

TRIBAR FLAGS

A Survey and Analysis

Mason Kaye

1. INTRODUCTION

Today I'm going to talk about *tribars* and the conclusions I reached after studying them for two years. A "tribar" is a flag bearing three stripes or bars; it is also known as a "triband". Unlike a "tricolour", where there must be three *different* colours, a tribar can have two or three colours. The tribar is one of the most popular flag designs - over 42% of all national flags are tribars.¹ Its popularity is probably due to three things: 1) its simple, clear, recognizable, and easily made form, 2) the large number of possible colour combinations, and 3) imitation of other, earlier flags.

There are three different forms of tribar designs: horizontal, vertical, and diagonal. The diagonal form is relatively rare, and has found general use on national flags only recently.² I am going to talk about the horizontal and vertical forms, analyzing each one and comparing them.

At the beginning of the summer of 1997, my Dad (Edward B. Kaye) gave me this challenge:

- *Find all horizontal tribars possible.*
- *Use these six colours: Red, white, blue, green, yellow, and black.*
- *Draw every one and identify those that are real flags.*
- *Ignore fimbriations and charges, unequal bars are okay.*
- *If it is not a current flag, show the date.*
- *If it is not a country's flag, list the country it is in.*
- *Record your sources!*

I think he wanted to make sure I stayed out of trouble that summer!

I did that research and analysis and published it in *NAVA News*.³ It was so much fun that last summer I did vertical tribars and that was published in *NAVA News*, also.⁴ At the end of each article, I listed the combinations I hadn't found, and asked readers to help me find them. As a result of this, I got responses from all over the world. It made me feel good that people were reading my work and spending their time to help me out. I'd like to thank those vexillologists who sent me information on flags that I missed: Peter Orenski, David Ott, John Kowalski, Erwin Günther of Germany, Gunnar Staack of Germany, Luc Vartan Baronian of Montreal, and Larry Wentworth of Micronesia. I'd also like to thank Don Klett, for letting me have access to his collection of over two thousand four-by-six-inch flags, and sharing his posters with me. My horizontal tribar article was also reprinted in the German publication *Flag Data Bank*.

I'm going to describe the mathematical background of tribars, give an idea of the resources I used, and present the results of my analysis of horizontal and vertical tribars. Then I will apply the heraldic rule of tincture to tribars, compare horizontal tribars to vertical tribars, and give my theories on why one form is more popular than the other.

2. MATHEMATICAL COMBINATIONS

The first part of this analysis was not vexillology, but mathematics. The most common and basic colours used in flags appear to be red, white, blue, green, yellow, and black. I accepted any shade of these colours, for example: light blue, navy blue, and royal blue all count as blue in my analysis. [Fig. 1] The light blue of Luxembourg, the dark blue of France, and the aqua of Cundinamarca, Colombia are all blue to me. The sky-blue of Argentina, the medium blue of The Gambia, and the polluted-sky blue of Botswana are also blue for my analysis. Please note also, that

I have ignored the fimbriations in the last two flags and counted them as tribars.

Mathematically, there are 216 ways that these six basic flag colours can be combined to make a tribar. With six colours for each stripe, that's 6 times 6 times 6, or 216 possible combinations.⁵ However, when excluding the 66 patterns that have two or three bars of the same colour next to each other, there are only 150 combinations. For example, flags of red-red-blue, or for that matter, green-green-green, like Libya, aren't really tribars, and so are they are rejected in my list of possible combinations. I also rejected tribars with two shades of the same colour next to each other.

I tried to find at least three flags for each combination of colours. They could be country flags, provincial flags, state flags, city flags, military flags, or nautical flags. I tried to find one country flag and two unusual places for each combination. For example: a horizontal tribar of red-white-red is the flag of Austria, as well as Lebanon, Latvia, French Polynesia, Santa Catarina (Brazil), Army Corps (Great Britain, World War II), Trieste (Italy), Templin (Germany), Hoorn (Netherlands), and many others, but I only counted three of them.

