

B - Kesiktaş. — Pompeckj (7), in 1897, made a detailed study of the Jurassic of Ankara. In his book, he mentioned these fossils :

Arietites cf. *rotator* Reynes
A. cf. *latesulcatus* Quens.
Aegoceras sp. aff. *brevispinae* Sow.
Phylloceras alontinum frondosum Reynes
Ph. hebertinum Reynes

His fossil locality must be wrong. Because, according to several authors, no Jurassic series were encountered in the given locality. For example Salomon-Calvi, Kleinsorge (9), Stchepinsky (1941-1942, 8) and O. Erol (5) accept that there is no Jurassic in this area.

C - Yakacık. — Milleker has collected some fossils from Yakacık, and Vadasz (13) made study of them. We are listing below these Liassic fossils :

Rhacophyllites cf. *nardii* Meneg.
Rh. planispira Reynes
Phylloceras persanense Herb.
Ph. oenotrium Fuc. var. *complanata* Vadasz.
Ph. alontinum Gemm.
Ph. cf. *cylindricum* Sow.
Lytoceras cf. *sepositum* Meneg.
Arietites (Vermiceras) cf. *ophioides* D'Orb.
A. (Vermiceras) cf. *spiratissimus* Quens.
A. tardesulcata Wahn.
Oxynoticeras lynx D'Orb. sp. var.?
Coeloceras sp.
Atractites sp.

In 1942, Blumenthal (1) has studied the geology in the vicinity of the Yakacık and Köserelik villages, and described the Liassic formation of this area as a flysch. He gives other fossil localities near Yakacık — for example, Boklukaya and Köserelik. According to him, overlying the Liassic there is a limestone series that contains abundant *Aptychus* and a few *Perisphenctes*.

In his later publication Blumenthal (2, 1945), while describing the geology of the Ankara district, makes a comparison between Yakacık and Amasya regions and concludes that both areas have the same sequence.

G. Otkun determined the fossils collected from Yakacık :

Perisphenctes birmensdorfensis Moesch.
P. cf. *aenas* Gemm.
Lithacoceras virgulatum Quens.
L. lucingense Favre
Calliphylloceras mediterraneum Neum.
Sowerbyceras tortisulcatum D'Orb.

Age- — Oxfordian-Argovian.

Ghaput (4) made a detailed study of the Ankara region. A few hundred meters NW of the Yakacık village, in a small valley, there are marls and sandstones

dipping northeast with an angle of 20°, and higher up on the hill, underlying these sandstones, there are strongly folded, red-coloured limestones. The fossils of Vadasz were collected from these beds. In the south of this valley, the geology is more complicated and the limestone with chert nodules is enclosed within the Liassic series, but this limestone is younger than Liassic. There are few fossils in the limestone with chert nodules. Chaput found in this limestone one *Perisphenctes* of the orion group. In the northern part of Yakacık, he found a limestone series that is similar to the limestone of the western part. In this limestone, there is a Liassic fauna that is represented by numerous *Phylloceras* and *Atractites*. Overlying the sandstones there is pink or yellowish-coloured limestone. This limestone contains *Cadomites linguiferus* D'Orb. and its age is Bajocian.

Another detailed geological study of the Ankara region is made by O. Erol (5). According to him, the Liassic formation of the Ankara region is a flysch, composed of red-coloured sandstone, limestone and marl. This flysch is much fossiliferous. Above this flysch come Middle and Upper Jurassic, nodular, thick-bedded, white-coloured oolitic limestone (mostly Dogger) or yellowish pink-coloured, laminated, lithographic limestone and marl. The last strata contain *Radiolaria* and *Aptychus* and are Malm-Middle Cretaceous in age. These strata are transgressive. The fossils collected by O. Erol from this region were examined by the author and determined as follows :

In the sample from Çal Tepe, SW of Yakacık :

Sowerbyceras tortisulcatum D'Orb. — Oxfordian

In the sample from Karabayırdere, 5 km. SW of Yakacık, in the red-coloured nodular limestone :

Oppelia sp. — Bajocian - Lower Oxfordian

Phylloceras cf. *zignodianum* — Oxf. - Argovian

Perisphenctes sp.

In 1952, the author (11) had the opportunity to visit this locality and to collect some more specimens :

Liassic of Yakacık is represented by these fossils :

Phricodoceras taylori (Sow.)

Phylloceras nilssoni (Heb.)

Ph. aff. *tenuistratum* Meneg.

Microderoceras lorioli Hug.

