Remarks to O. Dreher's report on the:"Permo-Triassic Saline Formations of the Mexican-Caribbean Gulf Area."

From the report of Dreher we derive the following conclusions:

The varying conditions of facies, thickness and transgressions in relation with the lack of type fossils, existing in the East Texas-Louisiana and the Tehuantepec regions, below the Glen Rose and the Upper Jurassic, respectively, induce to consider those salt promising formations younger than they may be. In the Texas-Louisiana area they do no crop out but far away from the salt domes and have not been proved by wells in the area itself, except at the Smackover field. The stratigraphic column of this field gives the impression that the Werner anhydrite and the deeper beds, including the salt, ought to be Permian, especially when compared with the Central Malone column (Upper Jurassic-Permian unconformity, gypsum, limestone). Besides, the fact that the Gargasian-Lower Albian levels of E Texas-Louisiana are not salt bearing in the dome region, the lack of major saltformations in the pre-Gargasian Mesozoicum and the relation with the W Texas salt basin makes it probable that the salt is permian. This proves that the general considerations about the age of the E Texas salt, based on the age of the main salt formations of W Texas, Germany and Russia are correct, at least respecting the N regions pfere.

In the Tampico-Tehuantepec area, outcrops and log-records seem to give a clearer information about the age of the salt which is pre Upper Jurassic. Notwithstanding, the question wether the Oxford or wether the Permian are here the main salt formations remmains still open. The development of the gypsiferous Oxford in the southern Andes (see: Steinmann, Geologie von Perú) may indicate more general conditions favourable to the deposition of salt.

As to the Colombian salt layers, situated in the E Cordillera, N and NE of Bogotá, we disagree with the opinion of Dreher who believes them to be permo-Triassic. Yet, no definite opinion can be given about the cretaceous age of those salt layers; the study of Dreher obliges to take into consideration new viewspoints, not discussed until now in Colombia.

The question about the age of the Giron of Hettner is not much important in the salt area because within itself the salt interesting formations are well exposed:

VILLETA, 1500m Lowerm.Turon., or Upperm.Cenoman. to Upper Hateriv.	Upper lst.sect., or Chipaque Middle sst.sect., or Une Lower lst.sect., or Fómeque
GIRON, ±3000m Hauteriv.p.p. & Valangin.	Upper sect., or Cáqueza, with red weath.cl.sh. Top ssts., & big cl.sh. series. Middle sect., or Tablon. Top quarztites, platy sdy. cl.sh. & thin bedd.sst. Lower sect., or Sáname. Altern. hard cl.sh, at base anthracitic, & quartzites; little limestone; basal cgl.
Unconf.	
GACHALÁ > 600m Upper Carbonif.	Cl.sh., lst., sst; partly metamorphic.
Prob.Unconf.	
PIPIRAL > ?2000m ?Devonian	Red & yellow: phyllites & quartzites, some of them soft. Light, ?basal, mgr. quartzcgl.
?Unconf.	
Quetame > 3000 m ??Cambro-silur.	Quartzites, cloritic, phyllitic & some graph. sl.sh.

Another formation which has not been observed in the salt region itself but not far away of its N portion (W and N of Sogamoso, at the páramo de Guantiva) is the SOAPAGA, composed of very endurated, heavy red: cl.sh.sdy cl.sh., quartzitic sandstone and coarse congl., the pebbles of which are made up of red quartzitic sst, numerous kinds of metamorphics, including a yellowish crystalline lst. This formation is similar to the Pipiral, but the size & the composition of the conglomerates is different and no metamorphism has been observed. For this reason, we suppose, that the Soapaga is younger than the Pipiral (and older than the Giron which covers it