tents of Appalachian basin coals are related to differences in pH conditions of the peat-forming paleoenvironments. High-sulfur coals (1) are associated with calcareous sedimentary sequences (marine, nonmarine, or both), (2) have elevated calcium carbonate content, and (3) have a low kaolinite to illite ratio. The converse is true for low-sulfur coals.

Exploration for low-sulfur coal should focus on coal-bearing sequences that contain a paucity of calcareous sediments.

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Burrow Patterns of Ghost Crab *Ocypode ceratophthalma* (Pallas) as Possible Indicators of Foreshore Slopes

Burrow patterns of the ghost crab, *Ocypode ceratophthalma* (Pallas), collected in India from different types of beaches in different geomorphic settings, display a limited zonation whose seaward limit is the backshore-foreshore transition zone. Burrow forms whose initial direction of burrowing is shoreward include simple unbranched or multibranched types of J, U, and Y shapes.

Although the different subenvironments of a particular beach can be subdivided tentatively by the dominance of a particular form, similar subenvironments of beaches having different slopes and permeability of the beach surface register different types of burrows. In high sloped beaches, whether composed of quartz sand or carbonate skeletal sands, the upper part of the foreshore slope is mostly dominated by J, U, and Y forms, sometimes multibranched, and with relatively small burrow diameters. In flat beaches the region near the high water line is marked by large diameter, unbranched step-like burrows, and the U and Y shapes found in high sloped beaches are absent.

A uniformity in the asymptotic nature of the juncture of the secondary arm with the primary arm of Y burrows found in the upper part of the foreshore slope of high sloped beaches has been noted. A mathematical analogy between the shape of the secondary arm of these Y burrows with the streak line of water seepage caused by wave uprush and its successive movement of the saturated-unsaturated boundary under a pressure head due to the capillary action of the water table has been attempted.

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Synonymy, Ethology, and Environmental Implications of *Nereites* Group of Trace Fossils

Members of the *Nereites* family consist of a median backfilled structure and lateral-worked-areas. The current, senior synonyms (Häntzschel, 1975) are *Nereites* MacLeay 1839, *Helminthoida* Schafhäutl 1851, *Phyllodocites* Geinitz 1867, *Scalarituba* Weller 1899, *Neonereites* Seilacher 1960, and *Palaeohelminthoida* Ruchholz 1967.

The main, fundamental difference between different family members appears to be that in some the backfilled area consists of a continuous fecal string (e.g., *Helminthoida*) and in others it is a meniscate alternation of coarse and fine (fecal) sediment (e.g., *Scalarituba*). The second fundamental difference appears to be behavioral (≈environmental); some forms are tight, grazing patterns (most *Helminthoida*, *Palaeohelminthoida*, *Nereites*) and others are loosely-looping grazing patterns (*Scalarituba*, some *Helminthoida* and *Nereites*). The least important difference appears to be preservational; it depends on a top view (*Phyllodocites*, *Nereites*), interlaminar views (*Scalarituba*, *Palaeohelminthoida*, *Neonereites*?), or bottom (or low-in-the-structure) view (*Neonereites*).

Based on the difference in the median structure, *Nereites* and *Scalarituba* are probably the only two valid senior synonyms.

Nereites (≈*Helminthoida*) occurs in shallow shelf through abyssal environments. *Scalarituba* occurs in shallow shelf to probably no deeper than bathyal.

Nereites (≈*Helminthoida*) can be confused with simple backfilled tubes (usually fecal ribbons) because even in *Nereites*, the lateral-worked-areas are not always obvious. The use of *Cosmorhaphe* for simple fecal ribbons further confuses the nomenclature and is inappropriate because *Cosmorhaphe* is a hyporelief sand cast of a simple, open tube originally made in a mud substrate. *Nereites* can be confused with *Phycosiphon* where lateral-worked-area of the former and the spreite of the latter are not visible.

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Decompaction Technique Helps Correlation

As a result of differential compaction, the geometry of strata in a sedimentary basin changes continually during progressive burial. Shales and coals, in particular, undergo strong compaction relative to other lithologic units. A stratigraphic cross section constructed from present bed thicknesses may differ substantially from the cross section at the time of deposition. Therefore, decompaction study of cross sections helps stratigraphic correlation, especially in laterally intertonguing sequences of compressible and incompressible facies, and also helps define compaction-related structures.

The decompaction technique uses the porosity-depth curve of each lithology to calculate the thickness of each bed at a given burial depth; calculations and plotting are done by computer. The simplest way to visualize the technique is to consider that the stratigraphic section is moved up along the porosity-depth curve to any previous burial depth. When a bed reaches the surface, it is completely decompacted and recovers its maximum (initial) thickness. The decompaction technique may be difficult to apply where beds have undergone geopressuring or complex diagenesis.

Use of decompacted cross sections in Gulf Coast clastic sequences and in coal-bearing strata in Colorado results in more accurate and refined stratigraphic correlations. Precise correlation of sand, shale, and coal beds is economically significant, because the physical continuity of beds from one exploratory well to another is of the utmost importance in mining and petroleum geology.