NOTICE TO AUTHORS

Manuscripts submitted for publication in the JOURNAL should be sent to the Editor. Manuscripts must be approved by the Editor and the appropriate Section Editor for publication. Manuscripts should be submitted in duplicate, typed, double-spaced with wide margins, and with legends for figures typed on a separate page. Recent issues should be consulted with regard to matters of style. Each table should be placed on a separate sheet. Footnotes should not be used except very rarely. Greek letters and symbols should be avoided as much as possible. Each paper should be supplied with an abstract not to exceed 250 words. Photographs (black and white glossy prints) may be accepted as illustrations; however, line drawings and diagrams are preferable. Drawings should be made in India ink on wide paper or Bristol board. Articles and accompanying text, more than 2 illustrations can be published only with financial cooperation of the author.

A per page charge of $10.00 will be made to all contributors to help defray publication costs. A blank form for ordering reprints from the printer is enclosed with the galley proof. The cost of reprints is as follows:

<table>
<thead>
<tr>
<th>Quantity</th>
<th>Page Charge</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-4</td>
<td>$2.00/page</td>
</tr>
<tr>
<td>8-12</td>
<td>$1.50/page</td>
</tr>
<tr>
<td>12+</td>
<td>$1.00/page</td>
</tr>
</tbody>
</table>

The Tennessee Academy of Science in very unusual to include in its membership all teachers and professors of science, research workers in science both in educational institutions and industrial establishments, and all others who are interested in some phase of science.

The annual dues are $5.00 for members except teachers below the college level, whose dues is $2.00 per year. Students dues is $1.00 per year. Dues must be sent direct with your application for membership to the Secretary.

The Tennessee Academy of Science is a member of the American Association for the Advancement of Science.

Tennessee Academy of Science, 217 S. Main Street, Nashville, Tennessee

Tennessee Ornithological Society, Nashville, Tennessee
Bernard Astronomical Club, Nashville, Tennessee
Tennessee Science Teachers Association
Tennessee Psychological Association
Tennessee Junior Science and Humanities Symposium

OFFICERS

ROBERT E. MARTIN, President, UT, Cookeville 38501

JAMES D. CAPONETI, President Elect, UT, Knoxville 37916

GUS TOMLINSO, Editor, George Peabody College, Nashville 37203

ACHELLE NICHTS, Secretary, ETSU, Johnson City 37601

BART W. CLARE, Treasurer, UT, Chattanooga 37401

WENDELL SMITH, Smith, Scientific Field Station Lafitte, UT, Marion 38328

This Journal is abstracted by Biological Abstracts, Chemical Abstracts, and Nuclear Abstracts, and indexed by Science Citation Index.

FIG. 1: Location of roadcut exposure along U.S. 64, Sewanee, Tennessee.

FIG. 2: Location of roadcut exposure along Taft Highway, Signal Mtn., Tennessee.

FIG. 3: Generalized stratigraphic sequence in Southeastern Tennessee.
barrier bars, or splits. This complex prograded generally northward during Pennsylvania time.

Further, it appears that this dolostic complex in Alabama was dwarfed by a much larger dolostic mass that encompassed the modern geographic area of eastern United States, which includes a large part of the states of Pennsylvania and West Virginia, plus part of eastern Ohio, western Virginia, eastern Kentucky and Tennessee, northeastern Alabama, and northwestern Georgia (Fern, Milici, Eason, and others, 1972). Therefore, it is suggested that this eastern United States-Pennsylvania dolostic complex gradually encroached to the northwest, west, and southwest (Fig. 4).

Figure 4. Generalized model of Marginal Marine-Dolostic system deposited in eastern United States during Pennsylvania period.

Thus, two masses of dolostic sediment were depositing at essentially the same time during the Pennsylvania Period. Further, one was building generally northward and the other generally westward. Therefore, it follows that they should overlap in a given area, during a given time. According to John Fern (personal communication), the area of overlap is in the vicinity ofCullinan, Alabama.

Pennsylvania Sandstone Bedforms

David Hobday (1964) defined and supported the marginal marine portion of the regional model suggested by Fern and Ehrlich (1967), by distinguishing a number of bedforms in Pennsylvania sandstone units. In order to communicate readily with other geologists, Hobday arbitrarily assigned letter designations to various bedforms.

