

## CHAPTER 4. OTHER CONFIGURATIONS.

### 4.0 OVERVIEW

We devoted long chapters each to 3-configurations and to 4-configurations. In contrast, this short chapter covers all other configurations. The reason for this difference in extent of coverage is a direct and inevitable consequence of the paucity of knowledge about configurations that are neither 3- nor 4-configurations.

Despite the generality of the definition of configurations proposed a century and a quarter ago, strikingly little effort was devoted to the study of the  $k$ -configurations for  $k \geq 5$  and the related unbalanced configurations.

In Section 4.1 we review the information that is available about 5-configurations. The first images are barely a decade olds, and there is still great uncertainty concerning what is possible regarding 5-configurations, and what is not possible.

Section 4.2 nominally deals with all  $k$ -configurations for  $k \geq 6$ . In fact, it is mostly devoted to 6-configurations. I am indebted to L. Berman for permission to include the recently found (and not previously published) images of  $(110_6)$  and  $(120_6)$ . These are the first 6-configurations to appear in print anywhere.

The unbalanced configurations  $(12_4, 16_3)$  and  $(16_3, 12_4)$  have enjoyed a measure of popularity, but other  $[4,3]$ - and  $[3,4]$ -configurations have fared much less well. The material about these is presented in Section 4.3.

Unbalanced  $[k_1, k_2]$ -configurations with  $\{k_1, k_2\} \neq \{3, 4\}$  are considered in Section 4.4.

Section 4.5 deals with a recently discovered class of configurations, the "floral" configurations. They are characterized by their hierarchical construction, rather than by the particular incidence parameters.

In Section 4.6 we collected results on topological configurations. These have been investigated in some detail only very recently, and the topic abounds in open questions.

The topics presented in Section 4.7 are several kinds of unconventional configurations. We briefly touch on configurations of circles, and on two kinds of configurations involving infinite sets of points and lines.

The concluding Section 4.8 presents a few open problems that have not been mentioned in the earlier sections.