Cash Balance, Dec. 31, 1958		
Current Fund 1st American Nat'l, Nashville	434.17	
Current Fund, Home Fed. Savings & Loan, Knoxville	1195.99	
Life Membership Fund, Fid. Fed. Sav. & Loan, Nashville	682.10	
Endowment Fund, Third Nat'l Bank, Nashville	400.80	
TOTAL		2713.06
GRAND TOTAL		$5790.46

Respectfully submitted,
HARRIS J. DARK, Treasurer

The Auditing Committee of the Tennessee Academy of Science has examined the books of Harris J. Dark, Treasurer, and found them to be correct and in order for the year 1958.

DATE: January 19, 1959

ERNEST A. JONES—CARL M. HILL
Auditing Committee

SOME FOSSILS FROM THE MAURY FORMATION, DE KALB COUNTY, TENNESSEE

JOHN M. KELLBERG[1] AND STUART W. MAHER[2]

The writers recently submitted three collections of fossiliferous phosphatic nodules from the base of the Maury formation, De Kalb County, Tennessee, to the U. S. Geological Survey. Through the courtesy of Messrs. D. H. Dunkle of the U. S. National Museum, and W. H. Hass and Mackenzie Gordon of the U. S. Geological Survey, the material has been studied and identified. As megafossils are rare in the Maury formation, and as the age and correlation of the formation are of much interest, these determinations are reported on herein.

The writers wish to express their deepest appreciation to the above for making this report possible and for reviewing the manuscript, and to Messrs. C. P. Benziger and R. W. Allen, formerly on the staff of the Geologic Branch, Tennessee Valley Authority, for making the collections with the senior author.

The Maury was named for exposures in Maury County by Safford and Killebrew (1900, p. 104, 141-143). However, lack of an adequate exposure in this area led Hass and others to designate an exposure near Cross Key, Williamson County, as the standard section (Hass, W. H., 1956, p. 23).

The Maury generally consists of a few feet or less of gray to green and grayish-yellow mudstone. Many outcrops show a concentration of phosphate nodules at the base. At some places (e. g. standard section of the Maury) there are concentrations or courses of nodules above the base.

[1] Geologist, U. S. Tennessee Valley Authority
[2] Principal Geologist. Tennessee Division of Geology

The Maury overlies the Chattanooga shale and locally rests disconformably on still older units. In exposures where the Ft. Payne chert overlies the Maury, the contact is generally sharp, but in sections where the overlying beds are the New Providence shale facies, the top is indefinite.

Hass (1956, p. 23, 24) recently studied some conodonts from the Maury. He concluded that the Maury is chiefly of Kinderhook age but that locally the topmost beds may be of Osage age; Hass also stated that the basal few tenths of a foot of the Maury along the Eastern Highland Rim in north-central Tennessee is of very late Devonian age because his collections from these basal beds contain conodonts like those in the youngest beds of the underlying Chattanooga shale but lack those considered characteristic of the early Missippian.

The relocation of Tennessee Highway 26 affords a new exposure of the Maury formation and Chattanooga shale three miles east of Dowelltown, De Kalb County. This exposure is near the type section of the Dowelltown member of the Chattanooga (Campbell, Guy, 1946, p. 886; Hass, 1956, p. 13). The Maury in this exposure is about 4.5 feet thick with a zone of large phosphate nodules in the basal 0.3 foot. Nodules from this basal zone yielded the following fossils:

Vertebrates (D. H. Dunkle):

Fragments of cartilage probably from chondricthyian or acanthodian fish.

Fragments of osseous tissues possibly from the dermal armour of arthrodiran fish or spines of sharks.

A dental plate suggesting *Chonchodus* or *Synthetodus,* problematic lung fishes.

Indeterminate fragments of paleoniscoid fishes.

Conodonts (W. H. Hass):

Hindeodella sp. (2 specimens)
Siphonodella sp. (6 specimens)

Hass (pers. comm., March, 1957) regards *Siphonodella* as indicating a Kinderhook age and thus assigns the bed from which the conodonts came to the Kinderhook. Dunkle (pers. comm., March, 1957) finds the vertebrates to be close to the Devonian-Mississippian boundary. This collection is too fragmentary to permit definitive assignment. Dunkle comments that the dental plate, which he tentatively refers to the problematic lung fishes, is of Devonian aspect; whereas the paleoniscoid scales are of Mississippian aspect.

A collection from similar nodules at the base of the Maury exposed on Tennessee Highway 26, 0.5 mile west of the bridge

over Center Hill Reservoir (Caney Fork), De Kalb County, contained:

Conodont (W. H. Hass):
Spathognathodus cf. *S. inornatus* (Branson & Mehl) (one specimen)
Cephalopods (MacKenzie Gordon):
Imitoceras n. sp.
Merocanites sp.

Hass comments (ibid) that in central Tennessee *S. inornatus* is suggestive of the very late Devonian. However, Gordon (pers., comm., March, 1957) says that in the United States *Imitoceras* "is known in the Kinderhook and lower part of the Osage but is not known below the Mississippian," though it occurs in the Upper Devonian in Germany. Gordon states that in America *Merocanites* "appears to be limited to beds of Osage age," and adds that the genus is "reported from the Knobstone of Indiana, the Reeds Spring chert member of the Boone formation of Missouri, and the Marshall sandstone of Michigan." He further comments: "The two goniatites, provided that both were found at the same stratigraphic level, indicate an early Osage age for the beds that enclosed them."

The third collection consisted of phosphate nodules from the bases of the Maury exposed along Tennessee Highway 26, 0.5 mile east of Center Hill Reservoir (Caney Fork), De Kalb County. This is the standard section of the Chattanooga shale (Haas, W. H., op. cit., p. 12).

Vertebrates (D. H. Dunkle):
Indeterminate paleoniscoid fish scales, teeth, and bones.
Tooth of a pleuropterygian shark, referred to *Cladodus*.
Dissociated scales, possibly from an acanthodian fish.
Conodonts (W. H. Hass):
Hindeodella sp. (one specimen)
Polygnathus sp. (one specimen)

Both Dunkle and Hass consider these materials as indicative, but not definitive, of Late Devonian or Early Mississippian age.

These determinations indicate the difficulty of fixing the Mississippian-Devonian boundary in Tennessee, and emphasize the problem of the age assignment for the Maury formation and the Chattanooga shale. The paleontological data cited herein indicate that the Maury may be partly very late Devonian but chiefly Early Mississippian (Kinderbrook), though locally it may be even as young as Osage.

REFERENCES CITED

Campbell, Guy. 1946. *New Albany Shale,* Geol. Soc. of Amer. Bull., vol. 57, p. 829-908.

Hass, W H. 1956. *Age and Correlation of the Chattanooga Shale and the Maury Formation,* U. S. G. S. Prof. Paper 286, 45 pages.

Safford, J. M., and Killebrew, J. B. 1900. *The Elements of the Geology of Tennessee,* 264 pages.