PERSPECTIVE ON NORTH AMERICAN MALACOLOGY I. MOLLUSKS IN THE ALABAMA RIVER DRAINAGE; PAST AND PRESENT

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Introduction

The rapid loss of the biota in many drainage systems has been of great concern, especially as it relates to such benthic animals as the very rich and unique mussel fauna of the Alabama River drainages. Modern developments potentially affecting such rivers have now become of immediate concern. To understand the impact of these changes this assessment is given, based in part on the excellent collections made by Herbert Huntington Smith. He was employed by the Alabama Museum of Natural History at Tuscaloosa. For about twenty years he and his wife, Daisy, were sponsored by a "Syndicate" organized and encouraged largely by Dr. Bryant Walker, a Detroit lawyer, who had a private mollusk museum. The collaboration of Bryant Walker with Dr. Arnold Edward Ortmann of the Carnegie Museum in Pittsburgh was unusually close. Much of what is known about the systematics of mussels is due to their collective efforts. The historical records that follow are a tribute to their work and these data should serve as a basis for assessing the changes that have come about in this river system since the turn of the century.

The late Henry A. Pilsbry, for many years recognized as the dean of American malacology, stated in a review of Bryant Walker's book entitled, *The Terrestrial Shell-Bearing Mollusca of Alabama (1930: 105):*

> "I doubt whether any state in the Union has been worked more thoroughly and systematically than Alabama, by Mr. Smith's assiduous collecting. He not only personally collected over a very large part of the state, both north and south, but through local collectors, many of them trained by him, he reached into many localities that he did not personally visit."

In this book Bryant Walker gave the following information on what was known as the "Syndicate" - a group formed by Dr. Walker and supported by him to sustain H. H. Smith over a twenty-year period as a professional collector responsible for collecting an amazing amount of mollusk specimens. Walker (1928) wrote:

> "Mr. Smith began to collect for Dr. Clapp in 1903. In 1904 he organized a 'Syndicate' for the systematic prosecution of the work. This at first consisted of Mr. T. H. Aldrich, Dr. George H. Clapp, Dr. H. A. Pilsbry, and the writer. Dr. Pilsbry dropped out in 1906 and his place was taken by the late John B. Henderson, Jr. In 1908, Mr. Aldrich retired and the work for that year was carried on by Clapp, Mr. Henderson and myself. The Syndicate ceased to function at the end of that year and after that time Mr. Smith collected land shells for Dr. Clapp and the Alabama State Museum until his death in 1920."

The results of the work on mussels by key people in the Syndicate as reported here are essentially the efforts of Bryant Walker, who financed and encouraged Mr. Smith, A. E., Ortmann who collaborated with Walker until the time of his death in 1927, and George H. Clapp, the recipient and student of the land snails. We are indebted to Dr. Clapp (1920) for the following evaluation of the excellent surveys made in Alabama by H. H. Smith:

> "The sudden death of Herbert Huntington Smith on March 22nd, at University, Alabama, meant more, perhaps, to the conchologists of the United States than we now realize, although the collecting and serious study of shells was the work of the later years of his life."
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> " . . .In 1903 his health still being poor, he gave up the fight, and resolved to go to the South to live. He settled in Wetumpka, Ala., and at once started after shells. His first collecting there, so different from work in the tropics, was rather disheartening, and he wrote that there were no shells in that region. A little later he began to get results, and then he wrote, 'I didn't know how to collect,' and when the first lot came in, it was seen that he had struck a remarkably rich region. Than a 'Syndicate' was formed of T. H. Aldrich, of Washington, D. C., Mr. Bryant Walker, of Detroit, Dr. H. A. Pilsbry, of the Acadamy of Natural Sciences, Philadelphia, Pa., and the writer, and the work was carried on steadily over six years. Dr. Pilsbry dropped out in 1906, and he was replaced by Mr. John B. Henderson, of Washington, D. C."
>
> "The naming and distribution of thousands of land shells collected in all parts of Alabama, fell to the part of the writer, and the new species have all been described by him; 13 species and 4 varieties up-to-date, with probably several more to follow, as the material is more carefully studied. After the regular work of the 'Syndicate' was stopped. Mr. Smith continued collecting freshwater shells for Mr. Walker, and land shells for the writer, while collecting Tertiary fossils for the Geological Survey of Alabama, by which he was employed as Curator of the Museum at the University of Alabama. The sorting, naming and distributing of the fresh-water shells, was done by Mr. Walker, and I cannot do better than quote from a letter from him, on this subject:
>
> 'I enclose the meager list of n. sp. and vars. that have been described from Mr. Smith's material. But that does not begin to show the enormous amount of work that he did in developing the fauna of Alabama. Besides going the whole length of the Coosa from Gadsden to Wetumpka by boat, he did the Black Warrior thoroughly before it was spoiled by the Government improvements (?) and spent the season on the Mussel Shoals of the Tennessee. Two or three summers were spent on the Connasauga and other head-waters of the Coosa, in numerous side trips he had covered practically the whole state. Then, too, through

local collectors, many of them trained by him, he had reached into many localities that he did not personally visit. By these means he collected an enormous amount of material, practically none of which has been worked up.'

'While he worked for the 'Syndicate' he collected everything; but when that arrangement ceased, he specialized in the Unionidae and Pleuroceridae. I have not any very accurate figures on the number of specimens of Unionidae that he collected, but I think that from 40,000 to 50,000 would not be an overestimate. His Black Warrior collection alone he reported as 10,000. No report of this material has ever been made, and a very large proportion of it still remains to be worked over. This I shall do as rapidly as I have time. I also have on hand many thousands of specimens of Amnicolidae that have not yet been sorted out. And the same is true of a very large amount of Ancylidae from the Coosa and its tributaries.'

'But it was especially in the *Pleuroceridae* that he put in his best work. He became exceedingly interested in that family and the many perplexing problems that its protean species presented, and it was his expectation to work it up himself. The enormous collection, thousands upon thousands of specimens, and the familiarity that he had acquired in his many years of field work, especially fitted him for the work. But unfortunately the multitude of duties pressed upon him, as Curator of the State Museum, prevented him from carrying his plan to execution. He had planned to publish a paper on the *Anculosae* of the Coosa for some time, and expected to write it up this last spring. He had gone so far as to arrange a series of the species in the order that he intended to present them, but his untimely death prevented the completion of the work. Beyond this, and a somewhat similar arrangement of the *Gyrotomas,* nothing has been done and, except the manuscript names attached to many species that he believed to be new, and which he intended to describe, there is absolutely nothing left to show the vast knowledge that he had acquired of that marvelous fauna. He had it all in his brain, and it all perished with him. I do not suppose that any other man ever had such an intimate knowledge of the variation in that family, and to think that it it all gone, is truly pitiful.'

Clapp, in this article, gave a list of the species described by him and others which were collected in Colombia and Alabama.

The life and work of H. H. Smith was also the subject of an article by Dr. W. J. Holland. George Clapp reviewed it, as follows:

"Dr. W. J. Holland, Director of the Carnegie Museum, Pittsburgh, has written a very appreciative article on the life and work of Mr. Smith, in Science, N. S. Vol. XLIV, No. 1273, pages 481-483, May 23, 1919, where other fields of activity are touched upon; but to cover the whole subject whould demand a volume. It is to be regretted that Mr. Smith was not able to carry out a plan he long had in mind, of working up his extensive series of notebooks into a story of his life as a collector, at it would have been an inspiration to future collectors, and would, I feel sure, have been worthy to place alongside of the classic works of Bates and Wallace, He was a remarkably keen observer, as shown by his letters, so his notebooks undoubtedly contained a vast amount of most valuable observations. Even when feeling 'down in his luck,' he always saw the funny side of life, and had a large stock of humerous stories, which he would frequently insert in his letters, for no other reason, apparently, than that he just happened to think of them."