Of particular interest are the megagap troughs, described in which Hobday considered as fissures or "b" beds. B beds have curved bases that are concave upward and are filled with cross-beded, laminated sandstone. These deposits may range from several to tens of feet in length and may show a wide range in degree of concavity of the base. Hobday considered B beds to have formed on shoals, slope tidal flats, or by longshore currents moving essentially perpendicular to beachface deposits.

Joplimg Model

A. V. Joplimg (1965-A) used a laboratory study of fluid flow over a forest slope to develop a sedimentational model (Figs. 5-A, 5-B). Figure 5-A indicates the hydrodynamic flow model of Joplimg where three different hydrodynamic zones have been recognized: 1. Zone of no diffusion 2. Zone of mixing 3. Zone of transport (Fig. 5-A).

Notice that the three different hydrodynamic zones have been recognized: 1. Zone of no diffusion 2. Zone of mixing 3. Zone of transport (Fig. 5-A).

Zone of No Diffusion—This zone is characterized by a remnant stream flow (remnants expanding jet flow) that carries suspended sediment over and beyond the lee slope. Zone of Mixing—The fluid in this zone contains vortices, or eddies, and displays rapidly changing longitudinal velocity.

Zone of Backflow—This zone shows a return flow, usually referred to as re-circulation, or backflow; i.e., a counter current forms and flows along a depositional interface and up a forest slope. Figure 5-B shows a bedform model in which three types of lee slope bedforms have been observed: 1. Forest (tabular or planar) crossbeds. 2. Toilet beds. 3. Bottomset beds, with or without asymmetrical small ripples.

B. Bedform model

FIG. 5: Sedimentation model of Joplimg (1965-A). Forests (Tabular, Planar) Crossbeds—In general, these are coarse-grained, laminated units formed by bed load material avalanching down the lee slope. When well developed, they interact the depositional interface at steep angles (up to 35°).

Toilet Beds—These units join forest and bottomset beds and consist of a mixture of particles that both avalanching down the lee slope and settled out of the base of backflow. Bottomset Beds—In general, bottomsets are fine-grained than forests and forest due to the large suspension deposition that accumulated in the zone of backflow. Further, small, asymmetrical current ripples (backflow ripples) may form on the upper surface of bottomset beds. This is taken as evidence of the presence of a backflow current.

FIG. 6: Western end of roadcut in Pennsylvania Se- water Conglomerate along U.S. 64, Seawance, Tennessee.

As previously stated, forest beds tend to be coarse grained because they form by bed load particles avalanching down megaporous lee slopes, whereas bottomset beds tend to be fine grained because they form by suspension sedimentation in the zone of backflow.

Figure 7 shows the location of channel samples (4) of forest and bottomset beds which were sieved in order to check the relationship of bedform and grain size.

Data on Table 1 verify that these bottomset beds are finer grained than the forest beds. In addition, Figure 7 shows the location of dip direction readings on cross-beds in this exposure near Seawance, Tennessee. Figure 8 summarizes these data and indicates that the general direction of sediment transport in this outcrop was between 50°-60° to the southwest.
Jones supported the marginal marine model of Form, Milici, Easco and others (1972) and indicated that the regional direction of sediment transport was to the south and southwest.

Exposure on Signal Mountain, Tennessee

Figure 9 (A-B) shows two views of a single megaripple trough-filling in the Warren Point Sandstone (Fig. 1) located near the junction of Tn Route 49 and Shoal Creek Road, Signal Mountain, Tennessee (Fig. 2). Figure 9A indicates the larger of the two views that is essentially parallel to Tn Route 49 and has a northwest azimuth. It shows part of the concave base of this very large megaripple. At first sight, it would appear that this view shows steeply dipping forest cross-beds that formed parallel to a southeasterly paleocurrent flow; however, such is not the case.

The view on Figure 9B is essentially perpendicular to the view on Figure 9A and the azimuth of this rock face is toward the southwest. This view shows forest, tosseet and bottommost trough-filling dipping to the southwest which is arranged in a cyclical or repetitive sequence reminiscent of the exposure near Sewanee, Tennessee. However, here the cross-beds contain no dunes or pebbles; the bottomset beds have asymmetric back-flow ripples on their upper surfaces and the trough fill is not as great in addition, visual inspection of the surface of this hill shows that the forest beds are coarser grained than the bottomset beds.

Presumably this view shows lee slope-cross-beded deposits that formed essentially parallel to paleocurrent flow.

