CHAPTER III

TECTONICS

The following movements are usually distinguished on Cuba, with the exception of parts of E Cuba, where slightly other conditions prevail.

1. Post Tuff Series — prae Habana movements.
2. Post Habana Series — prae Eocene movements.
4. Post Guines movements.

The only evidence we have in this area of the first movements are the basal conglomerates of the Habana Series, which are made up of Tuff Series and diorite material. For the formation of conglomerates only vertical movements are necessary and according to the scarce data available from this part of Cuba, both series are equally strongly folded. Previous authors, however, e.g. M. RUTTEN (6), THIADENS (7), MACGILLAVRY (8) and VAN WESSEM (9) have assumed strong orogenetic movements, accompanied by the intrusion of diorites. Their arguments are based on the divergence of strikes in the Habana Series, compared to those in the Tuff Series.

In this part of Cuba the strikes of both series are rather conform, with the possible exception of the area S of Victoria de las Tunas, on course W 244—W 260, but the strikes in the Habana itself diverge to much to attach much value to this divergency.

Of the second movement I can only state that the Habana Series is strongly folded, but from the Eocene no dips have been measured in this area. In the adjoining area of MACGILLAVRY however, the middle or upper eocene of the Sierra de Maraguan, of which the Eocene N. of Cascozco forms the continuation, is, at least in its southern part horizontal or shows only feeble dips. VAN WESSEM (p. 28) and THIADENS (p. 50) mention the existence of a structural unconformity, so it is probable that this unconformity also occurs here. The exact time of this orogenesis has been fixed between Maestrichtian and probably Middle Eocene.

The third movement could neither be demonstrated here, as no eocene strikes are known. From other parts of Cuba this orogenesis is reported to have been of different intensity according to the different areas.

As only feeble dips, with the exception of one dip of 20 degrees S. of Victoria de las Tunas, are found in the Guines Series, the fourth movement was only very slight.
The most conspicuous tectonical feature in this part is the divergence between the average strikes on one side and the general trend of the exposures of the cretaceous rocks, which coincides with the general trend of the island, on the other. This holds good at least for the western and central part. In the eastern part there are also indications for this divergence, but they are not so conspicuous, as only a few strikes could be measured.

Great difficulties have arisen in the appreciation of the relations of Tuff and Habana Series, which difficulties were increased by the fact that there was never positive certainty whether Tuff Series was really „Tuff Series”. While S. of Veinte y Uno at loc.’s H 237—H 239 the Tuff Series appeared normally in an anticlinal core, the Tuff Series exposures SE of Veinte y Uno on course R 165—R 174 seem to be lying upon the Habana; thus either a „Schuppen” structure or an isoclinal structure seems indicated. Near Veinte y Uno the boundary of Tuff and Habana Series is about perpendicular to the average trend of the strikes in both series, as seen S and NE of Veinte y Uno. This might be in consequence of a fault, as for a SW pitch of the Tuff Series no indications are found.

On the Carretera Central W of Collegio Adventista the two Habana exposures may be bounded by faults at the NW side, where they are seen dipping under the Tuff Series. S of Victoria de las Tunas on course W 244—W 261 the exposures of Tuff Series amidst N-dipping Habana Series may also either represent „Schuppen”, or a normal isoclinal structure.

On the whole the data available were much too scarce to allow the derivation of a satisfactory tectonical scheme.
CHAPTER IV

MORPHOLOGY

The whole area is a vast plain, with only local fluctuations caused by the difference of resistance of its underlying rocks. Therefore the study of the morphology has to be confined to a consideration of the type of country we find with the different formations.

In the Tuff Series we find many small, steep hills often composed of piles of blocks, consisting of fresh porphyrites or diabases; at K 117 a slightly higher hill is composed of mineralised quartz-limonite rocks.

Also limestone exposures are found to form ridges and hills.

On the diorites we have a gently undulating country with occasional piles of blocks of more resistant rocks.

In the Habana Series we have the same aspect as with the Tuff Series, but where tuffs and tuffaceous limestones predominate, the country tends to become flat. The limestone can form considerable hills of a couple of tens of meters height, as is the case of H 230, Loma Biaja.

The Eocene is too scarce to allow any conclusions, but the remainder of the Tertiary is characterised by flat country, with very faint elevations caused by limestone layers.

From the Cuban Military map it appears that the rivers flow from the middle part to both North and South coast. The course of these rivers could not be brought in agreement with the river crossings we had reported, so they have not been drawn on the map.
CHAPTER V

ECONOMIC GEOLOGY

About the occurrence of ores in this area two publications have come to my knowledge, one by E. Cayado (2) who only mentions the occurrence of copper in the vicinity of Victoria de las Tunas and gold in the neighbourhood of Victoria de las Tunas and Jobabo. In the second publication A. Calvache (1) describes some gold concessions in the area N and NE of Jobabo and states that the gold is derived among others from metamorphosed limestones and ferrugeneous silicified rocks. As one of the explored find-spots he mentions the "Loma Ajenjibre", probably the same hill as the one we visited at loc. K. 117, which consists of silicified and limonitised rocks. That the gold is probably associated with these mineralised rocks is confirmed moreover by a verbal information we got from a native, who told that S. of Guaimaro, in the vicinity of loc. H. 140 gold had been found; there we had also found mineralised rocks.