Pilsbry (1930) in reviewing Walker's "The Terrestrial Shell-Bearing Mollusca of Alabama" also gave an excellent appraisal of Smith's work, as follows:

"Herbert H. Smith, assisted by his talented wife, collected mollusks in Alabama from 1903 until his death in 1920. In this rich field, which had been worked over in places by Conrad and Showalter and other correspondents of Dr. Isaac Lea, Smith covered the ground much more effectively, collecting not only copious materials for elucidating the old species, but also many new forms of the greatest interest. Many of the discoveries were published from time to time in the Nautilus and elsewhere, by Walker and G.H. Clapp, and Goodrich has worked on the Pleuroceridae. Now we have a treatise on the land shells of the state from Bryant Walker's capable pen."

While Dr. Bryant Walker did publish a monumental work on the land shells of Alabama, he did not complete a study of longstanding on the mussels which he planned to publish later as is evident in voluminous notes he left in manuscript form. That he had a thorough understanding and was prepared to publish what he knew about the naiades of the state is shown in the abstract (Walker, 1918 20th Mich Aead Sci Rept.)*

*Editors Note: This paper will be reprinted in the next issue of Sterkina, as it is generally unavailable.

Bryant Walker was without question one of the most outstanding among American malacologists. He was a lawyer by profession but spent much of his time working in his private museum in Detroit on mollusks. He was outstanding in civic affairs and was able to build his museum by amassing large collections from others. His holdings, when they came to the Museum of Zoology at the University of Michigan in 1936, contained more than a hundred thousand lots — twice in size to that in the Museum's Mollusk Division at that time. In addition to his 155 publications he was instrumental in sponsoring and publishing Charles Torrey Simpson's Descriptive Catalog of the Naiades in 1914. Simpson brought this manuscript to a close in 1902 and the many changes and additions that were made to it later were made by Bryant Walker. Simpson requested that Walker "attach his name as one of the authors, but this he was unwilling to do, so the thing came out under my name."

Bryant Walker (1918) did make available in broad context the relation of the Alabama mollusk fauna to that of North America in a monumental work with the title: "Synopsis of the Classification of the Fresh Water Mollusca of North

America, North of Mexico, and A Catalogue of the More Recently Described Species, with Notes."

H. A. Pilsbry (1919) reviewed this work indicating its timeliness by way of bringing together much loose material from old manuals and the importance of such a handbook as a concise and valuable reference. He stated:

"Students of North American fresh-water mollusks of this generation have had as a basis the invaluable manuals by W. G. Binney, Prime and Tryon, issued by the Smithsonian Institution, 1865-73, and the works of Lea on Unionidae, of about the same date. Some single groups have been elaborately treated since, the Uniones by Simpson, the Lymnaeidae by Baker; but most of the progress in the last fifty years has been recorded in a host of papers, by many authors and in many journals. To systematize this material and make it readily accessible, Dr. Walker has prepared this synopsis of the classification as understood today, giving definitions of families, genera and minor groups, with figures of types or typical species of each, frequently also of anatomical structures important in classification."

"The second paper is devoted to species published since the appearance of the monographic works alluded to above, together with those omitted, formerly misunderstood, or concerning which there had been diversity of opinion. The great utility of such a catalogue will be apparent."

"Together, these papers give a most interesting epitome of the progress made by the present generation in the study of our fresh-water mollusks, so far as classification and description are concerned. Dr. Walker's long familiarity with the subject enables him to present it lucidly and completely."

In addition to Walker's important role in gaining knowledge of the mollusks of Alabama, the work of A.E. Ortmann is foremost particularly in relation to his studies of the mussel there. Ortmann and Walker collaborated in an exemplary way as is evident in an article with the title, "Arnold Edward Ortmann as Revealed by His Letters" (van der Schalie, 1951). Pilsbry (1927) gave a good appraisal of Ortmann's work with the Unionidae, as follows:

"American science has suffered a serious loss in the death at Pittsburgh of Dr. Arnold E. Ortmann, January 3 of this year, in his sixty-fourth year of his age."

"In Ortmann's work on zoogeography he left aside the birds and the mammals which had served for the greater part of previous works, and devoted himself to the evidence of aquatic invertebrates. An intimate and exact knowledge of several great groups, and logical marshaling of the facts characterize his papers on this subject . . . His investigations extended from the Ohio system to all the riviers of the eastern United States from New England to the Carolinas and a partial exploration of the rivers of Georgia, Alabama and Mississippi. His researches have thrown a great deal of light upon the geology and transformations of the rivers of the eastern half of the United States. In the morphology and classification of Unionidae he was soon recognized as the chief American authority. He continued and greatly extended the system, which he took up where Simpson's great work left it; and he has set a high standard for future workers on this subject. One of his great services was the work on unionid gill structure."

". . . His enthusiasm for natural history was contagious, and contributed larely to his success as a teacher. He possessed the ability in an unusual degree of concentrating all of his powers on the subject on hand. In the field he was indefatigable, never sparing himself, deterred by neither exposure or fatigue in the quest for specimens for his researches."

"The thorough acquantaince of both authors with the subject, their fair and comprehensive consideration of each case, with due reference to the International Rules of Nomenclature, should entitle their conclusions to general acceptance. It is to be hoped that this essay will tend to uniformity in matters of mere nomenclature, so that the energies of our Unio students can be more fully devoted to the many unsolved questions of structure, development and distribution of these most interesting mollusks."

Mussel Systematics. Even a cursory examination of modern lists of mussel species given for river systems will reveal inconsistencies in the use of the names applied to some of the species. For example, in the list by Yokley (herewith appended) *Toxolasma* is used rather than *Carunculina; Potamilus* replaces *Proptera; Epioblasma* represents *Dysnomia.* This apparent inconsistency is not new and the history of the difficulty was reviewed by van der Schalie (1952) in an article with the title, "An Old Problem in Naiad Nomenclature." A.E. Ortmann and Bryant Walker (1922) produced a monumental study to clarify the use of poorly described Rafinesque species. Unless modern systematice workers are willing to accept their scholarly and painstaking efforts it is not likely that those not familiar with mussel systematics can fully understand that species they earlier knew under a given name are now suddenly appearing as something under another label. In this report the work of Ortmann and Walker (1922) will be followed and the changes suggested elsewhere will not be considered as valid, particularly since the use of the names substituted have usually not been justified by documented evidence as were those in the Ortmann and Walker revision. As to the importance of their work, the following brief review (Anonymous, 1922) clearly indicates a course that would be most helpful in this time when coordination of efforts is so much needed:

On the species level *Lampsilis anodontoides* may appear in lists as *Lampsilis teres; Actinonaias carinata* as *A. ligamentina; Lampsilis siliquoidea* as *L. luteola; Amblema costata* as *A. plicata;* etc. Some of these names were adopted from the revision published by L. S. Frierson (1927) in which he avoids any mention of the earlier work of Ortmann and Walker (1922). It was shown (van der Schalie, 1952) that Ortmann and Walker tried to have Frierson work with them in resolving the difficulties posed by Rafinesque's poor descriptions, but Frierson's published check list where adopted will continue to introduce other names.