M. plumarius Dumort,

Echioceras aff. *recticostatum* Tr. Will.

? *Echioceras boehmi* Hug.

Coeloceras pettos Quens.

Coroniceras latisulcatum Quens.

Rh'acophyllites sp.gr. *diopsis* Gemm.

Phylloceras persannense Herbich.

Ph. capitanei (Gatullo)

Arietites sp.

Uptonia sp.

We collected these fossils in the Middle and Upper Jurassic strata of Yakacık:

Perisphenctes aff. *subtilis* Neum.
P. sp. gr. *biplex* Sow.
P. gr. *schilli* Oppel
P. aff. *birmendorfensis* Rossch.
P. lusingensis ? Favre
Sowerbyceras tortisulcatum D'Orb.
Berriasella? — Titon - Berriasian

In the Yakacık, all the Jurassic strata are represented. Near the village, the Jurassic shows great tectonic complication.

D - Köserelik. — Chaput and Blumenthal studied the geology of Bağlum-Köserelik region.

O. Erol (5), in 1954, described the Liassic of Köserelik and stated that the Liassic begins with the basal conglomerate (containing granitic pebbles); continues with white - coloured coarse-grained sandstone; and on the upper part of the section there is red, blue - coloured fossiliferous marls and green, brown - coloured flysch with an intercalation of marls, sandstones and sometimes limestones.

We collected and examined these fossils from Köserelik:

Phylloceras bonarelli Bettoni
Ph. hebertinum Reynes
Ph. capitanei (Catullo)
Ph. persannense Herb.
Ph. sp. gr. *frondosum* Reynes
Ph. emeryi Bettoni
Hammatoceras sp. indet.
Rhacophyllites cf. *limatum* Roserb.
Lytoceras aff. *fimbriatum* Sow.
L. sp. (aff. *velifer* Meneg.)
L. cornucopiac Young-Bird
Grammoceras (*Protogrammoceras*) sp.
Arietoceras (*Sequenziceras*) sp.
Arietites cf. *rotator* Reynes
A. latesulcatus Quens.
Coeloceras sp.
C. cf. *limatum* Pompeckj
C. depressum Rosenberg
Oistoceras cf. *figulinum* Simpson
Acrocoelites ??
Rhabdobelus exilis D'Orb.

These fossils show that, in the Köserelik, especially Middle Liassic is developed.

E - Etimesgut. — Late micropaleontologist S. Başad worked in this region and her Ammonite collection was examined by the author :

Phylloceras sp. gr. *zignodianum* D'Orb.
Ph. sp. gr. *heterophyllum* Neum.

Cosmoceras sp. gr. *ornatum* Schl. — Callovian
Reinechites sp.
Lissoceras cf. *eroto* D'Orb.
Euaspidoceras sp.
Dichotomosphinctes sp.
D. aff. *buchmani* Arkell
D. cf. *elisabethae* De Riaz
Aspidoceras sp. faff, *douvillei* Gollot)
A. cf. *hyselum* Opperl
Sowerbyceras aff. *tortisulcatum* D'Orb.
Perisphenctes cf. *schilli* Opperl
P. sp. gr. *navillei* ? Favre
Alligaticeras sp.
Germanosphinctes sp.
Dichotomosphinctes cf. *wartae* Buk.
Biplices sp.
Divisosphinctes sp.
Ataxioceras sp. gr. *lothari* Opperl
Oecheteceras cf. *canaliculatum* Buch
Taramelliceras sp. gr. *flexuosa* Münster
Planites poligratus Rein or *Planites planulatus* Haan.
Katrolliceras? gr. *crusoliensis* or gr. *lacertosus* Fontanne

The above-listed fossils represent Upper Jurassic (Argovian-Kimmeridgian).

In the same locality there are Ammonites representing Lower Cretaceous. These are :

Subalpinites sp.
Berriasella aff. *paramecilanta* Mazonot
Phylloceras sp. gr. *serum*
Holcostephanus sp.
Berriasella sp. gr. *boissieri* (Pictet)
Duvalia sp.

In 1945, Mesut Özüygür collected some Ammonites in the Etimesgut region and gave his collection to G. Otkun for examination. The determination report of G. Otkun is in the Archives of the M. T. A. Institute (unpublished report No. 48/1945). By this report we know some other Ammonite-bearing localities around Etimesgut. The few data given below were taken from this report:

a. Ludumu :

Lissoceras sp.
Lytoceras ophineum Beneck. — Dogger
Phylloceras zignodianum D'Orb. — Callovian
Ph. sp.
Sowerbyceras tortisulcatum D'Orb. — Argovian
Perisphenctes birmendorfensis Moesch. — »
P. stenocycloides Siem. — Argovian

O. Erol collected from the same beds some more specimens which were determined by the author :

Phylloceras cf. *zignodianum* D'Orb.