3. RESOURCES USED

In my pursuit of all the tribars I could find, I looked through everything in my Dad's flag library. That included over 75 flag books, 25 years of the *Flag Bulletin*, many other serials like *National Geographic*, *Der Flaggenkurier*, *VDCN InfoBulletin*, *NAVA News*, *Raven*, several flag charts, an atlas, and Microsoft Encarta^(c). Whitney Smith encouraged me by sending me a 1910 German flag article.

Because I used such a broad range of resources, I believe I got a good representative sample of real tribars. Therefore I feel I can safely make conclusions about all tribars from my analysis and research. I used exactly the same reference materials for horizontal tribars as I did for vertical tribars a year later, so that the analyses would be comparable. For consistency, I haven't included in my analysis the additional horizontal tribars that people have sent me since my first article was published; but I'm keeping track of them.

4. ANALYTICAL RESULTS

I identified 83 different horizontal combinations out of the possible 150, or 55%, and I found a total of 185 horizontal tribar flags. [Fig. 2h] I limited myself to just three flags for each combination, so I could have counted a lot more than the 185 that I listed). I identified 40 different vertical combinations out of the possible 150, or 27%, and I found a total of 74 vertical tribar flags. [Fig. 2v]

I found many horizontal and vertical combinations, but horizontals outnumbered verticals by 2: 1, or 55% to 27%. I analyzed how often the colours were used individually and in combination. The same colour frequency occurs in both horizontal and vertical tribars: red is used most frequently, then white, yellow, blue, green, and black. [Fig. 3] Some colour combinations, that is, stripes next to each other, are used more than others. For example, red & white appear together many times, as do red & yellow, white & green, white & blue, and blue & yellow. Black & green and blue & green don't appear next to each other very much - blue & black together are very rare.

In horizontal tribars, the sets of red-white-blue and red-yellow-blue are the most popular - all six ways the colours can be combined are real flags. [Fig. 4] The set of red-blue-black isn't used at all. In tribars that only use two colours, nearly all of the 30 possible pairs are used; except blue-green. In vertical tribars, the set of red-yellow-blue also appears most frequently - five out of the six ways the colours can be combined are real flags. In second place is red-white-blue (four ways). Several sets of colours are not used at all - most of these include black. In vertical tribars that only use two colours, 13 pairs are used; 17 are not.

White and yellow, traditionally called "metals" are found in the middle mostly, perhaps because there are more combinations of colours that need separation by a metal, than there are combinations of metals that need separation by a colour. This chart shows the percentage of times that a colour is found in the middle of a tribar. [Fig. 5] White and yellow occur there most often in both horizontal and vertical tribars.

The countries that seem to have produced the most horizontal tribars are Germany, The Netherlands, and the former Yugoslavia. Interestingly, the national flags of all these countries are horizontal tribars themselves. The countries that seem to have produced the most vertical tribars are Germany and The Netherlands. Tribars are uncommon in the subdivisions of the United States, Japan, and Switzerland. (Although vertical tribars do appear often in U.S. city flags). Tribars are found on every continent.⁶

5. HERALDIC ANALYSIS

My analysis really got interesting when I considered how heraldry fits into tribars.

Because most flag design originated from heraldry, some of the rules of heraldry apply to flags. One of these rules is the "Rule of Tincture".⁷ As it applies to the six colours I used in my project, the rule of tincture states: there are four colours: red, blue, green, and black; and there are two metals: gold and silver; that's yellow and white. The metals cannot touch each other (because it's hard to distinguish light colours next to each other on a flag from a distance) and the colours cannot touch each other (because it's hard to see dark colours next to each other).

When I tested the rule of tincture against tribars, I found that only 48 of the possible 150 combinations follow the rule of tincture. That is, 48 possible combinations put a metal between two colours, or a colour between two metals. The other 102 possible combinations violate the rule of tincture, and so they are heraldically incorrect. Then I reached a remarkable conclusion: In horizontal tribars, I found flags for 85% of the heraldically correct combinations, but I found flags for only 43% of the non-heraldically correct ones. [Fig. 6h] And in vertical tribars, I found flags for 58% of the heraldically correct combinations, but only 12% of the non-heraldically correct ones. [Fig. 6v]

Why would tribars tend to follow a rule of heraldry? Perhaps some were designed with the knowledge of that rule, but I think that in most cases this shows that the rule agreed with what would be done naturally. To quote my lifelong friend Jim Ferrigan, "It appears that most of the 'good' combinations have been taken".

