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Age of the Pleochroic-Halos of the Quartz-Monzonite of Eastern Elba

A complete geological and petrographical study of the granodioritic intrusive rocks of the isle of Elba has recently been carried out by MARINELLI[1]. The Elba intrusions are localized, the one in the western part of the island (Monte Capanne), the other, smaller and a little more acidic, in the south-eastern zone, near Porto Azzurro. While the age of the western intrusion is geologically rather well known[2], this is not the case with the eastern one.

The Monte Capanne granodiorite has already been studied by the pleochroic halos method by DEUTSCH *et al*[3], while such research has never been carried out on the Porto Azzurro one. The determination of the age of this rock is particularly interesting both in relation to the neighbouring intrusion only a few kilometers away, and in relation to the other age-determinations carried out on the Tuscan-archipelago and continental granites[4].

Despite the limitations of the pleochroic-halos method in age-determinations, these recent rocks are particularly well-suited to this kind of research. In fact we are interested in the relative chronology of the various granitic intrusions which may be related to the magmatic activity following the Appenninic orogenesis[5].

Besides, the recent age of these magmatic rocks allows us to detect relatively small differences in age, as the pleochroic-halos method allows us to determine age ratios rather than absolute ages.

The results have been obtained by studing a sample from the cores of a drilling carried out by Soc. "Montecatini" near Porto Azzurro, at a depth of about 275 m. This sample has been kindly given to me by MARINELLI, and described by him in the previously mentioned work. Some of the accessory minerals included in the biotite, with specific activities varying from 0.11 to 0.24 α/cm^2 sec, show no appreciable halos. The experimental points of the halos observed around the minerals with higher activities are plotted in the diagram.

The values of the D parameter of the optical density of the halos expressed in μm are plotted on the ordinate; the values of the specific activities of the corresponding emitting minerals are plotted on the abscissa. The points related to the halos of the Monte Capanne granodiorite are plotted on the same diagram, together with the calculated isochrones.

The sensitivity of the eastern Elba biotite to artificial irradiation, compared to that of the Monte Capanne biotite, has been experimentally studied using a Po^{210} source. (The details of the technique used will be described in a further note.) The sensitivity of the two biotites has been found to be practically identical. An examination of the experimental points and their related isochrones, leads us to conclude that there is no appreciable age difference between the two rocks.

It follows that the small quartz-monzonitic stock partially outcropping near Porto Azzurro, must be regarded as chronologically related to the same magmatic phase from which the Monte Capanne pluton originated.

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Riassunto

Nel quadro di una serie di ricerche tendenti a determinare le età relative delle rocce granitiche dell'arcipelago toscano e della Toscana continentale, è stata studiata con il metodo degli aloni pleocroici la quarzomonzonite di Porto Azzurro (isola d'Elba).

In base ai risultati ottenuti, riportati nel grafico, si può asserire che non vi è apprezzabile differenza di età tra la roccia studiata e la vicina granodiorite del Monte Capanne.

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Cyclisation of α-Benzylhomophthalic Acids

During the course of experiments on the synthesis of dibenzotropones, the cyclisation of some α-benzylhomophthalic acids were examined. α-Veratrylhomophthalic acid[1] (I), on treatment with polyphosphoric acid, readily afforded the keto acid (II, m. p. 211°C) which on decarboxylation to (III, m. p. 135°C) followed by dehydrogenation[2] with N-bromosuccinimide gave 2:3-dimethoxydibenzotropone (m. p. 131–132°C). The structure of (III) is confirmed by its independent synthesis from veratrylidenephthalide[3] following the synthetic course of TREIBS and KLINKHAMMER[2].

When 3:4-diethoxybenzylhomophthalic acid (IV, m.p. 169–170°C), readily available by reduction of 3:4-diethoxybenzylidenehomophthalic acid (m. p. 178–179°C), was cyclised a mixture of the keto acid (V, m. p. 165°C) and

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