LITERATURE CITED


REFERENCES

The study of the megaripple features and the shape of submarine bars indicates a hydraulic flow which is essentially parallel to the paleocurrent flow and is dominated by the hydraulic factors that control the shape of submarine bars.

SUMMARY AND CONCLUSIONS

It is suggested that the unusual roadcut exposures examined in this study support and verify laboratory studies of Alan V. Jolling on lee slope deposition.

 Further, it is likely that these unusual exposures present a view of bedforms that were deposited essentially parallel to the direction of flow of Pennsylvanian paleocurrents.

 Most outstanding views of Pennsylvanian megaripple trough-filling are likely at an oblique angle to paleocurrent flow, it should be possible to ascertain the sequence pattern of trough filling is difficult.

 However, armed with information derived from trough-filling that likely formed parallel to paleocurrent flow, it should be possible to ascertain the sequence of megaripple filling, or formation, in most Pennsylvanian megaripple troughs no matter which view of the trough fill is presented.

 Finally, several statistical studies, such as the one by M. L. Jones (1972), of the dip direction of Pennsylvanian cross-beded units have been made in order to determine regional or local direction of sediment transport. Presumably, these statistical studies include the dip direction of trough-filling based on the idea that, with large numbers of readings, an average value may be used to interpret sediment transport direction.

 However, the authors maintain that if one is able to examine any view of Pennsylvanian megaripple trough-filling and utilize the ideas presented in this paper, then one should be able to determine the sequence, or pattern, of trough filling. Therefore, there should be some data that can enable one to indicate the direction of ancient sediment transport with greater precision (Fig. 8) than the statistical approach based on averages.

 Apparently, this problem in sedimentation is similar to a structural geology problem involving determination of true versus apparent dip.

 ABSTRACT

 This report provides an indexed account to biographies in serial publications of the Tennessee Academy of Science. To demonstrate the utility of biographies, the index was scanned for information on the leadership of the Tennessee Academy of Science. These are distinct time related trends in Academy leadership.

 INTRODUCTION

 Serial publication of the Tennessee Academy of Science contains a wealth of biographical material. From the first volume of BAINES' Journal, published in 1912, through the close of volume 50 of the Journal, in 1975, the Academy's serial publications contain 147 biographical articles that deal with 113 people. Most articles are necrologies or the personal sketches that customarily introduce new officers of the Academy. All biographical articles are designed to preserve a record for posterity, but they are rarely cited in later articles and brief biographical sketches get lost in the thousands of pages the Academy has published since 1912. To make 147 published biographies useful, a summary seems essential.

 Each person treated biographically in an Academy serial is listed below in alphabetical order. Unless otherwise indicated, the people listed worked in Tennessee and were professional scientists with normal academic credentials. When possible, each person is identified with at least one academic discipline and further data are provided on fields of employment and roles in the Academy.

 Allison, Henry C. (1946). Physics and mathematics; educator; University of Tennessee; Vanderbilt University; Nashville; Tennessee; Illinois.

 Bam, William C. (1948). Biology; Educator; University of Tennessee; Nashville; Tennessee; Illinois.

 BAKER, FRANK HUNT, President 1960; Biology; Educator; Anesthesiologist; University of Tennessee; Nashville; Tennessee; Illinois.

 BAINES, CECIL MCCUTCHEON, President 1916, original member; Biology; Educator; University of Tennessee; Nashville; Tennessee; Illinois.

 BARCLAY, WALTER, 1911, news editor, beginning 1917; Chemistry and physics; Educator; Anesthesiologist; University of Tennessee; Nashville; Tennessee; Illinois.

 BAKER, FRANK HUNT, President 1960; Biology; Educator; Anesthesiologist; University of Tennessee; Nashville; Tennessee; Illinois.

 BAINES, CECIL MCCUTCHEON, President 1916, original member; Biology; Educator; University of Tennessee; Nashville; Tennessee; Illinois.

 BAINES, CECIL M. (1946). Biology; Educator; University of Tennessee; Nashville; Tennessee; Illinois.

 BARTON, SAMUEL M. (1940). Biology; Educator; Anesthesiologist; University of Tennessee; Nashville; Tennessee; Illinois.

 BARKER, ROBERT, 1911, President 1923, November 23; Biology; Educator; University of Tennessee; Nashville; Tennessee; Illinois.