Perisphenctes convolutus Quens.

Sowerbyceras tortisulcatum D'Orb.

Age.— Oxfordian.

b. Kutugun :

Lissoceras — Bajocian - Oxfordian

Phylloceras cf. *mediterraneum* Neum. — Oxf.

Ph. hatzegi Loczy — Gallovia

Ph. perplanum Prinz — Dogger

Ph. kudernatchi Hauer — Argovian

Sowerbyceras tortisulcatum D'Orb. — Argovian

Perisphenctes tiziani Opper — Argovian

P. aeneas Gemm. var. nov. — Argovian

P. consociatus Buck. — Oxf.

Neumayriceras trachynotum Opp. — Argovian

N. calicerum Opper — Argovian

Aspidoceras cf. *clavatum* Dorn.

A. douvillei Collot — Oxfordian

A. hypselum Opper var. nov. — Argovian

A. aequicostatum — Oxfordian

The fossils cited above were determined by G. Otkun (Report No. 48/2, 1945).

O. Erol found one Ammonite, some 500 m. west of Kutugun, near an old mill :

Perisphenctes bifurcatus Quens.

Age. — Lower Malm.

c. Alacaatlı : The fossils listed below were taken from the report of G. Otkun (Rep. No. 48/2, 1945) :

Lytoceras racile Vacek — Dogger

L. ophineum Beneck

Phylloceras emeryi Bettoni — Liassic

Ph. mediterraneum Neum. — Oxfordian

Ph. zignodianum D'Orb.

Ph. kudernatchi Hauer

Ph. euphylloides Till. var. *A* — Callovian

Sowerbyceras tortisulcatum D'Orb. — Argovian

Perisphenctes lucingensis Favre — Argovian

P. latilinguatus Noetling — Argovian

P. cf. consociatus Bukowski — Oxfordian

Aspidoceras douvillei Collot — Oxfordian

Aptychus sp.

d. Bağlıca: The Ammonites determined by G. Otkun in his report (Rep. No. 48/2,1945) are as follows :

Oppelia sp. ?
Emileia cf. *brochii* Sow. - Bajocian
Proplanulites sp. --- Bathonian
Hammatoceras sp. — Bajocian
Lytoceras sp.
Aptychus sp.

e. Dr. J. Sornay (Rep. No. 955/24) determined these fossils from the Etimesgut collection of S. Başad :

Phylloceras sp. gr. *capitanei* Catullo
Dumorlieria sp.
Grammoceras (*Pleydellia*) cf. *fruitans* Dumortier

Age. — Aalenian.

F. Hasanoglan. — In 1953, paleontologist U. Bilgutay (3) has studied the geology of this region. She collected some Ammonites and these fossils were examined by the author. According to Bilgutay, the Jurassic of this region has the character of a flysch beginning with a basal conglomerate. We determined in this collection :

Lytoceras cornucopiae Vacek (gr. *L. tacile?* Vacek)
Arnioceras sp.
Phylloceras nilssom Hebert
Atractites cf. *ortoceropsis*. Meneg.
Arietites sp.

Age. — Liassic.

G. Karalar. — In 1952, the author (12) has collected and examined some Lower Cretaceous Ammonites from this locality. This is interesting, because it is the first Lower Cretaceous Ammonite-bearing bed encountered in the Ankara region. We determined in this collection :

Uhligella walleranti Jacob
Desmoceradiae (one specimen of this family)
Phylloceras sp.

Age. — Albian.

H. Uzundede. — O. Erol (5), collected some fossils from this locality, which were determined by the author as follows :

Perisphenctes cf. *aeneas* Gemm.
Sowerbyceras tortisulcatum D'Orb.
Phylloceras zignodianum D'Orb.

Age. — Oxfordian.

I. Mire dağı-Kaptı boğazi. — O. Erol (5).found one Ammonite from this locality. We determined this fossil as:

Phylloceras aff. *hatzegi* Loczy

Age. — Callovian.

J. Mangal dağı. — O. Erol (5) collected some fossils from the central part of the Mangal dağı anticline, in the sandy beds. We determined these Ammonites as :

Pachidiscus cf. *gollevillensis* D'Orb.

Age. — Maestrichtian.

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