TABLE I

A list of the Naiads in the Tombigbee River exclusive of its tributaries (from Yokley, 1975)

Species	Hinkley 1906	Van der Schalie 1939	Yokley & Gooch 1974
Strophitus tombigbeensis Lea	Yes	Yes	Yes
Arcidens confragosus Say	Yes	Yes	Yes
Lasmigona complanata Barnes	Yes	No	Yes
**Megalonaias gigantea* Barnes	No	Yes	Yes
**Plectomerus dombeyana* Val.	Yes	Yes	Yes
**Tritogonia verrucosa* Raf.	No	Yes	Yes
**Quadrula aspera* Lea	Yes	Yes	Yes
**Quadrula rumphiana* Lea	Yes	Yes	Yes
**Quadrula metanevra* Raf.	Yes	Yes	Yes
**Quadrula stapes* Lea	Yes	Yes	Yes
**Quadrula asperata* Lea	Yes	Yes	Yes
**Amblema plicata perplicata* Conrad	Yes	Yes	Yes
**Fusconaia ebena* Lea	Yes	Yes	Yes
**Fusconaia rubida* Lea	Yes	Yes	Yes
Pleurobema decisum Lea	Yes	No	Yes
Pleurobema marshalli Frierson	No	Yes	Yes
Pleurobema nucleopsis Conrad	Yes	No	Probably
Pleurobema bulbosum Lea	Yes	No	Yes
Pleurobema nux Lea	Yes	No	Yes
Pleurobema taitianum Lea	Yes	No	Yes
Pleurobema curtum Lea	Yes	No	Yes
**Elliptio crassidens* Lam.	Yes	Yes	Yes
Elliptio arctatus Conrad	Yes	Yes	Yes
Elliptio dilatatus Raf.	Yes	Yes	Yes
**Obliquaria reflexa* Raf.	Yes	Yes	Yes
**Plagiola lineolata* Raf.	Yes	Yes	Yes
**Obovaria unicolor* Lea	Yes	Yes	Yes
Obovaria sp.	Yes	Yes	Yes
Truncilla truncata Raf.	Yes	Yes	No
**Truncilla donaciformis* Lea	Yes	Yes	Yes
**Leptodea fragilis* Raf.	Yes	Yes	Yes
Potamilus inflatus Lea	No	Yes	No
**Potamilus purpuratus* Lam.	No	Yes	Yes
Toxolasma parva Barnes	Yes	No	No
Medionidus acutissimus Lea	Yes	No	Yes
Medionidus meglameriae van der Schalie	No	Yes	No
**Ligumia recta* Lam.	Yes	Yes	Yes
Villosa lienosa Conrad	Yes	Yes	Yes
**Lampsilis anodontoides* Lea	Yes	Yes	Yes
**Lampsislis radiate claiborneusis* Lea	Yes	Yes	No
Lampsilis affinis Lea	Yes	No	No
Lampsilis apicina Lea	Yes	Yes	Yes
**Lampsilis excavata* Lea	Yes	Yes	Yes
Epioblasma penita Conrad	No	No	Yes
Epioblasma metastriata Conrad	No	Yes	No
Anodonta imbecillis Say	No	No	Yes
Total Number of Species	37	34	40

*Species collected alive

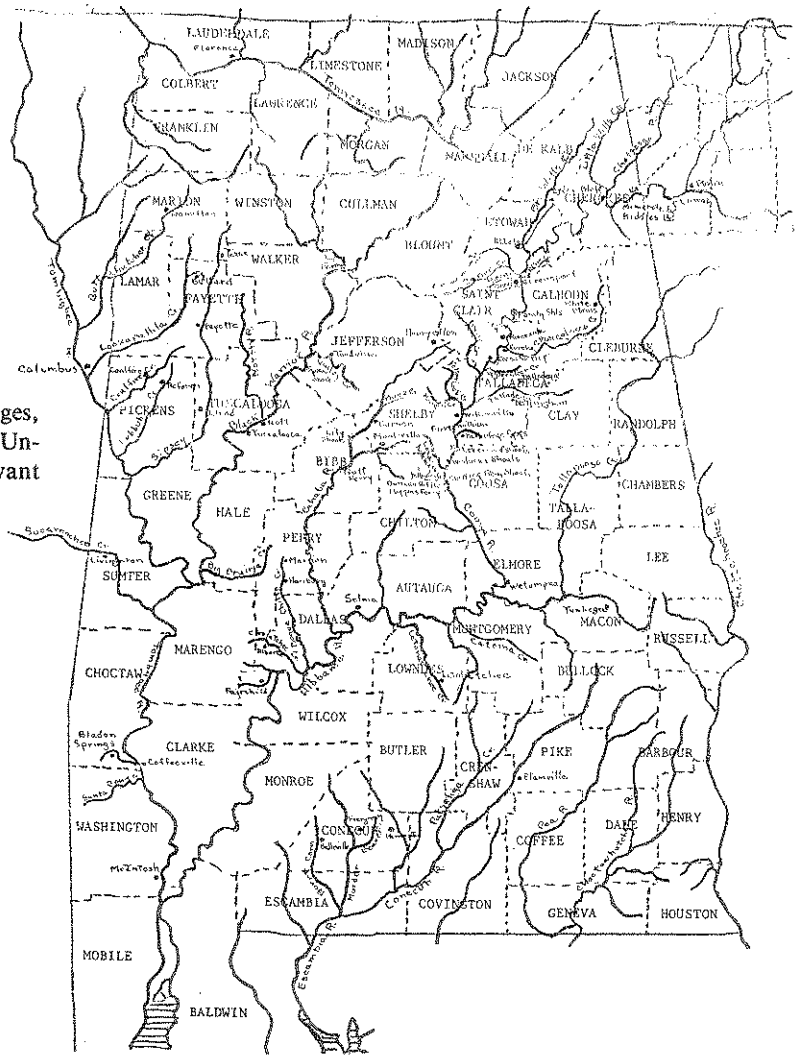
I. Tombigbee River.

Collections from the Tombigbee River made by H. H. Smith (Map I) were largely in its tributaries. A list of the mussels from a series of stations in the main river as compiled by Yokley and Gooch in 1975 (Table I) also contains the records given by A. A. Hinkley in 1906 for the Tombigbee at Columbus. In 1931 Calvin Goodrich and the writer also visited the Tombigbee at Columbus. That collection is compared to Hinkley's 1906 records (Table II) and as stated by van der Schalie (1939:3): "Hinkley apparently arrived at this station at a more favorable time for collecting than we did. Accumulated silt, turbidity, and high water made it impossible to collect adequate series." In this same table the two lists given for 1933 and 1935 represent collections at Epes - the 1933 list by W. J. Clench and van der Schalie; the better collection by the late Winnie McGlamery in 1935. She discovered a new species of *Medionidus* which was named in her honor.

The recent comparative table based on the collections of Yokley and Gooch (Table I) indicated that this drainage has about the same number of mussel species as the other major tributaries in the Alabama system - about 40 species.

It will be noted that some of the best collections in the tributaries of the Tombigbee as made by H. H. Smith came from the Sipsey River. The kinds of difficulties that collectors encounter are given by Smith (1911):

"Since writing last I have made several excurisons to the Sipsey. You will remember that, after my work at the Forks, we considered it rather a poor stream for *Unionidae*. My present impression is that it is going to turn out one of the richest in Alabama, and decidely peculiar. It is, in fact, very different from other rivers which I have explored. Most of it is 'dead water,' with a steady, pretty strong current and three or four feet deep; it is very crooked and choked with drift logs. Now and then there are gravel shoals, shallow, with an even, strong current, and these are the places for the mussels, especially *Pleurobemas*. These gravel shoals are altogether peculiar in my experience. The bottom is a layer of gravel, a foot or so thick, cemented so that it is quite hard; under this there is loose gravel, in which the mussels generally live. At the Forks I used to wonder why the muskrats left so many shells and I found so few. A farmer there, who had taken out river gravel for a road, gave me the explanation, which I have verified: only a few mussels are in the top layer, but great numbers of them under the cemented portion; the muskrats get them through small crevices. The proper way to work these shoals will be to have a man dig away the cemented part, which is not very hard, and get the layer beneath."



MAP I. A. E. Ortmann's map of Alabama River drainages, showing mainly stations established by H. H. Smith. Unpublished correspondence, A. E. Ortmann to Bryant Walker, from personal files of author.