6. HORIZONTAL vs. VERTICAL TRIBARS

As I said before, I found about twice as many "real" horizontal tribars as "real" vertical tribars. I found 83 different horizontal combinations, for a total of 185 horizontal tribars. I found 40 different vertical combinations, for a total of 74 vertical tribars.

I can think of several reasons why horizontal tribars are more popular than vertical tribars. (I mean no offense to vertical tribars, after all, we are in Canada and I don't want half of my audience to get up and leave!) Horizontal tribars are more popular than vertical tribars because of their Design, their Symbolism, their History, and their Construction:

DESIGN : If a vertical tribar is flapping in the wind, the central area of the flag may be partly covered up, hiding the middle bar of the flag. [Fig. 7] A horizontal tribar, however, won't have its middle bar covered up because it flies horizontally. So from a design standpoint, the horizontal pattern could be considered superior to the vertical pattern.

SYMBOLISM : Tribars often symbolize things like sky, water, crops, or land; all of which occur horizontally in nature. It's harder to represent these things with vertical stripes. Some of the bars on these flags represent horizontal things. [Fig. 8] For example, in Gabon's flag, the green stripe stands for the forests, the yellow and blue stripes represent Gabon as a maritime nation, and the Equator - which also is horizontal. Sierra Leone's green stripe represents its mountains, and the blue stripe is for the harbour of Freetown. The blue stripe on The Gambia's flag represents the river that divides the country, and flows east to west. The fields and forests of Malawi are depicted by the green stripe on its flag. Botswana's blue stripes stand for sky and water. The green stripe on Bulgaria's flag symbolizes wealth from its soil and agriculture.

HISTORY : Here is how history has favoured horizontal tribars over vertical tribars. The

traditional way of representing a coat of arms on a banner was to take the colour of the shield and the colour of the principal charge and make them into horizontal stripes. So, horizontal tribars came first. For example, on a French flag chart⁸ made in 1712, 27% of the flags have horizontal stripes, but none has vertical stripes. [Fig. 9] Vertical tribars, starting with the French Tricolore, came later and represented opposition to established governments, so overall they have been less popular. Also, many flags are based on the designs of other flags, such as when a colony gains independence, or when one country's political developments influence another's. As Don Healy has shown, the horizontal tribar, through The Netherlands, Russia, and Latin America, had more widespread influence than did the vertical tribar, through France.⁹

CONSTRUCTION : Horizontal tribars of large proportions may be easier to manufacture than vertical tribars. The bolts of fabric can be sewn together lengthwise rather than up and down. [Fig. 10] My Dad has a Bolivian flag in his collection that was purchased off a pre-sewn bolt in a fabric store in La Paz. That's a real-life example of how a horizontal tribar is manufactured in a way that a vertical tribar couldn't be made. Also, in a horizontal tribar, the seams will be able to resist the pull of the wind more than the seams in a vertical tribar, where the force of the wind will try to pull the seams apart.

7. SUMMARY

I am always searching for more tribars. Dad calls it "birdwatching". Just like birdwatchers, who look for all the different types of birds, I'm looking for all possible tribars. I stopped looking long enough to analyze the research that I'd done in the previous two years. What I've presented here is the information that was in my two articles in *NAVA News*. I've found a lot more tribars since then. But if I had waited until I found every possible combination, I wouldn't have been able to draw any conclusions about colour frequency, distribution of colour sets, popularity of horizontal versus vertical tribars, or especially the application of the rule of tincture to tribars. I am still collecting information on tribars - from books, posters, people, and the Internet. I brought a binder that lists all of the tribars I've found so far. So, while I'm here, I'd like to ask all of you to look at my binder of tribars, and to add any information that would help me.

