Ferribacterium sp., cyanide plants (Cyanophyceae), euglenines (Euglenophyceae**),** diatomeae (Bacillariophyceae) and green algae (Chlorophyceae).

In the year 1998 the moffette in Złockie was declared a legally protected site as the Professor Henryk Świdziński monument of inanimate nature and later placed on a proposed European list of protected geosites (European List of Geosites).

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Mineral, thermal and therapeutic waters of the Polish Carpathians

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The province of the Polish Carpathians is characterized by a wealth of various mineral, thermal and potentially therapeutic waters, and by a coexistence of normal, mineral and thermal waters as well.

The Inner Carpathians enclose the Podhale Basin and the Tatra Mountains, the latter being the major recharging area of underground waters. The Podhale Basin represents a classic artesian basin, in which the carbonate strata of Eocene and Triassic carry thermal waters recorded at the depths from 680 m (Zazadnia IG-1) to 5261 m (Bańska IG-1) in 14 boreholes. The temperature of the waters ranges from 20 to 86^{o}C at the mineralization (TDS) from about 0.3 to 3 g/dm^3. They are utilized in recreation and in heating installations.

The waters in question within the area of the Pieniny Clippen Belt are limited to a few springs of sulphurous water.

The Outer, i.e., Flysch Carpathians, are composed of tectonic units of a lower rank overthrusted on each other, strongly dislocated and dismembered into separate blocks. Within their area the following water types have been found: carbonated waters, waters containing carbon dioxide, chloride waters, brines, thermal waters and sulphurous waters. The carbonated waters and waters containing carbon dioxide have currently been rendered accessible in 68 springs and 138 boreholes, and occur only within the areas of the Magura and Silesia units. They represent waters with mineralization (TDS) from 0.4 (acratopegae) to 27 g/dm^3, and their hydrochemical types are HCO_3-(Ca)-(Mg)-(Na), (Fe), (I), and HCO_3-Cl-Na, (Fe), (I). In Krynica, waters of the Zuber type, unique in the world, are provided from four boreholes on the slopes of Parkowa Góra Mt. The Zubers are carbonated waters with the TDS content from 21.2 to 29 g/dm^3 of the hydrochemical type HCO_3-Na-(Mg), I. The chloride waters and brines occur within all the tectonic units of the Outer Carpathians and their TDS content ranges from 35 to about 146 g/dm^3 (the latter in Jaworze Dolne). They have been reported in many boreholes drilled mainly during oil and gas prospecting. The chloride waters (e.g. in Rabka and Poręba Wielka) and brines (Sól, Jaworze, Krosno) are mostly synsedimentary waters of the Cl-Na, I type. They are associated with both the Carpathian flysch strata and the older rocks (Devonian, Carboniferous) of the Carpathian basement (Ustroń Śląski, Kęty, Jaworze). For instance, the uptakes in Ustroń pump thermal brines of the Cl-Na-Ca type, the TDS content 103-126 g/dm^3 and the temperature 50^{o}C from the Devonian basement. The sulphurous waters have been recorded in 125 springs within the Carpathians. They contain H_2S in the range 1-160 mg/dm^3 at the TDS ranging from 0.3 to 3.6 g/dm^3; most of these waters are acratopegae.

Natural radioactivity of uranium (^{238}U, ^{234}U), radium (^{228}Ra, ^{226}Ra), radon (^{222}Rn) and lead (^{210}Pb) isotopes as well as the total concentration of the α- and β-radioactive nuclides have been studied in 75 water samples from the area of the Polish Carpathians. The results indicate that in none of them the content of radioactive elements exceeds the values permitted by radiological regulations.

The standard of therapeutic waters in the Polish Carpathians have those found in Andrzejówka, Dębowiec, Głębokie, Leluchów, Lubatówka, Łomnica, Iwonicz-Zdrój, Jastrzębik, Krościenko on the Dunajec, Krynica-Zdrój, Milik, Muszyna, Piwniczna-Zdrój, Polańczyk, Powroźnik, Rabka-Zdrój, Rymanów-Zdrój, Szczawa, Szczawnica, Szczawnik, Tylicz, Ustroń, Wapienne, Wysowa, Złockie, Zubrzyk and Żegiestów. The Carpathian mineral, thermal and therapeutic waters have been utilized in 12 statutory spas in balneotherapy (medicinal and recreation bathing), crenotherapy, production of CO_2, and also are bottled in several plants.

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"Rootless" ophiolites above the Pelagonian core complex of north central Greece

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More than twenty ophiolitic fragments ranging in size from meter-scale to several tens of km^2 occur strato-tectonically above the Pelagonian continental massif (mid-Neoproterozoic and Permo-Carboniferous crystalline basement plus Triassic-Jurassic platform carbonate cover) in the region between the mid-late Jurassic Mesohellenic ophiolites (rooted within the Mesohellenic Trough in the west) and the Vardar Zone ophiolites (rooted in the Vardar Zone in the east). Formerly presumed to be part of a single, initially continuous mid-upper Jurassic ophiolite nappe, we have begun documentation of these fragments within the context of their role in the exhumation model of Pelagonia.

A "rootless" ophiolite is a piece of oceanic lithosphere that is no longer contiguous with an ophiolitic complex emanating and emplaced from a plate suture zone. The Rodiani complex has long been considered tectonically continuous to the Vourinos massif, but rather appears to be more alike to Aspropotamos-Pindos lithosphere. Extension from Vourinos would require tectonic thinning of about eleven km of ophiolitic lithosphere, and rotation of the Rodiani section that cannot be explained by a simple antiformal structure between Vourinos and Rodiani within the interceding Triassic-Jurassic Pelagonian platform carbonates. Zindani, also apparently tectonically continuous with Vourinos, is severely altered to a massive serpentinite (predominantly antigorite) body, imbricated with Pelagonian schist. The Livadi ophiolite, once included as part of the Paleozoic (Pelagonian), crops out as a nappe above the Pelagonian gneissic core complex. The contact comprises a metamorphic discontinuity with the much lower T-P lithologies of the ophiolite. Primary ophiolitic fabrics and ridge-crest structures are still recognizable in the Livadi complex. The smallest ophiolitic fragment that includes a complete Steinmann Trinity occurs near Lefkovrisi, Kozani (the "IGME" ophiolite): less than three meters of section including serpentinite, pillow lava, and Upper Jurassic oceanic sediments crop out over a pebbly mudstone mélange similar to that of the Vourinos ophiolite, and beneath the Lower Cretaceous lateritic rocks to Upper Cretaceous reefal limestone and flysch.

Most of these "rootless" bodies are overlain by Upper Cretaceous transgressional limestone that allows rotation to their pre-Upper Cretaceous orientations. This aids in delineating older constrictional structures from exhumation structures. The pre-Upper Cretaceous interval includes formation of laterite deposits and extensively striated cobble formations (olistolithic or tectonic in origin). The provenance of supra-ophiolitic sedimentation is consistently "towards the east," that is, towards the area of the Pelagonian core complex. Structures within the ophiolitic fragments themselves are generally too highly