TABLE II

A list of the Naiades in the Tombigbee River, exclusive of its tributaries (from van der Schalie, 1939)

Species	Columbus		Epes	
	1906	1931	1933	1935
Fusconaia rubida	—	X	X	93
Fusconaia ebenus	X	—	—	91
Fusconaia cerina	X	—	—	—
Megalonaias gigantea	—	X	X	66
Plectomerus trapezoides	X	—	—	1
Amblema perplicata	X	X	—	16
Quadrula pustulosa	X	X	X	89
Quadrula aspera	X	—	—	18
Quadrula forsheyi	—	—	X	—
Quadrula rumphiana	X	X	—	2
Quadrula metanevra	X	X	X	17
Quadrula stapes	X	—	X	—
Tritigonia verrucosa	—	—	—	44
Pleurobema cordatum plenum	X	X	X	4
Pleurobema marshalli	—	—	—	2
Pleurobema tombigbeanum	—	—	X	—
Pleurobema nucleopsis	X	—	—	—
Pleurobema bulbosum	X	—	—	—
Pleurobema nux	X	—	—	—
Pleurobema taitanum	X	—	—	—
Pleurobema curtum	X	—	—	—
Pleurobema decisum	X	—	—	—
Elliptio crassidens	X	X	X	10
Elliptio dilatatus	X	—	X	19
Elliptio arctatus	X	—	—	4
Strophitus tombigbeensis	X	—	—	2
Lasmigona complanata	X	—	—	—
Arcidens confragosus	X	X	—	—
Obliquaria reflexa	X	X	—	12
Obovaria unicolor	X	X	—	7
Obovaria castanea	X	X	X	—
Plagiola lineolata	X	X	X	26
Leptodea fragilis	X	X	—	1
Leptodea alabamensis	—	—	—	1
Proptera purpurata	—	X	—	8
Carunculina parva	X	—	—	—
Medionidus acutissimus	X	—	—	—
Medionidus meglameriae	—	—	—	2
Ligumia recta latissima	X	—	—	1
Micromya lienosa	X	X	—	3
Micromya concestator	X	—	—	7
Lampsilis anodontoides	X	X	—	52
Lampsilis excavata	X	X	X	25
Lampsilis straminea	—	X	—	—
Lampsilis hydiana	X	—	—	—
Lampsilis affinis	X	—	—	—
Lampsilis apicina	X	—	—	—
Dysnomia metastriata	—	—	—	4
Truncilla donaciformis	X	—	—	1
Truncilla truncata	—	X	—	—
Total number of species (50)	39	21	14	30

Tombigbee Drainage:
Tombigbee River, Alabama (Hartman Collection)
Quadrula aspersa
Micromya (Villosa) lienosa
Lampsilis claibornensis

Tombigbee, McIntosh, Washington Co., Alabama (L. H. McNeill Collection)
Fusconaia ebenus
Megalonaias gigantea
Quadrula asperata
Quadrula aspera

Columbus, Lowndes Co., Mississippi (probably Tombigbee River)
Fusconaia rubida
Obovaria subrotunda (?)

Tributaries:
Coffee Creek, Alabama (possibly near Coffeeville, Clarke Co., Alabama ?) (Hartman Collection)
Ligumia subrostrata
Santa Bogue Creek, Washington Co., Alabama
Fusconaia rubida
Bladon Springs, Choctaw Co., Alabama (Showalter Collection(
Pleurobema interventum
Sucarnochee Creek, pool on floodplain, Livingston, Sumter Co., Alabama (H. H. Smith, April 18, 1914)
Uniomerus telralasmus
Anodonta grandis

Tributaries of Upper Tombigbee:
Sipsey River, Elrod, Tuscaloosa Co., Alabama (H. H. Smith, 1911, 1912)
Fusconaia rubida
Tritogonia verrucosa
Elliptio dilatatus
Obovaria subrotunda (?)
Micromya (Villosa) lienosa
Lampsilis anodontodies
Lampsilis caibornensis
Lampsilis excavata
Lampsilis clarkiana

Sipsey River, 5 mi n of Fayette, Fayette Co., Alabama (H. H. Smith)
Fusconaia rubida
Amblema perplicata
Tritogonia verrucosa
Pleurobema decisum
Pleurobema interventum
Pleurobema flavidulum
Elliptio arctatus
Uniomerus tetralasmus
Strophitus spillmani
Obovaria nux
Carunculina cromwelli
Micromya (Villosa) vibex
Micromya (Villosa) lienosa
Lampsilis anodontoides
Lampsilis claibornensis
Lampsilis clarkiana

Sipsey River, The Forks, Texas, Marion Co., Alabama
Fusconaia rubida
Tritogonia verrucosa
Quadrula metanevra
Pleurobema interventum
Pleurobema flavidulum
Elliptio arctatus
Strophitus spillmani
Strophitus subvexum
Obovaria nux
Obovaria subrotunda
Carunculina cromwelli
Micromya (Villosa) vibex
Micromya (Villosa) lienosa
Medionidus acutissimus
Lampsilis claibornensis

Lubbub Creek, Reform, Pickins Co., Alabama (H. H. Smith, 1912)
Strophitus spillmani
Lampsilis claibornensis

Coalfire Creek, Coalfire, Pickins Co., Alabama (H. H. Smith, 1914)
Fusconaia rubida
Pleurobema flavidulum
Strophitus spillmani
Carunculina cromwelli
Micromya (Villosa) vibex
Micromya (Villosa) lienosa
Lampsilis claibornensis

Ballard Creek, Fayette Co., Alabama (H. H. Smith)
Carunculina cromwelli
Micromya (Villosa) lienosa
Lampsilis claibornensis

Buttahatchee River, Hamilton, Marion Co., Alabama (H.H. Smith)
Fusconaia rubida
Quadrula paupercula
Tritogonia verrucosa
Pleurobema concolor
Elliptio dilatatus
Elliptio arctatus
Strophitus spillmani
Stophitus tombigbeensis
Obovaria nux
Leptodea fragilis
Micromya (Villosa) vibex
Micromya (Villosa) lienosa
Lampsilis claibornensis
Lampsilis excavata
Lampsilis clarkiana

II. Alabama River

Perhaps because of its large size, few records are available on the mussels of the main river in lower Alabama. both of those given are from the Hartman and Call collections. H. H. Smith seems to have concentrated more on the fauna of the tributaries in lower Alabama. To survey properly such a large river would require large equipment not available to persons involved with pioneering work.

Alabama River, Alabama (Hartman Collection)
Quadrula asperata
Quadrula aspera
Quadrula metanevra
Pleurobema lewisi
Obliquaria reflexa
Lampsilis claibornensis
Lampsilis excavata

Alabama River, Selma, Dallas Co., Alabama (R. E. Call)
Quadrula asperata
Pleurobema lewisi
Pleurobema taitianum
Pleurobema tombigbeanum
Proptera purpurta

Small Tributaries in Lower Alabama:

Cub Creek, Pine Hill, Wilcox Co., Alabama (H. H. Smith)
Fusconaia rubida
Quadrula cahabensis
Tritogonia verrucosa
Strophitus elliotti
Strophitus spillmani
Carunculina cromwelli
Micromya (Villosa) lienosa
Lampsilis straminea

Beaver Creek, Pine Hill, Wilcox Co., Alabama (H. H. Smith)
Fusconaia rubida
Uniomerus tetralasmus
Crunculina cromwelli
Micromya (Villosa) lienosa
Lampsilis straminea

Cholatchee Creek, Alberta, Wilcox Co., Alabama (H. H. Smith)
Carunculina cromwelli
Lampsilis straminea

Bogue Chitto Creek, Perry Co., Alabama (E. R. Schowalter)
Lampsilis straminea

Bogue Chitto Creek, Hamburg, Perry Co., Alabama (H. H. Smith)
Fusconaia rubida
Strophitus elliotti
Carunculina cromwelli
Micromya (Villosa) lienosa
Lampsilis straminea

Letohatchee Creek, 1 mi from Depot, Lowndes Co., Alabama (Hartman Coll.)
Anodonta grandis

Catoma Creek, Montgomery Co., Alabama (E. Rustston)
Amblema latecostata

III. Black Warrior River

Most of the records herewith appended were from collections made by H. H. Smith. In a letter to Calvin Goodrich (March 22, 1920), Ortmann made a significant statement (van der Schalie, 1951: 23):

> "One thing is clear: when we begin to study the development of the fauna of a river-system, **our knowledge of the distributional facts must be complete.** There must be no large areas, like the uppermost Black-Warrior basin, of which we do not know anything. H. H. Smith has done wonderful work in the Alabama-drainage, but his work has not been completed - so much more is his untimely death to be regretted."