In summary, it's been really fun to study the world's most popular flag design, the tribar. Comparison between vertical and horizontal tribars has led to some important conclusions, and I'm glad I've been able to share them with you. I would like to thank the Canadian Flag Association and the North American Vexillological Association for hosting this Congress, the Portland (Oregon) flag group for critiquing my talk, Kevin Harrington and the acceptance panel for reviewing this paper, all of you for giving me such a warm welcome, and my Dad for helping me all the way through it all.

Notes

1 Source: Flag Chart, 1998, Flag Research Center, Winchester, Massachusetts. Out of 193 countries on the chart (excluding dependencies, unrecognized countries, semi-independent countries, and sub-divisions), 54 (28.0%) are horizontal tribars, 22 (11.4%) are vertical tribars, and six (3.1%) are diagonal tribars.

2 Congo, Lesotho, Namibia, St. Christopher-Nevis, Tanzania, Trinidad and Tobago are the six diagonal tribar national flags, the earliest adopted of these was the Congo Republic's in 1959. (The Principality of Elba, under Napoleon, used a diagonal tribar from 1814 to 1815, *The Flag Bulletin*, No. 174, p. 56)

3 *NAVA News*, XXXI:1 (Jan./Feb. 1998) p. 6. Reprinted in *Flag Data Bank*, No. 8 (May 1998), Berlin, Germany.

4 *NAVA News*, XXXI:6 (Nov./Dec. 1998) p. 3

5 Technically, these are called "permutations", not "combinations", but for general discussion, "combinations" is easier for readers to understand.

6 The Argentine and French claims even put tribars over Antarctica.

7 *Flag Design*, (n.d.) The Flag Institute, Chester, England, p. 5.

8 Don Healy, "Evolutionary Vexillography", *Raven*, vol. 1 (1994), pp. 41-64.

Mason Kaye

Mason Kaye attends seventh grade at Catlin Gabel School in Portland, Oregon. His lifelong interest in flags began when he attended the 12th International Congress of Vexillology (1987) in San Francisco at age two. A member of NAVA, he has published two articles in *NAVA News*. He enjoys drawing flags and reading about them.