 BARTOW, DOUG RAYMOND, Biology; Educator; Directors; University of Tennessee; Nashville; Tennessee; Illinois.

 BAY, WILLIAM C. (1948). Biology; Educator; University of Tennessee; Nashville; Tennessee; Illinois.

 BAY, WILLIAM C. (1948). Biology; Educator; University of Tennessee; Nashville; Tennessee; Illinois.

 BAY, WILLIAM C. (1948). Biology; Educator; University of Tennessee; Nashville; Tennessee; Illinois.

 BAY, WILLIAM C. (1948). Biology; Educator; University of Tennessee; Nashville; Tennessee; Illinois.

 BAY, WILLIAM C. (1948). Biology; Educator; University of Tennessee; Nashville; Tennessee; Illinois.

 BAY, WILLIAM C. (1948). Biology; Educator; University of Tennessee; Nashville; Tennessee; Illinois.

 BAY, WILLIAM C. (1948). Biology; Educator; University of Tennessee; Nashville; Tennessee; Illinois.

 BAY, WILLIAM C. (1948). Biology; Educator; University of Tennessee; Nashville; Tennessee; Illinois.

 BAY, WILLIAM C. (1948). Biology; Educator; University of Tennessee; Nashville; Tennessee; Illinois.

 BAY, WILLIAM C. (1948). Biology; Educator; University of Tennessee; Nashville; Tennessee; Illinois.

 BAY, WILLIAM C. (1948). Biology; Educator; University of Tennessee; Nashville; Tennessee; Illinois.

 BAY, WILLIAM C. (1948). Biology; Educator; University of Tennessee; Nashville; Tennessee; Illinois.

 BAY, WILLIAM C. (1948). Biology; Educator; University of Tennessee; Nashville; Tennessee; Illinois.

 BAY, WILLIAM C. (1948). Biology; Educator; University of Tennessee; Nashville; Tennessee; Illinois.

 BAY, WILLIAM C. (1948). Biology; Educator; University of Tennessee; Nashville; Tennessee; Illinois.

 BAY, WILLIAM C. (1948). Biology; Educator; University of Tennessee; Nashville; Tennessee; Illinois.

 BAY, WILLIAM C. (1948). Biology; Educator; University of Tennessee; Nashville; Tennessee; Illinois.

 BAY, WILLIAM C. (1948). Biology; Educator; University of Tennessee; Nashville; Tennessee; Illinois.

 BAY, WILLIAM C. (1948). Biology; Educator; University of Tennessee; Nashville; Tennessee; Illinois.

 BAY, WILLIAM C. (1948). Biology; Educator; University of Tennessee; Nashville; Tennessee; Illinois.

 BAY, WILLIAM C. (1948). Biology; Educator; University of Tennessee; Nashville; Tennessee; Illinois.

 BAY, WILLIAM C. (1948). Biology; Educator; University of Tennessee; Nashville; Tennessee; Illinois.

 BAY, WILLIAM C. (1948). Biology; Educator; University of Tennessee; Nashville; Tennessee; Illinois.

 BAY, WILLIAM C. (1948). Biology; Educator; University of Tennessee; Nashville; Tennessee; Illinois.

 BAY, WILLIAM C. (1948). Biology; Educator; University of Tennessee; Nashville; Tennessee; Illinois.

 BAY, WILLIAM C. (1948). Biology; Educator; University of Tennessee; Nashville; Tennessee; Illinois.

 BAY, WILLIAM C. (1948). Biology; Educator; University of Tennessee; Nashville; Tennessee; Illinois.

 BAY, WILLIAM C. (1948). Biology; Educator; University of Tennessee; Nashville; Tennessee; Illinois.

 BAY, WILLIAM C. (1948). Biology; Educator; University of Tennessee; Nashville; Tennessee; Illinois.

 BAY, WILLIAM C. (1948). Biology; Educator; University of Tennessee; Nashville; Tennessee; Illinois.

 BAY, WILLIAM C. (1948). Biology; Educator; University of Tennessee; Nashville; Tennessee; Illinois.

 BAY, WILLIAM C. (1948). Biology; Educator; University of Tennessee; Nashville; Tennessee; Illinois.

 BAY, WILLIAM C. (1948). Biology; Educator; University of Tennessee; Nashville; Tennessee; Illinois.

 BAY, WILLIAM C. (1948). Biology; Educator; University of Tennessee; Nashville; Tennessee; Illinois.