one or two more which, in every method, muſt be employed.

Another method of expreſſing numbers with fewer colours is as follows : Let the flags be A, B, C, D, E, F, and arrange them as follows :

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| A | B | C | D | E | F |
| I | 2 | 3 | 4 | *5* | 6 |
| A 7 | 8 | 9 | 10 | 11 | 12 |
| B 13 | 14 | 15 | 16 | 17 | 18 |
| C 19 | 20 | 21 | 22 | 23 | 24 |
| D 25 | 26 | 27 | 28 | 29 | 30 |
| 5 31 | 32 | 33 | 34 | 35 | 36 |
| F 37 | 38 | 39 | 40 | 41 | 42 |

The number expreſſed by any pair of flags is found in the interſection of the horizontal and perpendicular co­lumns. Thus the flag D, hoiſted along with and above the flag F, expreſſes the number 40, &c. In order to expreſs a greater number (but not exceeding 84) ſuppoſe 75, hoiſt the flags E, which expreſſes 33, or 75,

wanting 42, and above them a flag or ſignal G, which alone expreſſes 42.

This method may be ſtill farther improved by ar­ranging the flags thus :

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | A  I | B  2 | C  3 | D  4 | E  5 | F  6 |
| A | 7 | 8 | 9 | 10 | 11 | 12 |
| B | — | 13 | 14 | 15 | 16 | 17 |
| C | — | — | 18 | 19 | 20 | 21 |
| D | — | — | — | 22 | 23 | 24 |
| E | — | — | — | — | 25 | 26 |
| F |  |  |  |  |  | 27 |

In this laſt method the signification of the ſignal is to­tally independent of the poſition of the flags. In whatever parts of the ſhip the flags D and E are ſeen, they expreſs the number 23. This would suit battle ſignals.

Another method ſtill may be taken. Flags hoiſted anywhere on the foremaſt may be accounted units, thoſe on the mainmaſt tens, and thoſe on the mizenmaſt hun­dreds. Thus numeral ſignals may be made by a ſhip diſmaſted, or having only poles in their place.

Many other ways may be contrived for expreſſing numbers by colours, and there is great room for exerciſing the judgment of the contriver. For it muſt always be remembered, that theſe ſignals muſt be ac­companied with a ſignal by which it is addreſſed to ſome particular ſhip or diviſion of the fleet, and it may be difficult to connect the one with the other, which is perhaps ſhown in another place, and along with other executive ſignals.

One great advantage of theſe numeral ſignals is, that they may be changed in their ſignification at pleaſure. Thus, in the firſt method, it can be ſettled, that on Sundays the colours A, B, C, D, &c. expreſs the cy­phers 1, 2, 3, 4, &c. but that on Mondays they ex­preſs the cyphers 0, 1, 2, 3, &c. and on 1 ueſdays the cyphers 9, 0, 1, 2, &c. ; and ſo on through all the days of the week. This mean or secrecy is mentioned by Dr Hooke for the coaſt and alarm ſignals, where, by the by, he shews a method for conveying intelligence over land very ſimilar to what is now practised by the French with their telegraph.

It is equally eaſy to expreſs numbers by night ſignals. Thus M. de la Bourdonnais propoſes, that one diſcharge of a great gun ſhall expreſs 7, and that 1, 2, 3, 4, 5, 6 ſhall be expreſſed by lights. Therefore, to ex­preſs 24, we muſt fire three guns, and show three lights. This is the moſt perfect of all forms of night and fog ſignals. For both the manner of firing guns and of exhibiting lights may be varied to a ſufficient ex­tent with very few guns or lights, and with great diſtinctneſs.

Thus, for guns. Let F mark the firing of a single gun at moderate intervals, and ff a double gun, that is, two diſcharged at the interval of a second. We may expreſs numbers thus :

|  |  |
| --- | --- |
| I | F. |
| 2 | F, F. |
| 3 | F, F, F. |
| 4 | F, F, F, F. |
| 5 | F, ff. |
| 6 | F, F, ff. |
| 7 | F, ff, F. |
| 8 | F, ff, F, F. |
| 9 | F,∕∕, F,∕∕, |
| 10 | ff. |
| 100, &c. | ff, ff, or fff. |

It might be done with fewer guns if the f*f* were ad­mitted as the firſt firing. But it ſeems better to be­gin always with the single gun, and thus the double gun beginning a ſignal diſtinguiſhes the tens, &c.

In like manner, a ſmall number of lights will admit of a great variety of very diſtinct poſitions, which may ſerve for all ſignals to ſhips not very remote from the commander in chief. For orders to be underſtood at a very great diſtance, it will be proper to appropriate the numbers which are indicated by ſignals made with rockets. Theſe can be varied in number and kind to a ſufficient extent, ſo as to be very easily diſtinguiſhed and underſtood. It is ſufficient to have ſhown how the whole, or nearly the whole, notation of ſignals may be limited to the expreſſion of numbers.

We have taken little notice of the ſignals made by private ſhips to the commander in chief. This is a very eaſy buſineſs, becauſe there is little risk of con­founding them with other ſignals. Nor have we ſpoken of ſignals from the flag ſhips whoſe ultimate inter­pretation is number, as when ſhips are directed to change their courſe ſo many points. Thoſe alſo are easily contrived in any of the methods already deſcribed : alſo wſhen a private ſhip wiſhes to inform the com­mander in chief that soundings are found at ſo many fathoms. In like manner, by numbering the points of the compaſs, the admiral can direct to chace to any one of them, or may be informed of ſtrange ſhips being ſeen in any quarter, and what is their number.

*Signals by the Drum,* made uſe of, in the exerciſe of the army, instead of the word of command, viz.

|  |  |
| --- | --- |
| Signals. | *Operations.* |
| *A short roll.* | To caution. |
| *A flam,* | To perform any diſtinct thing. |
| *To arms,* | To form the line or battalion. |
| *The march,* | To advance, except when intended for a salute. |
|
| *The quick march,* | To advance quick. |
| *The point of war,* | To march and charge. |