A0-3 III-I), class 33 (A4-9 III-I), class 40 (F0-F2), class 41 (F3-F9), class 45 (G III-I), class 47 (K III-I) class 49 (M III-I), class 12 (O V), class 14 (Oe), class 15 (Of), class 20 (B0-2 IV-V), class 21 (B3-5 IV-V), class 22 (B6-9.5 IV-V), class 26 (Be), class 27 (Bp), class 30 (A0-3 IV-V), class 31 (A4-9 IV-V), class 34 (Ae), class 35 (Am), class 36 (Ap) and class 42 (Fp). For each one of them, both spectral type and luminosity class have been taken from the I.U.E. Merged Log, except for stars included in classes 13, 23, 24, 25, 32, 33, 40, 41, 45, 47 and 49. For these, both spectral type and luminosity class have been adopted from the C.D.S. This source is considered more reliable and uniform than the I.U.E. Merged Log.

We have represented in Table 1 the results we have obtained. The spectral type and the luminosity class most observed are B and IV-V respectively.

In addition we have calculated how many supergiants of each spectral subtype have been observed in order to check whether or not this distribution describes in a realistic way the "supergiants world". Results have been represented in figures 1a, 1b and 1c for luminosity classes: Ia, Ib and Ic, respectively.

We have compared the distribution we have found (see figures 1a, 1b and 1c) with the statistics made in 1971 by Fehrenbach of the 701 supergiants included at that time in the Humphreys catalog which includes all the supergiants for which either spectrophotometry or VR index are known (see figures 2a, 2b and 2c). You will notice that the two distributions are quite similar, despite the I.U.E. selection effect which favours early type stars; there is a genuine lack of late spectral types. As a matter of fact, the almost total absence of Ia stars with spectral type cooler than G0 has also been found in the Magellanic Clouds (Fehrenbach, 1971) and poses one of the greatest problems for any stellar evolution theory.

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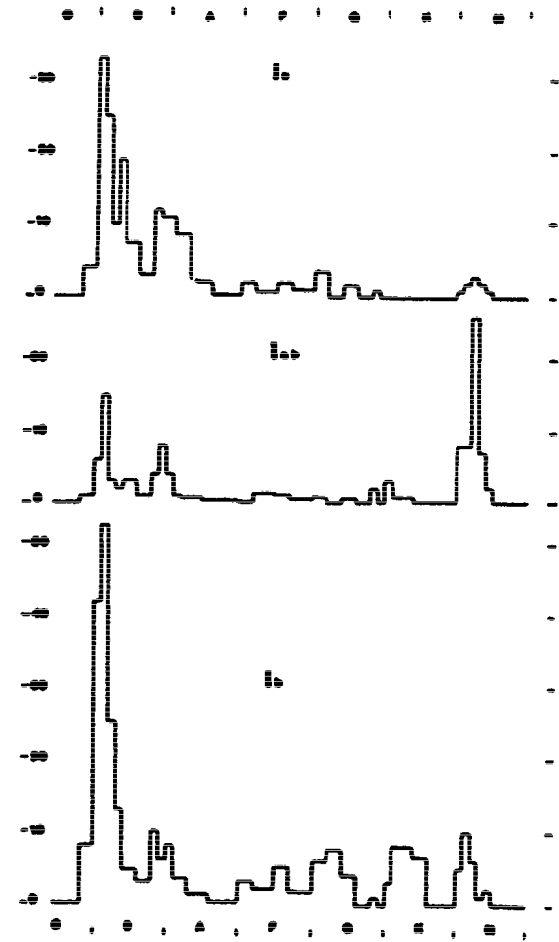
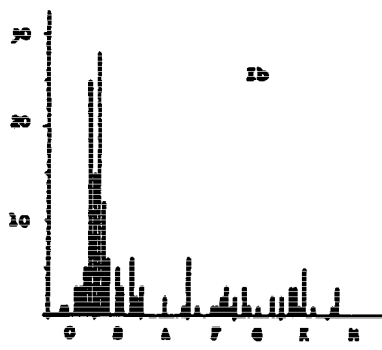
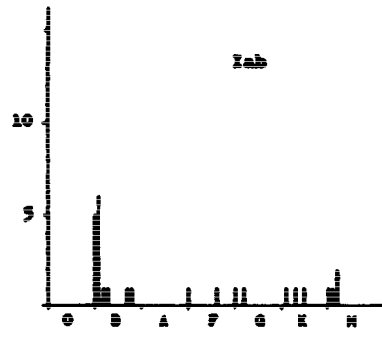
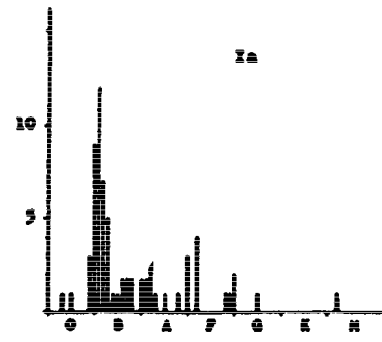
REFERENCES:

FEHRENBACH (1971): "Colloquium on supergiant stars."

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TABLE 1

	Ia-Ia ⁺	Iab	Ib	II	III	IV-V	p	e	f	m	Total
O	5		38	8	23	139		22	43		278
B	41	15	77	22	96	785	105	133			1274
A	10		6	7	7	108	71	8		17	234
F	9	2	15	7	10	153	7				203
G	3	2	9	10	54	145					223
K		3	15	13	65	100					196
M	1	4	4	6	10	12					37
Total	69	26	164	73	265	1442	183	163	43	17	2445



Figures 2a, 2b and 2c
 Humphreys Catalog (1971)

Figures 1a, 1b and 1c: I.U.E. observations.