

such quantities that it is profitably extracted, and is largely used for the manufacture of the famous Passau crucibles. In all of the numerous graphite mines, the uniform interstratification of bands and lenticular masses rich in graphite with the gneiss is here distinctly marked. A similar arrangement is seen in the sulphurets of iron, which are more abundantly disseminated in the more hornblendic strata. The localities of porcelain-earth or kaolin are in like manner confined to the strike of the gneissic strata; and are generally contiguous to certain interstratified granitic and syenitic bands, rich in feldspar. Its frequent association with porcelain-spar, (probably nothing more than a chloriferous scapolite or anorthite,) indicates that this mineral has played an essential part in the production of the kaolin. The presence of chlorine in this mineral is highly significant, and suggests the agency of sea-water in its production.

Of particular interest, from their mineral associations, are three or more parallel bands of crystalline limestone of no great thickness, which occur conformably interstratified with the gneiss of the hills near Passau. They begin near Hofkirchen, and extend north and south, from along the Danube as far as the frontier, near Jochenstein, where the Danube leaves Bavaria. These separate limestone bands, although exposed by numerous quarries, cannot be followed uninterruptedly, being sometimes concealed, and sometimes of insignificant thickness.

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The large quarry of Steinhag already described, from which I first obtained the Eozoon, is one. The enclosing rock is a grey hornblendic gneiss, which sometimes passes into a hornblende-slate. The limestone is in many places overlaid by a bed of hornblende-schist, sometimes five feet in thickness, which separates it from the normal gneiss. In many localities, a bed of serpentine, three or four feet thick, is interposed between the limestone and the hornblende-schist; and in some cases a zone, consisting chiefly of scapolite, crystalline and almost compact, with an admixture however of hornblende and chlorite. Below the serpentine band, the crystalline limestone appears divided into distinct beds, and encloses various accidental minerals, among which are reddish-white mica, chlorite, hornblende, tremolite, chondrodite, rosellan, garnet, and scapolite arranged in bands. In several places the lime is mingled with serpentine, grains or portions of which, often of the size of peas, are scattered through the limestone with