Mason Kaye : Tribars, Col. Plate I

Fig. 1 Colour Variation

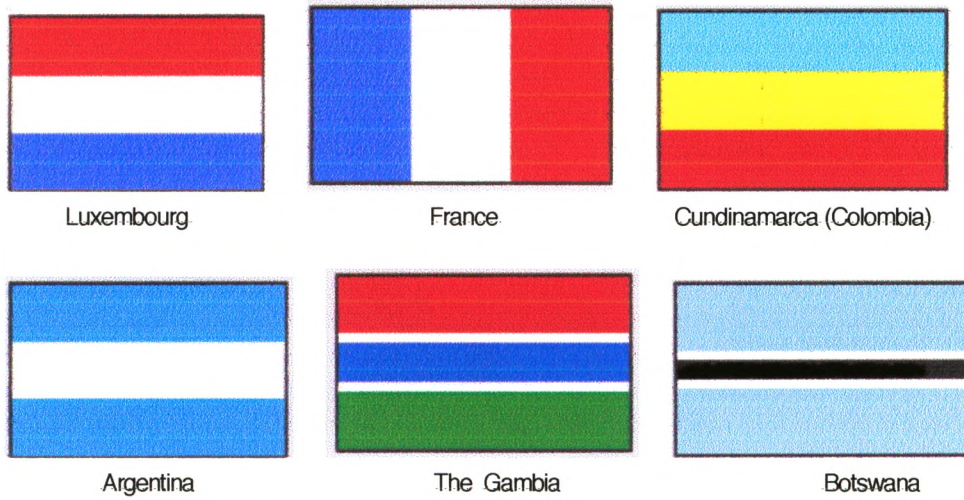


Fig. 3 Colour Frequency : Horizontal / Vertical

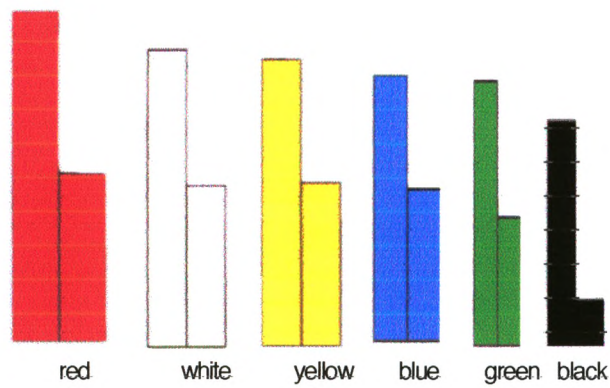
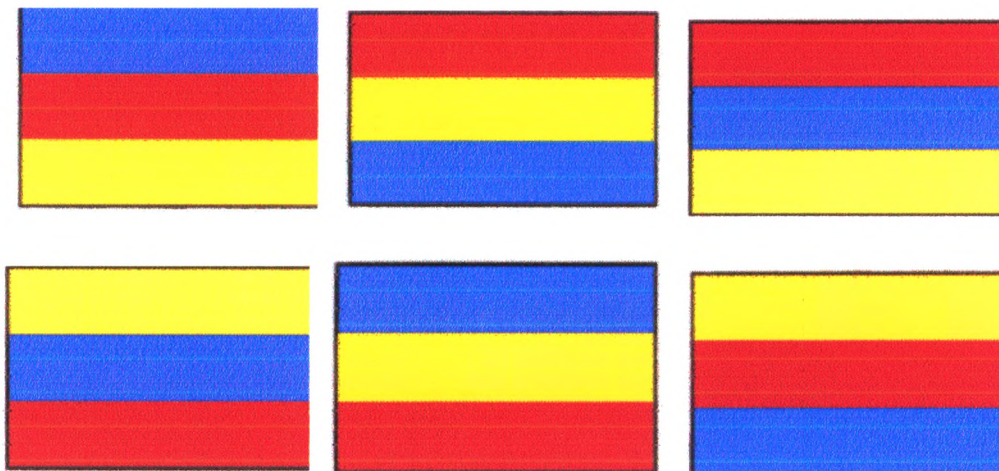
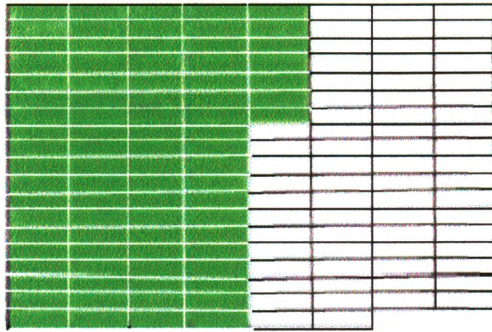


