

vertebræ;<sup>71</sup> but the lumbar and sacral are so much ankylosed that I am not sure of their number, and this makes the comparison of the total number of vertebræ in the several breeds difficult. I have spoken of six caudal vertebræ, because the basal one is almost completely ankylosed with the pelvis; but if we consider the number as seven, the caudal vertebræ agree in all the skeletons. The cervical vertebræ are, as just stated, in appearance fourteen; but out of twenty-three skeletons in a fit state for examination, in five of them, namely, in two Games, in two pencilled Hamburgs, and in a Polish, the fourteenth vertebra bore ribs, which, though small, were perfectly developed with a double articulation. The presence of these little ribs cannot be considered as a fact of much importance, for all the cervical vertebræ bear representatives of ribs; but their development in the fourteenth vertebra reduces the size of the passages in the transverse processes, and makes this vertebra exactly like the first dorsal vertebra. The addition of these little ribs does not affect the fourteenth cervical alone, for properly the ribs of the first true dorsal vertebra are destitute of processes; but, in some of the skeletons in which the fourteenth cervical bore little ribs the first pair of true ribs had well-developed processes. When we know that the sparrow has only nine, and the swan twenty-three cervical vertebræ,<sup>72</sup> we need feel no surprise at the number of the cervical vertebræ in the fowl being, as it appears, variable.

There are seven dorsal vertebræ bearing ribs; the first dorsal is never ankylosed with the succeeding four, which are generally ankylosed together. In one Sultan fowl, however, the two first dorsal vertebræ were free. In two skeletons, the fifth dorsal was free; generally the sixth is free (as in *G. bankiva*), but sometimes only at its posterior end, where in contact with the seventh. The seventh dorsal vertebra, in every case excepting in one Spanish cock, was ankylosed with the lumbar vertebræ. So that the degree to which these middle dorsal vertebræ are ankylosed is variable.

Seven is the normal number of true ribs, but in two skeletons of the Sultan fowl (in which the fourteenth cervical vertebra was not furnished with little ribs) there were eight pairs; the eighth pair seemed to be developed on a vertebra corresponding with the first lumbar in *G. bankiva*; the sternal portion of both the seventh and eighth ribs did not reach the sternum. In four skeletons in which ribs were developed on the fourteenth cervical vertebra, there were, when these cervical ribs are included, eight pairs; but in one Game cock, in which the fourteenth cervical was furnished with ribs, there were only six pairs of true dorsal ribs; the sixth pair in this case did not have processes, and thus resembled the seventh

<sup>71</sup> It appears that I have not correctly designated the several groups of vertebræ, for a great authority, Mr. W. K. Parker ('Transact. Zoolog. Soc.,' vol. v. p. 198), specifies 16 cervical, 4 dorsal, 15 lumbar, and 6

caudal vertebræ in this genus. But I have used the same terms in all the following descriptions.

<sup>72</sup> Macgillivray, 'British Birds,' vol. i. p. 25.