

Zeitschrift: Berichte des Geobotanischen Institutes der Eidg. Techn. Hochschule, Stiftung Rübel

Herausgeber: Geobotanisches Institut der Eidg. Techn. Hochschule, Stiftung Rübel

Band: 34 (1962)

Artikel: Comparative diagrams of some Pliocene-Pleistocene marine sediments in the Po-Valley and the continental deposit of Leffe (Bergamo)

Autor: Lona, F.

DOI: <https://doi.org/10.5169/seals-377623>

Nutzungsbedingungen

Die ETH-Bibliothek ist die Anbieterin der digitalisierten Zeitschriften. Sie besitzt keine Urheberrechte an den Zeitschriften und ist nicht verantwortlich für deren Inhalte. Die Rechte liegen in der Regel bei den Herausgebern beziehungsweise den externen Rechteinhabern. [Siehe Rechtliche Hinweise.](#)

Conditions d'utilisation

L'ETH Library est le fournisseur des revues numérisées. Elle ne détient aucun droit d'auteur sur les revues et n'est pas responsable de leur contenu. En règle générale, les droits sont détenus par les éditeurs ou les détenteurs de droits externes. [Voir Informations légales.](#)

Terms of use

The ETH Library is the provider of the digitised journals. It does not own any copyrights to the journals and is not responsible for their content. The rights usually lie with the publishers or the external rights holders. [See Legal notice.](#)

Download PDF: 05.05.2025

ETH-Bibliothek Zürich, E-Periodica, <https://www.e-periodica.ch>

The nomenclature and limits of our Donau are merely conventional because we don't know whether EBER's Glaciation is referable to all these four Leffian phases. The problem is going to be studied more extensively in our Institute.

Let us note that these Donau cold phases do not appear so severe as some Günz and especially Mindel ones. The Interstadials are relatively fresh. In the Interstadials of the ancient Donau, we found several species which are not common in more recent periods; so, for example, *Celtis*, *Myrica*, *Eucomia*, *Ketelleria*, *Pinus haploxylon* "sensu stricto", cf. *Podocarpus* and, in some periods, we also can see unusually high percentages of *Fagus*. These species are very rare or even absent in the pre-Donau Leffian series. On the other hand in the low Donau we found very rare pollen grains of *Carya*. In the cold periods we found a representative picture of *Picea*-forest with *Pinus*. In the entire series representing the period, that we may call "Leffian", we see ten cold phases, as shown in Fig. 1.

Comparative diagrams of some Pliocene-Pleistocene marine sediments in the Po-Valley and the continental deposit of Leffe (Bergamo)

By F. LONA

On the base of several series of pollen analysis, a diagram was performed which represents the probable connection with some marine deposits located near Parma and the Leffe (Bergamo) deposit. In Fig. 2 we note that the Rio Ferraio deposit (Parma Appennine) corresponding to "Calabrian" (LONA unpubl.) is partially correlated with the Leffe deposit.

Another Appennine deposit (Castell'Arquato) was studied on its part underlying the Calabrian and the well known *Amphistegina*-conglomerate up to date ascribed to the upper Pliocene (LONA, 1962). Below this *Amphistegina* layer we found a sandy-clay whose pollen content is representative of a rather cold period. I indicate it as "Arquatian".

Sciadopytis is one of the species (6%) that characterizes the boundary period (mild oceanic climate) between Arquatian and *Amphistegina* layers. *Sciadopytis* is not found in such percentage neither in Calabrian nor in the corresponding Leffian period.

We let open the question whether this period (comprehending *Amphistegina* conglomerate and Arquatian phase found in the *Amussium* clayey-sand) is really pertaining to the upper Pliocene (Astian faces) or if this may be

included in the ancient Quaternary (LONA, 1962). Indeed the boundary period between *Amussium* and *Amphistegina* layers is characterized by a notable percentage of *Sciadopytis* (see above). On this base we may state that this layer is more ancient than Leffian period, but—by now—it appears difficult to approach more detailed chronological discriminations.

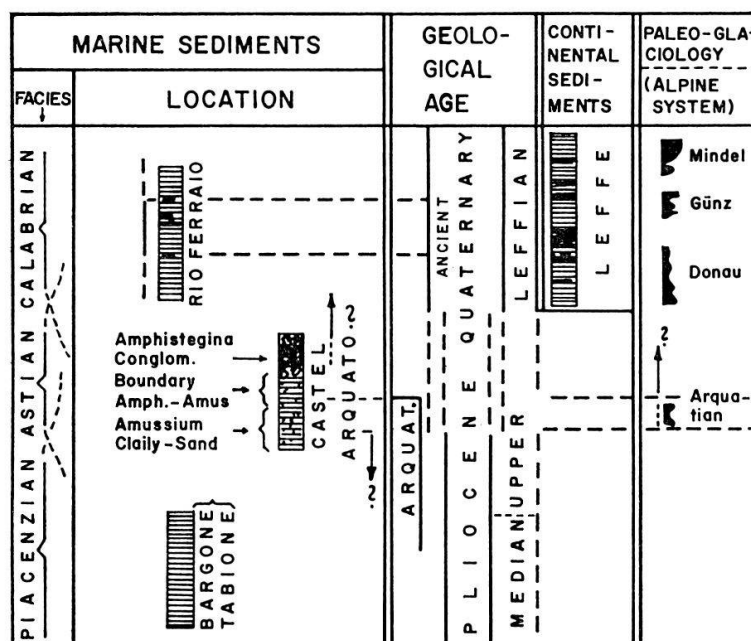


Fig. 2

The diagram includes also a more ancient deposit (Bargone-Tabiano) of Piacentian faces. This contains a fauna characteristic of the median-upper Pliocene (after G. PELOSIO; in lit.).

Pollen analysis of some samples of this deposit demonstrated a content of 12% of *Sciadopytis* in a forest characterized by a great percentage of *Cedrus*.

Würm interstadial deposits of Calprino (Lugano) indicating a striking *Fagus* diffusion

By F. LONA

It is known from several publications (H. ANNAHEIM 1934, etc.) that the phyllitiferous deposits of the surroundings of lake LUGANO (Calprino, Paradiso, Noranco, etc.) are Würm-Interstadial deposits. These are very interesting because of the scarce availability of data regarding the reforestation during such Interstadials and especially the first one, i.e. the Göttweig Interstadial. Some material was studied by MÜLLER (1956) who obtained a very homoge-