Fig. 4 Colour Sets



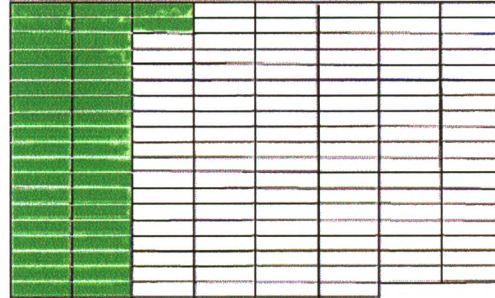
Mason Kaye : Tribars, Col. Plate II

Fig. 2h Horizontal Tribars : 55%



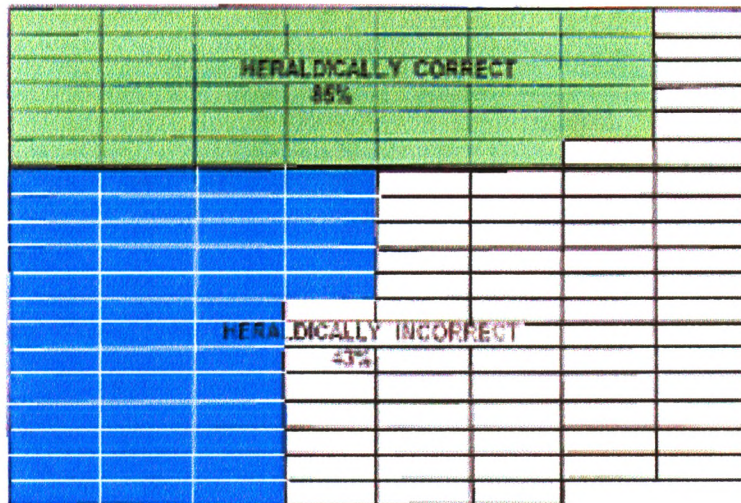
83 Flags found for these Combinations

Fig. 2v Vertical Tribars : 27%



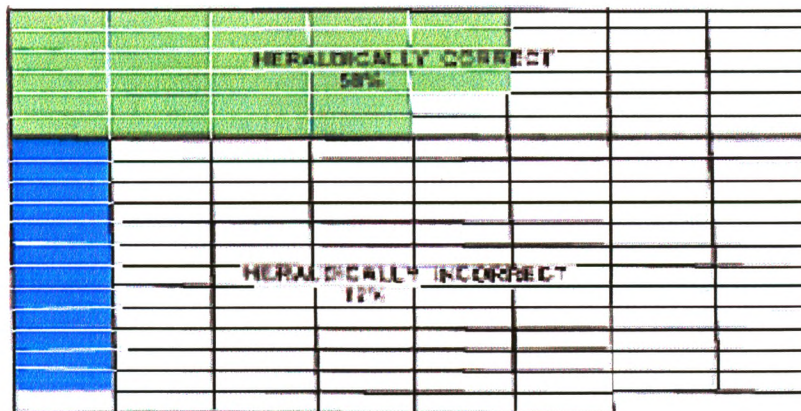
40 Flags found for these combinations

Fig. 6h Horizontal Tribars : Heraldical Correctness



Green (Correct) 85% Blue (Incorrect) 17%

Fig. 6v Vertical Tribars : Heraldical Correctness



Green (Correct) 60% Blue (Incorrect) 40%

Mason Kaye : Tribars, Col. Plate III

Fig. 5 Middle Position: Percentage of Occurrences - Horizontal / Vertical

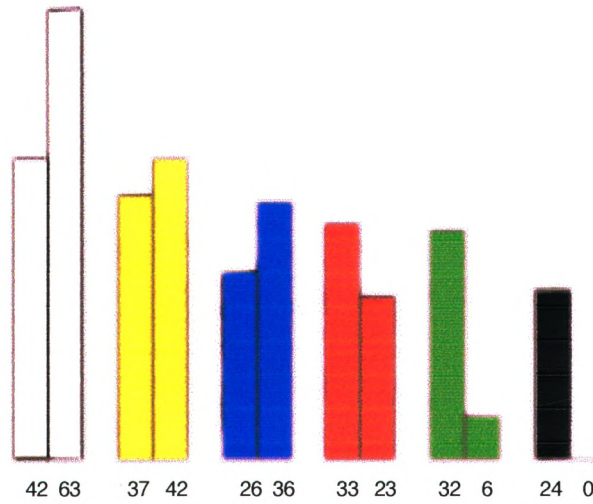
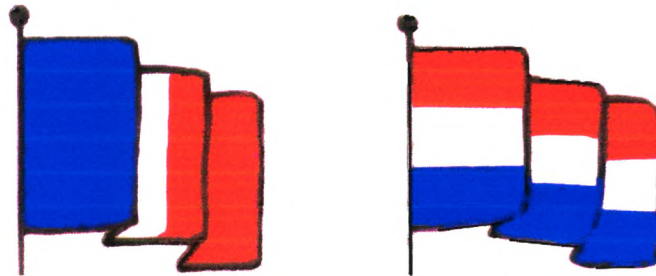


Fig. 7 Design



Mason Kaye, then and now, left and middle. Right, father Ted Kaye, with 'red' flag, at ICV 12 in San Francisco, with Scot Guenter and USSSA flags, 'SS' as in USSR.

Mason Kaye : Tribars, Col. Plate IV

Fig. 8 Symbolism



Gabon



Sierra Leone



The Gambia



Malawi (Congress Party)



Botswana



Bulgaria

Fig. 9 History 1712



Königsberg



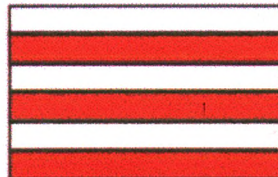
Emden



Sicily



Flanders



Tunis



Ostend

Fig. 10 Construction