Black Warrior System of Tombigbee Drainage:

Black Warrior River, Lock 11, Tuscaloosa, Tuscaloosa Co., Alabama (H. H. Smith, November,1910)
Anodonta imbecillis
Leptodea fragilis
Proptera purpurata
Micromya (Villosa) lienosa

Black Warrior River, Squaw Shoals, Jefferson co., Alabama (Hartman, R. E. Call, H. H. Smith)
Fusconaia rubida
Amblema perplicata
Quadrula aspera
Tritogonia verrucosa
Pleurobema rubellum
Elliptio crassidens
Elliptio arctatus
Ptychobranchus greeni
Leptodea fragilis
Proptera purpurata
Carunculina corvunculus
Micromya (Villosa) vibex
Micromya (Villosa) lienosa
Lampsilis altilis
Dysnomia metastriata

Forks of Black Warrior River, Walker Co., Alabama (H. H. Smith)
Tritogonia verrucosa
Ptychobranchus greeni
Obliquaria reflex
Lampsilis excavata

Tributaries:

Big Prairie Creek, Hale Co., Alabama (Hartman and Schowalter)
Fusconaia rubida
Amblema "latecostata"

Amblema perplicata
Quadrula forsheyi
Pleurobema concolor
Elliptio arctatus
Lasmigona complanata
Anodonta grandis
Anodontoides showalteri
Proptera purpurata
Micromya (Villosa) lienosa
Lampsilis straminea

Pool at Holt, Tuscaloosa Co., Alabama (H. H. Smith, 1911)
Anodonta imbecillus

North River, Hagler's Mill, Tuscaloosa Co., Alabama (H. H. Smith, 1911)

North River, Hagler's Mill, Tuscaloosa Co., Alabama (H. H. Smith, 1911)
Tritogonia verrucosa
Pleurobema hagleri
Elliptio arctatus
Ptychobranchus greeni

Valley Creek, Toadvine, Jefferson Co., Alabama (H. H. Smith, 1912 and 1913)
Fusconaia rubida
Amblema costata
Tritogonia verrucosa
Pleurobema hagleri
Elliptio arctatus
Leptodea fragilis
Lampsilis excavata

IV. Cahaba River

The earlier lists given here include collections made by Call, Hartman and Smith. As stated by van der Schalie (1938), the Cahaba evidently had not been as thoroughly explored as was the Coosa. Two extensive surveys were made later (see Map 2): in 1933, W. J. Clench of the Museum of Comparative Zoology at Harvard and the author collected in the lower reaches of the river; in 1935, Calvin Goodrich and the author revisited the Cahaba and added greatly to collections from the headwaters. The 48 species listed in Table III are considered both in regard to general distribution and to ecology so that assemblages can be characterized as being common to creeks, small river, medium-sized river or large river. The zones delineated ecologically for the several species agree with geological zones as indicated by the late Dr. Walter B. Jones of the Alabama Geological Survey. J. J. Jenkinson (1974) also indicated that a geological feature such as the "fall line" influences the distribution pattern of mussels.

The collections made at Lily Shoals were unbelievably rich (Table III). Hopefully this section of the river, if it is still pristine, can be maintained as a "wild river" preserve. The species list for the Cahaba is quite similar to that reported here for the Coosa; both streams seem to share in the richness of their molluscan fauna, as well as in the potential for harboring certain unusual endemic species (see Bash, 1959).

Cahaba River Drainage:

Cahaba river, Perry Co., Alabama (Hartman Collection)
Dysnomia penita
Pleurobema brumbyanum

Cahaba river, Bibb Co., Alabama (Hartman; Schowalter)
Pleurobema decisum
Pleurobema interventum
Pleurobema instructum
Pleurobema nux
Pleurobema stabile
Pleurobema brumbyanum
Medionidus parvulus
Micromya (Villosa) nebulosa

Cahaba River, Pratt Ferry, Bibb Co., Alabama (H. H. Smith)
Fusconaia rubida
Quadrula aspera
Pleurobema decisum
Elliptio crassidens
Lampsilis excavata

Cahaba River, Lily Shoals, Bibb Co., Alabama (Hartman; R. E. Call)
Pleurobema interventum
Pleurobema brumbyanum
Ptychobranchus greeni
Medionidus parvulus
Micromya (Villosa) nebulosa
Dysnomia metastriata

Cahaba river, Gurnee, Shelby Co., Alabama (H. H. Smith)

Fusconaia rubida
Amblema perplicata
Quadrula cahabensis
Quadrula rumphiana
Tritogonia verrucosa
Pleurobema interventum
Elliptio crassidens
Elliptio dilatatus
Elliptio arctatus
Lasmigona complanata
Ptychobranchus greeni
Proptera purpurata
Medionidus acutissimus
Micromya (Villosa) vibex
Micromya (Villosa) lienosa
Lampsilis anodontoides
Lampsilis excavata
Dysnomia metastriata

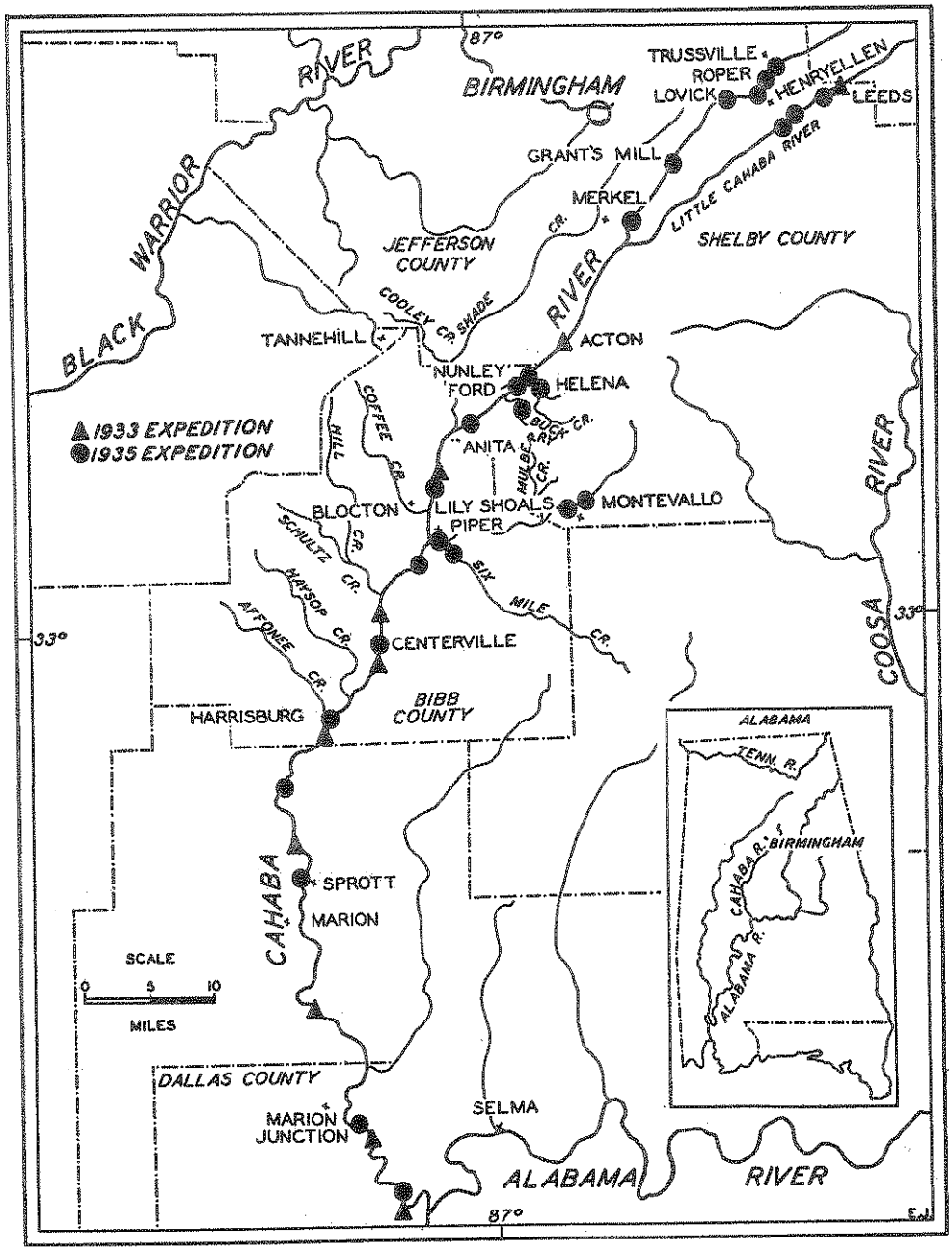
Cahaba River, Henryellen, Jefferson Co., Alabama (H. H. Smith)
Elliptio arctatus

