THE RELIEF OF BELGIUM

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This representation of the relief of Belgium has been made possible from the numerical relief model established by the United States Defence Mapping Agency resulting from the digitising of the contours from the IGN 1:50 000 topographic map. The model is based on the co-ordinates of the World Geodetic System (WGS), has a level of accuracy of 4, 8 and 10 metres respectively for low, middle and high Belgium (the error is better than these thresholds at a 90 % probability level). The model was then subjected to geometric corrections in order to comply with the Belgian Lambert projection used in the Atlas map and with the resolution of the numerical relief model (the spatial pixel dimension at the end of the treatment is 50 m).

The use of a system of interactive image analysis then permitted the creation of a colour document, together with the creation of shadows (simulating an illumination from the north-west) in order to make the relief apparent. The colours used are the process ones of cyan, magenta and yellow; shadings are in black.

The present relief map of our country allows us to visualise not only the main lines of relief but also, and above all, the morphological detail, better than on any other map of Belgium currently at our disposal. This picture of the relief is better than all the satellite documents which one can obtain because it is not obscured by the representation of soil affectations. Just as one can see from satellite images, the global view combines the small scale of the document with a clarity of extreme detail, to give clear outlines of the relief of our country which have escaped the notice of large scale topographic map studies. Consequently, this map merits examination with great care because of the extraordinary richness of information.

In the brief commentary which follows, it is clearly impossible to review all that is divulged by this map. We will limit this study to an underlining of the morphological characteristics evidenced by this document and which the traditional map document at this scale, and especially the generalised relief and water map of sheet II.1, could not make apparent. A number of the peculiarities which we have described here are not at present explicable. They are worthy of the attention of research workers.

As far as geographical locations used in this text are concerned, we refer the reader to the map of relief and water (sheet II.1).

In the north-west part of the map, the very regular semi-circular relief forms which surround the basin of the Yser (IJzer) are remarkably clear. Without making any genetic interpretation of this landform, the continuity of this crest line needs to be emphasised.

Between Bruges (Brugge) and the valley of the Mandel, the discontinuous sections of highly eroded cuestas are particularly well shown as a result of the shadows modelled.

To the north of Audenarde (Oudenaarde) between the Scheldt and the Lys, the interfluves of the fluviatile terraces appear clearly and contrast with the pointed summits of the hills further south.

Whilst the west-east direction of relief which extends from the Mont de l'Enclus to the Pottelberg is very clear on traditional maps, the present map shows clearly that the relief is prolonged to beyond the Dender by an extended crest which dies out to the north of Brussels, near the Senne. Further east and belonging to the preceding relief forms controlled by Diestian deposits, the limonite summits of the hills of Hageland are marked elements on this document.

The Pottelberg summit is found at the intersection of hills aligned accordingly in two important directions, the west-east direction already mentioned and an alignment SSW-NNE. These hills are indeed important as these alignments are found on all the maps. However, on this one you can see that the latter direction is met again in the orientation of the valleys cutting the relief directly to the east of this crest. This same direction is found elsewhere in the elongation of some hills located near Grammont (Geraardsbergen).

One of the more impressive features shown in this map is the long crest of the Bois de la Houssière which extends for more than 30 km with the same SSW-NNE orientation between the Brussels agglomeration and the valley of the Haine. The line of a fault is clearly visible in the centre of this relief. This same fracture has determined the development of a valley which appears as a linear feature in its prolongation and extends as far as Ittre.

The preferred north-south orientation of the valleys in the Sambre-Haine interfluve, where the Pieton has its source, is very evident. The influence of this direction extends north to the proximity of Braine-l'Alleud.

In the region situated south of Tirlemont (Tienen), the WSW-ENE orientation is most apparent. It can be traced in numerous valleys and notably in the upper course of the Great Gete and of the Méhaigne.

The cuesta of Harmignies to the south of Mons is a structural form easily recognisable on this map. It shows a change in orientation in the continuation of the crest of the Bois de la Houssière, thus suggesting that tectonics have played a role in the lay-out of the plan of this relief.

In the Herve district the summit crest shows and surrounds the circular depression of Aubel to the south and east, whilst its northward extension is accentuated by the oblique lighting of the map.

No other cartographic document at this scale has revealed so clearly the structural relief details of the Pays Sambro-Mosan, the Marlagne, the Ardenne-Condrusienne and the Condroz Plateau. The summit erosion levels particularly stand out, just as the structural relief developments in the proximity of the valleys.

The morphological details of the Fagne-Famenne and the calcareous band are no less clear. All the structural influences are made evident by the Viroin and its tributaries which show clearly. If the Focant depression, to the east of Beauraing, is visible on all maps, none demonstrates so clearly why this horizontal plain is exceptional, even in the midst of the Famenne.

In the Ardennes proper, the structural influences are clearly shown in many places. They are generally well known but are here very clearly visible. Amongst others can be singled out the relief forms stretching parallel to the northern margin of the Ardennes massif, especially to the west of the Ourthe, the final incision into the NE-SW direction of the relief by the basins of the Sûre and the upper Ourthe as well as the great inward-facing crests of the Vielsalm region, the Grand-Halleux depression and the Theux window. But what strikes the observer most is the contrast between the delicately eroded relief forms of the basins of the Lesse and the Semois, the depression of the two Ourthes and the basin of the Our with the much more impressive mass including the Hautes Fagnes plateau and the Tailles plateau. On this map, this massive zone appears as an oval mass, extending from the German frontier as far as the edge of La Roche-en-Ardenne. The same aspect is seen in the Saint-Hubert plateau and is not therefore a simple characteristic linked with the Cambrian rocks.

As a consequence of the lighting conditions chosen for this map, the cuesta relief forms of Lorraine are not well shown, nor is the southern overhanging of the Ardennes. The extensive surface feature which extends to the south of the upper Semois and which is under attack by active erosion forces of the tributaries of the Ton is nevertheless evident.