

a match. All samples which were heated, emitted a strong undoubted bituminous eder. No sedimentary rocks outcrop anywhere in the vicinity of these localities and the writers are at a loss to explain their origin. In any event, they are of no commercial importance.

Several reports of cil scapages along the Pacific coast were traced down and found to be without foundation. At several localities small blobs of asphalt were found on the surface of rocks which outerop along the coast but always below the high tide mark. This asphalt was undoubtedly brought in by the sea, probably from boots. No authentic occurrence of bituminous material was seen in the seclimentary rocks of Guanacaste.

## COMPLETE COST AND RECOMPLETE COST

The results of the geologic recommalssance survey of the Province of Cummenate and adjoining portions of Puntaresma definitely condemn the entire area as having no oil or gas prospects. This conclusion is based on the following facts:

1) Appreciable thicknesses of marine sediments are confined to relatively small, scattered areas.

2) Absence of any section which could possibly be regarded as favorable source material.

3) Highly faulted, jointed and broken structure in most areas.

4) Complete absence of any direct evidence of oil or cas anywhere within the areas of sedimentary outerop.

5) Paucity of favorable structural traps.

The Salines uplift is not unfavorable from a structural standpoint but exposes the lower member of the Santa Elena formation, which contains no source or good reservoir beds at its normal outerop only about eight kilometers to the south. It is estimated that a well on the creet of this structure would reach becoment at a depth of less than 4000 feet.

It is believed that no further exploratory work of any kind is necessary in Cumpacaste. Our present knowledge of the area is regarded as Sufficient to fill out any broad regional picture which might be useful in the solution of problems in other areas of Contral America.

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Fig. 1, Liberia uplands and Volcano Orosi



at La Cruz



Fig 3, Northeast side of Santa Elena Peninsula



Fig 4, Looking southwest from La Cruz. Salinas Peninsula with Santa Elena Peninsula visible in the distance.



Fig. 5, Upper Nicoya limestone on Cerro Barra Honda



Fig. 6, Lower Santa Elena limestone near Puerto Costillo



Fig. 1, Normal fault near Curu.



Fig. 3, Folding near Curu.



Fig. 5, Thrust fault and drag folding near Curu.



Fig. 2, Calcareous sandstone near Curu.



Fig. 4, Folding near Curu.



Fig. 6, Sharp fold near Curu.



Fig. 1, Guiones limestone (?) near Curu



Fig. 2, "Cobblestone" bed of Nicoya formation. Concoidal weathering sand



Fig. 3, Concoidal weathering sandstone at Curu.



Fig. 4, Guiones limestone near Punta Guiones