Tributaries:

Shoal Creek, tributary to Little Cahaba, Montevallo, Shelby Co., Alabama (R. E. Call)
Elliptio tuomeyi

Buck Creek, Shelby Co., Alabama (Hartman Collection)
Micromya (Villosa) vibex

MAP 2
NAIADES OF THE CAHABA RIVER
(from van der Schalie, 1938)



Map 2. Cahaba River

TABLE III
(van der Schalic, 1938)

SYNOPTIC TABLE SHOWING DISTRIBUTION OF NAIADES BY COLLECTING STATIONS IN THE CAHABA RIVER

	CREEKS						MAIN RIVER HEADWATERS TO MOUTH																		
							SMALL RIVER					MEDIUM-SIZED RIVER								LARGE RIVER					
	2 miles north of Leeds	1 mile south of Leeds	4 miles south of Leeds	6 miles south of Leeds	Buck Creek, Helena	Beaverdam Creek, Helena	Near Roper	Henryellen	Lovick	Grants Mill	East of Merkel	Acton	Nunley Ford	Anita	Lily Shoals	10 miles above Centerville	7 miles above Centerville	1 mile above Centerville	At Centerville	7 miles below Centerville	2 miles east of Harrisburg	8 miles north of Sprott	5 miles northeast of Marion	West of Sprott	½ mile west of Felix	10 miles west of Selma	Near Beloit
Unioninae																										
Fusconaia rubida													5	23	103	15	26	1		7	9	18	6	2		19	
Fusconaia cerina																	1				1						
Fusconaia ebenus																					1	23	5		1	12	1
Amblema perplicata							1	65	20	40	4	10	31	21	26	1		1	1								
Megalonaias gigantea																					4						
Quadrula pustulosa											1		3	6	20	17	17	1	1	27	12	58	50	17	2	125	9
Quadrula cahabensis								30	10	3																	
Quadrula vallata								1	2													1					
Quadrula aspera									1					8	17					1	1	1			1	5	1
Quadrula rumphiana											2		1		1	2	3					4					
Quadrula metanevra																1						12	22	2		20	1
Tritigonia verrucosa							1	15	34	6	2		10	12	29	6	5	1		3	2	7	2		3	12	6
Pleurobema simulans					5			2							68												
Pleurobema nux								1		2	1											1			1	2	
Pleurobema rubellum																											
Pleurobema decisum													6	1	5	7	4			1		1					
Pleurobema instructum											2		1	1	3							3					
Pleurobema cordatum													1										1			1	
Elliptio crassidens												4	62	3	5	19	37	6	7	12	15	20	6	1	1	10	6
Elliptio arctatus					1			137	90	15			41	10	25	1											
Elliptio dilatatus													1														
Anodontinae																											
Lasmigona holstonia	2	33	2	2									1		3					1		1					
Lasmigona complanata																											
Anodonta imbecillis				20				2	2																		
Strophitus spillmanii									1																		
Strophitus subvexus								5	6	5	2		1		5												
Lampsilinae																											
Ptychobranchus greeni								5	3	7	4		23	20	9	1	2		1	1							
Obliquaria reflexa														1	1	2	1			2	2	4	10	3		8	
Obovaria subrotunda																				40	10	53	80	31	3	150	7
Plagiola lineolata																				1	1	7	1			1	
Leptodea fragilis													13	2	45	1				3	2			1		1	4
Proptera purpurata											2		4		38	2	2	1	2		2	1	3			1	
Carunculina corvunculus								2	3						16												
Carunculina cromwelli															1												
Medionidus parvulus															x												
Medionidus acutissimus								1		4	1		28	22	15								1			3	
Micromya vanuxemensis					1										70										1	2	
Micromya nebulosa			1												7												
Micromya lienosa	4	1	2	1		1		5	18	2	4		3	5	65					1	1	2			1	1	
Micromya vibex	1	5	9	17				31	31	1			3	4	16												
Ligumia recta latissima													1				3				1						
Lampsilis claibornensis									2				1		6						2	8	2				
Lampsilis clarkiana				3	2		1	20	14		1		5	3	6	1											
Lampsilis anodontoides										1	1		1	2	22		3	1	1	7	18	3	10		4	8	3
Lampsilis excavata					1			16	24	3	2		1	11	10	20	14		1	8		20	60	1	2	30	3
Dysnomia metastriata					1			49	35	26	2		38	23	12	6						8	1	3			
Dysnomia othcaloogensis													2														
Truncilla donaciformis					1										1			1						4	1	20	1

V. Coosa River

The mussels of the Coosa drainage as here reported are those collected by H. H. Smith as a part of the Syndicate material given to Dr. Clapp at the Carnegie Museum in Pittsburgh. These collections were organized and tabulated by Dr. Ortmann. Since the Coosa with its many fine shoals has perhaps been changed more than any of the other streams in the Alabama system, this tabulation represesnts the best survey ever made of that river in its earlier unaltered state. A clear and concise statement (Anonymous, 1913) as to the nature of the great work accomplished by Herbert Smith follows:

> "Mr. Herbert H. Smith, Curator of the Museum of the Alabama Geological Survey, has recently brought back from the Coosa River the largest and finest collection of fresh-water shells ever made by him. There are about 25,000 selected specimens, including a very large number of species, some of them new to science. The principal locality worked was Weduska Shoals, between Shelby and Coosa Counties, believed to be the richest place on this very productive river. The Shoals will soon be covered with 20 feet of water by the great dam of the Alabama Power Company, now nearly completed. Mr. Smith's expedition was planned in order to obtain large series of the shells while they are still accessible. In all probability some of the Weduska species will not be found elsewhere; many Coosa mollusca are extremely local, even restricted to a small part of one shoal. These Weduska species, if not collected now, would have been forever lost to science; in fact, they are likely to become extinct under the changed conditions. Special efforts are made to secure a full set of the animals of *Pleuroceridae* for anatomical purposes, and about 5,000 of these were preserved."

Of great interest among the mollusks of the Coosa River are some of the rare and endemic snails. Both H. H. Smith and A. A. Hinkley were able to discover some of them. Walker (1908: 128) in describing new species of Ancylidae stated, as follows:

> "All these species of *Neoplanorbis* were discovered by Mr. Herbert H. Smith in the fall of 1907. They live on the under sides of stones in the more or less rapid current and in suitable locatlities are very abundant. Mr. Smith took 50 from one small stone. *Neoplanorbis* seems very local in distribution. It may be abundant on one shoal and not found at all on another. And on the same shoal, it is frequently restricted to one side of the river or the other."

In 1959, Dr. Paul F. Basch attempted to rediscover these rare genera but in a brief account entitled, "The Coosa Rivisited," he stated:

> "The Coosa River in east central Alabama has been famous for its many endemic species of mollusks for half a century. Since the early collections were made, the river has been greatly altered by the construction of power dams. In, June, 1959, the author and Dr. J. B. Burch visited the Coosa in search of *Amphigyra* and *Neoplanorbis,* but no specimens of these genera could be found."
>
> "The adjacent Cahaba Rier near Helena, Shelby County, Alabama, did provide a number of specimens of *Rhodacmea cahawbensis* Walker 1917, and the anatomy of this species was studied and reeported upon. . . ."

In addition to H. H. Smith, Anson A. Hinkley was another of the important early collectors to visit the Coosa. Bryant Walker (1920) gave in summary form the importance of Hinkley's work, as follows:

> "In 1903 he began the series of collecting trips which have given him a permanent place in the history of American Conchology. In the winter of that year he explored the Coosa and Black Warrior rivers of Alabama. Two remarkable new genera, *Amphigyra* Pils, and *Neoplanorbis* Pils., and many new species of *Somatogyrus, Ancylus* and *Quadrula* were discovered. Mr. Hinkley was the first to develop the minute species of Alabama, which had been almost entirely overlooked by the earlier collectors in that state, whose attention had been wholly absorbed with the wonderful fauna of *Unionidae* and *Pleuroceridae* in that region."

While Smith and others assembled large quantities of snails belonging to the family Pleuroceridae, it fell to Calvin Goodrich to work out the systematics of this difficult group. Pilsbry (1937) gave a very favorable review of Goodrich's revision of the *Goniobasis* of the Coosa River, as follows:

> "In this third paper discussing Coosa River pleurocerids the stout, cylindric Goniobases are revised. The group has been the terror of conchologists for a generation. Though a few, such as *capillaris, impressa* and *caelatura* were generally recognized, most of the species were submerged in such a sea of synonyms, about 90 in all, that one sank back discouraged by the task of identification. 24 species are now admitted, three of them new, two other names substituted for named preoccupied. The opercula and dentition are considered, and all of the species are illustrated by excellent figures."

Calvin Goodrich retired in 1944. It was fortunate that he completed several studies on the mollusks of the Coosa River. In 1941 he published an account on the Pleuroceridae of the small streams of the Alabama system; this report was followed in 1944 by papers dealing with the Pleurocerids of the Coosa itself, as well as the results of his studies on the freshwater pulmonates and Sphaeriids.

The H. H. Smith mussel collections are the most extensive made in the preimpoundment stage of the Coosa drainage. The number of stations recorded here are impressive both in the river itself and in its tributaries. Table IV lists the species in a synoptic arrangement to show their ecology and distribution. The table reflects in many ways the same patterns previously shown for the Cahaba drainage.

VI. Tallapoosa River

The only Smith record available for this river is the one listed for the branch of Uphapee Creek. J. J. Jenkinson (1979), in his Master's thesis published at Auburn University in 1973, reported on unionids taken in the Saugahatchee and Uphapee creeks in the Tallapoosa drainage. From his map (1979: 150) it appears that he collected naiades from about a dozen stations. The thesis seems to be unpublished but would provide useful information on the mussels of that drainage system.

Coosa River, Weduska Shoals, Shelby Co., Alabama (H.H. Smith, 1913)
Fusconaia ebenus
Megalonaias triumphans
Amblema perplicata
Quadrula asperata
Quadrula kieneriana
Quadrula rumphiana
Tritogonia verrucosa
Pleurobema chattanoogaense
Pleurobema decisum
Pleurobema hartmanianum
Pleurobema showalteri
Pleurobema stabile
Elliptio crassidens
Elliptio dilatatus subgibbosus
Elliptio arctatus
Strophitus connasaugaensis
Ptychobranchus greeni foremanianum
Obliquaria reflexa
Truncilla donaciformis
Plagiola lineolata
Leptodea fragilis
Proptera purpurata poulsoni
Carunculina corvunculus
Medionidus acutissimus
Medionidus parvulus
Micromya (Villosa) vibex
Lampsilis anodontoides
Lampsilis excavata
Lampsilis perovalis
Dysnomia metastriata

Coosa River, Peckerwood Shoals, Shelby Co., Alabama (H.H. Smith)
Fusconaia ebenus
Quadrula asperata
Quadrula kieneriana
Pleurobema chattanoogaense
Elliptio crassidens
Elliptio dilatatus subgibbosus
Elliptio arctatus
Ptychobranchus greeni foremanianum
Leptodea fragilis
Proptera purpurata poulsoni
Dysnomia metastriata

Coosa River, Fort William Shoals, Shelby Co., Alabama (H.H. Smith)
Amblema perplicata
Pleurobema chattanoogaense
Pleurobema decisum
Ptychobranchus greeni foremanianum
Lampsilis perovalis

Coosa River, Three Island Shoals, Wilsonville, Shelby Co., Alabama (H.H. Smith)
Fusconaia ebenus
Megalonaias triumphans
Quadrula asperata
Quadrula metanevra
Quadrula rumphiana
Pleurobema chattanoogaense
Pleurobema decisum
Elliptio crassidens
Elliptio dilatatus subgibbosus
Ptychobranchus greeni foremanianum
Obliquaria reflexa
Plagiola lineolata
Ligumia recta latissima
Lampsilis excavata
Lampsilis perovalis
Dysnomia metastriata

Coosa River, near Upper Clear Creek, Talledega Co., Alabama (H.H. Smith)
Quadrula asperata
Elliption dilatatus subgibbosus
Ptychobranchus greeni foremanianum
Medionidus parvulus
Dysnomia metastriata

Coosa River, Coosa Valley, St. Clair Co., Alabama (H.H. Smith)
Quadrula asperata
Fusconaia ebenus
Megalonaias triumphans
Pleurobema chattanoogaense
Pleurobema lewisi
Elliptio crassidens
Elliption dilatatus subgibbosus
Ptychobranchus greeni foremanianum
Obliquaria reflexa
Leptodea fragilis
Proptera purpurata poulsoni
Lampsilis excavata
Lampsilis clarkiana
Dysnomia metastriata

Coosa River, Eureka, Talladega Co., Alabama (Goodrick Collection)
Pleurobema decisum

Coosa River, Riverside, St. Clair Co., Alabama (H.H. Smith)
Fusconaia ebenus
Amblema perplicata
Quadrula asperata
Quadrula kieneriana
Quadrula metanevra
Quadrula rumphiana
Tritogonia verrucosa
Pleurobema chattanoogaense
Pleurobema decisum
Elliptio dilatatus
Elliptio dilatatus subgibbosus
Ptychobranchus grenni foremanianum
Obliquaria reflexa
Leptodea fragilis
Proptera purpurata poulsoni
Medionidus parvulus
Micromya (Villosa) vibex
Ligumia recta latissima
Lampsilis excavata
Lampsilis perovalis
Dysnomia metastriata

Coosa River, Lock 4, St. Clair Co., Alabama (H.H. Smith)
Obliquaria reflexa

Plagiola lineolata
Dysnomia metastriata

Coosa River, Fomby Shoals, Calhoun Co., Alabama (H.H. Smith)
Ptychobranchus greeni foremanianum
Obliquaria reflexa

Coosa River, Leoto Shoals, Greensport, St. Clair Co., Alabama (H.H. Smith)
Quadrula rumphiana
Elliptio dilatatus subgibbosus
Ptychobranchus greeni foremanianum
Obliquaria reflexa
Micromya (Villosa) vanuxemensus

Coosa River, Riddles Bend, Cherokee Co., Alabama (H.H. Smith)
Quadrula asperata
Quadrula rumphiana
Amblema perplicata
Truncilla donaciformis

Coosa River, Mimerota Bend, Cherokee Co., Alabama (H.H. Smith)
Fusconaia ebenus
Quadrula asperata
Elliptio dilatatus subgibbosus
Obliquaria reflexa
Plagiola lineolata
Leptodea fragilis

Coosa River Drainage - Tributaries:

Mill Creek, branch of Waxahatchee Creek, Shrader Mill, Shelby Co., Alabama (H.H. Smith)
Lasmigona holstonia

Spring Creek, Kewatchee Springs, Shelby Co., Alabama (H.H. Smith)
Micromya (Villosa) nebulosa

Cedar Creek, Talladega Springs, Talladega Co., Alabama (E.R. Showalter)
Lasmigona holstonia

Yellow Leaf Creek, Shelby Co., Alabama (H.H. Smith)
Pleurobema chattanoogaense
Carunculina corvunculus
Micromya (Villosa) vanuxemensus

Morgan Creek, branch of Yellow Leaf Creek, Shelby co., Alabama (H.H. Smith)
Micromya (Villosa) vanuxemensis

Talladega Creek, Talladega Co., Alabama (Hartman Collection)
Medionodus acutissimus
Lampsilis clarkiana

Talladega Creek, Nottingham, Talladega Co., Alabama (H.H. Smith)
Micromya (Villosa) nebulosa

Talladega Creek, Talladega, Talladega Co., Alabama (Hartman Collection)
Lampsilis clarkiana

Kelly Creek, St. Clair Co., Alabama (H.H. Smith)
Carunculina corvunculus

Choccolocco Creek, Eureka, Talladega Co., Alabama (H.H. Smith)
Micromya (Villosa) vibex

Choccolocco Creek, Jackson Shoals, Talladega Co., Alabama (H.H. Smith)
(most likely in lowermost part of creek)
Quadrula asperata
Tritogonia verrocosa
Elliptio crassidens
Elliptio dilatatus subgibbosus
Elliptio arctatus
Ptychobranchus greeni foremanianum
Proptera purpurata poulsoni
Carunculina corvunculus
Medionidus acutissimus
Medionidus parvulus
Micromya (Villosa) nebulosa
Micromya (Villosa) vanuxemensis
Lampsilis excavata
Lampsilis clarkiana
Dysnomia metastriata

Choccolocco Creek, White Plains, Calhoun Co., Alabama (H.H. Smith)
Carunculina corvunculus
Micromya (Villosa) vibex

Shoal Creek, St. Clair Co., Alabama (H.H. Smith)
Pleurobema chattanoogense
Pleurobema georgianum
Micromya (Villosa) nebulosa
Micromya (Villosa) vanuxenmensis

Beaver Creek, St. Clair Co., Alabama (H.H. Smith)
Pleurobema johannis
Anodonta imbecillis
Anodonta grandis
Carunculina corvunculus
Micromya (Villosa) vanuxemensis

Greens Creek, Etowah Co., Alabama (H.H. Smith)
Micromya (Villosa) nebulosa

Canoe Creek, St. Clair Co., Alabama (H.H. Smith)
Pleurobema chattanoogaense
Anodonta imbecillis
Anodonta grandis
Micromya (Villosa) vibex

Big Wills Creek, Attala, Etowah Co., Alabama (H.H. Smith)
Amblema perplicata

Little Wills Creek, Attala, Etowah Co., Alabama (H.H. Smith)
Micromya (Villosa) nebulosa
Micromya (Villosa) vanuxemensis)

Chattooga River, 2 mi n of Cedar Bluff, Cherokee Co., Alabama (H.H. Smith)
Amblema perplicata elliotti
Elliptio crassidens
Ptychobranchus greeni foremanianum
Ligumia recta latissima

Chattooga River, Trion, Chattooga Co., Georgia (A.E. Ortmann)
Lasmigona hostonia
Strophitus connasaugaensis
Medionidus acutissimus
Micromya (Villosa) vanuxemensis
Lampsilis clarkiana

Chattooga, Lafayette, Walker Co., Georgia (Hartma Collection)
Micromya (Villosa) vanuxemensis

Little River, Cherokee Co., Alabama (H.H. Smith)
Lasmigona hostonia
Micromya (Villosa) vibex

Spring Creek, Teloga, Chattooga Co., Georgia (Sterki Collection)
Micromya (Villosa) vanuxemensis

Cowans Creek, Cherokee Co., Alabama (H.H. Smith)
Pleurobema georgianum
Carunculina corvunculus
Micromya (Villosa) nebulosa
Micromya (Villosa) vanuxemensis

Tributaries of the Coosa River in its headwaters, above Rome, Georgia:

Oostanaula River, Rome, Floyd co., Georgia (H.H. Smith)
Quadrula asperata
Tritogonia verrucosa
Pleurobema decisum
Elliptio crassidens
Proptera purpurata poulsoni
Lampsilis excavata

Dry Creek, Rome, Floyd Co., Georgia (R.E. Call)
Lasmigona holstonia
Micromya (Villosa) vanuxemensis

Oothcalooga Creek, Calhoun, Gordon Co., Georgia (H.H. Smith)
Amblema perplicata elliotti
Anodonta imbecillis
Carunculina corvunculus
Micromya (Villosa) vanuxemensis

Millpond on Oothcalooga Creek, Calhoun, Gordon Co., Georgia (H.H. Smith)
Anodonta grandis

"Buckhout Spring Branch," 3 mi e of Calhoun, Gordon Co, Georgia (H.H. Smith)
Lasmigona holstonia

Conasauga Drainage to the Coosa River:

Conasauga River, Whitfield Co., Georgia (H.H. Smith)
Amblema perplicata elliotti
Quadrula asperata
Quadrula rumphiana
Tritogonia verrucosa
Pleurobema chattanoogaense
Pleurobema decisum
Elliptio arctatus
Ptychobranchus greeni foremanianum
Micromya (Villosa) vanuxemensis
Lampsilis excavata

Conasauga River, Dalton, Whitfield Co., Georgia (Goodrich Collection)
Lampsilis excavata

Conasauga River, Campbell's Mill, 5 mi sw of Tennga. Murray Co., Georgia (H.H. Smith)
Pleurobema georgianum
Carunculina corvunculus

Conasauga River, Conasauga, Polk Co., Tennessee (A.E. Ortmann)
Pleurobema georgianum
Pleurobema johannis
Strophitus connasaugaensis
Medionidus parvulus
Micromya (Villosa) nebulosa
Micromya (Villosa) vibex
Micromya (Villosa) vanuxemensis
Lampsilis clarkiana

Swamp Creek, s of Dalton, Whitfield Co., Georgia (Hartman Collection)
Micromya (Villosa) nebulosa

Holly Creek, Murray Co., Georgia (H.H. Smith)
Quadrula asperata
Quadrula rumphiana
Elliptio tuomeyi
Micromya (Villosa) vibex
Micromya (Villosa) vanuxemensis
Lampsilis claibornensis
Lampsilis excavata

Coahulla Creek, Herndons Mill, Whitfield Co., Georgia (H.H. Smith)
Amblema perplicata elliotti
Quadrula rumphiana
Micromya (Villosa) vanuxemensis

Etowah River, Georgia (Hartmann Collection)
Elliptio crassidens
Ptychobranchus greeni foremanianum
Proptera purpurata poulsoni
Dysnomia metastriata

Etowah River, Rome, Floyd Co., Georgia (R.E. Call)
Elliptio crassidens

VI. Tallapoosa River

The only Smith record available for this river is the one listed for the branch of Uphapee Creek. J.J. Jenkinson (1979), in his Master's thesis published at Auburn University in 1973, reported on unionids taken in the Saugahatchee and Uphapee creeks in the Tallapoosa drainage. From this map (1979:150) it appears that he collected naiades from about a dozen stations. The thesis seems to be unpublished but would provide useful information on the mussels of that drainage system.

Tallapoosa River Drainage:

Branch of Uphapee Creek, 4 mi se of Tuskegee, Macon Co., Alabama (H.H. Smith)
Lampsilis straminea

Conclusions

The construction of the Tenn-Tom Seaway will have a great impact on the biota of the Tombigbee River and the degree of the changes will have to be measured against these lists of species inhabiting the main stream and its tributaries. It is known that some of the mussel species are now threatened or endangered. It would appear in the several interests concerned with those changes that surveys such as were undertaken by H. H. Smith should again be sponsored and parts of the river system still relatively pristine be set aside as preserves.

With the earlier great alterations in the Coosa River due to dam construction these locality data represent largely preimpoundment conditions. They can be very useful for seeking remedial ways for maintaining what may still be left at some of the sites not yet altered. Such surveys need immediate sponsorship.

The failure in obtaining comparable data in richness of naiades in the Tallapoosa drainage remains unexplained. It may be related to the nearness to a schistose formation that cuts across Alabama and Georgia providing too little lime for the production of a large mussel fauna; it may also have stream confluence significance.

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