FOLIA PARASITOLOGICA (PRAHA) 23: 127 - 129, 1976.

# CESTODES OF RUMINANTS IN AFGHANISTAN

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**Abstract.** Five cestode species parasitizing ruminants were found for the first time in Afghanistan: *Moniezia benedeni*, *M. expansa*, *Avitellina centripunctata*, *Stilesia globipunctata*, and *Thysaniezia giardi*.

Since there had been no records available of the cestodes of ruminants from Afghanistan, these animals were examined during the Czechoslovak expedition to Afghanistan in 1974. Besides other helminths, 5 species of cestodes were recovered. They are dealt with in the present paper.

## MATERIALS AND METHODS

During the studies on parasites of domestic animals in Kabul, 74 specimens of ruminants were examined for helminths at autopsy at the abattoir: *Bubalus arnee f. bubalis* (L., 1758) (6 specimens), *Capra hircus* L., 1758 (37 specimens), *Ovis aries* L., 1758 (21 specimens), *Bos taurus* L., 1758 (9 specimens), and *Camelus dromedarius* L., 1758 (1 specimen). The examined animals originated from the provinces Ghazni, Nangrahar, Kabul, Kunduz, and Badakhshan. The cestodes were fixed in 4% formalin, stained with borax-carmine and then determined. The material comprised 5 species of cestodes belonging to the families Anoplocephalidae and Avitellinidae.

## SYSTEMATIC SURVEY OF SPECIES RECOVERED

### Anoplocephalidae Cholodkowsky, 1902

#### 1. *Moniezia benedeni* (Moniez, 1879)

*M. benedeni* (Plate IA) is a parasite of the small intestine of cattle and other ruminants. It has a cosmopolitan distribution and develops in the oribatid mites. Our specimens were recovered from the small intestine of 1 goat from the vicinity of Kabul.

#### 2. *Moniezia expansa* (Rudolphi, 1810)

*M. expansa* (Plate IB) is one of the most widely distributed cestode species parasitizing ruminants. It occurs more frequently in lambs and young cattle than in adult specimens. It develops in the oribatid mites. Our material was recovered from the small intestines of 1 sheep and 1 goat originating from Ghazni and Kunduz.

### Avitellinidae Spassky, 1950

#### 1. *Avitellina centripunctata* (Rivolta, 1874)

*A. centripunctata* (Plate IIIB) parasitizes the small intestine of ruminants. It is distributed in southern Europe, Africa, Asia, the Caucasus, the Ukraine, and some

southern regions of the U.S.S.R. Its life cycle is not known. We have recovered this species from 10 out of the 13 goats and 1 buffalo examined. The hosts originated from the provinces Ghazni, Nangrahar, Kabul and Kunduz. This species of cestodes was most numerous in our material.

2. ***Stilesia globipunctata*** (Rivolta, 1874)

*S. globipunctata* (Plate III A) parasitizes the small intestine of goats, sheep, cattle and other ruminants. It is distributed in Africa, Asia and Europe, mainly in its southern half. It develops in the oribatid mites. According to Graber and Gruvel (1964 a, b) the intermediate hosts of *S. globipunctata* can be *Scheloribates perforatus*, *S. parvus conglobatus*, *S. fimbriatus africanus*, *Africacarus calcarotus*, and *Galumna pellucida*. Our material was recovered from 1 goat and 1 sheep from the vicinity of Kabul.

3. ***Thysaniezia giardi*** (Moniez, 1879)

*T. giardi* (Plate II A) parasitizes the small intestine of cattle, sheep and other ruminants. It has a cosmopolitan distribution and occurs rarely in the northern regions. The life cycle of this species involves the oribatid mites of the families Galumnidae and Ceratozetidae. Our material was recovered from 1 goat from Kabul.

## DISCUSSION

There have been no records available in the literature of the cestodes of ruminants from Afghanistan. In our studies, we found five cestode species in *Bubalus arnee* f. *bubalis*, *Capra hircus* and *Ovis aries*. The cestode *Avitellina centripunctata* was encountered most frequently. The buffaloes harboured only one cestode species — *A. centripunctata*, the sheep three species — *Moniezia expansa*, *Avitellina centripunctata*, and *Stilesia globipunctata*, and the goats harboured all five cestode species.

A similar species composition of cestodes was observed in cattle by Azimov and Pulatov (1968) in Uzbekistan, which is neighbouring Afghanistan. The authors did not find *Stilesia globipunctata* in cattle, but in our material this species was recovered from *Capra hircus* and *Ovis aries*. Out of the 1211 specimens of cattle examined by Azimov and Pulatov (1968), 111 specimens (9 %) harboured *Moniezia benedeni* and in 44 cases *Thysaniezia giardi* was found. They reported also *M. autumnalis* Kuznecov, 1967, which occurred in 8 cases. In our opinion, this species is identical with *M. benedeni*.

Dobrynin (1968) recorded 6 cestode species from the ruminants in Turkestan: *Moniezia expansa*, *M. benedeni*, *Thysaniezia giardi*, *Avitellina centripunctata*, *Stilesia globipunctata*, and *S. vittata*. All these species, except for *S. vittata*, occurred in our material from Afghanistan. According to Dobrynin, the camels in Turkestan are parasitized by two species, namely *Stilesia vittata* (54 %) and *Moniezia expansa* (20.8 %). In the mountain and planar regions they are infected with *Moniezia*, whereas in the desert with *Stilesia*. According to Badanin and Cernikova (1962), 73 % of the camels in Turkestan are infected with *Stilesia* and only 10 % with *Moniezia* (cit. Dobrynin 1968). Mardyev (1968) examined 458 specimens of cattle in Uzbekistan and recovered 3 cestode species: *Moniezia expansa* (16.6 %), *Moniezia benedeni* (25 %), and *Thysaniezia giardi* (58.4 %). Mustakimov (1968) obtained four cestode species from the 737 sheep examined in Tadzhikistan: *Moniezia expansa*

(35.5 %), *M. benedeni* (56.4 %), *Thysaniezia giardi* (17.5 %), and *Avitellina centripunctata* (25.1 %).

The above data suggest that our findings of 5 cestode species from ruminants from Afghanistan correspond to the results obtained by other authors in Middle Asia.

## CONCLUSION

Seventy-four specimens of ruminants were autopsied and examined for helminths at the abattoir in Kabul. Five cestode species were recovered; the most numerous was *Avitellina centripunctata*. *Capra hircus* harboured 5 cestode species, *Moniezia benedeni*, *M. expansa*, *Avitellina centripunctata*, *Stilesia globipunctata*, and *Thysaniezia giardi*; *Ovis aries* harboured *Moniezia expansa*, *Avitellina centripunctata*, and *Stilesia globipunctata*, and in the host *Bubalus arnee* f. *bubalis* only one cestode, *Avitellina centripunctata*, was found.

ЦЕСТОДЫ ЖВАЧНЫХ АФГАНИСТАНА

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Резюме. Пять видов цестод паразитирующих жвачных было обнаружено в первый раз в Афганистане: *Moniezia benedeni*, *M. expansa*, *Avitellina centripunctata*, *Stilesia globipunctata* и *Thysaniezia giardi*.

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Received 12 November 1975.

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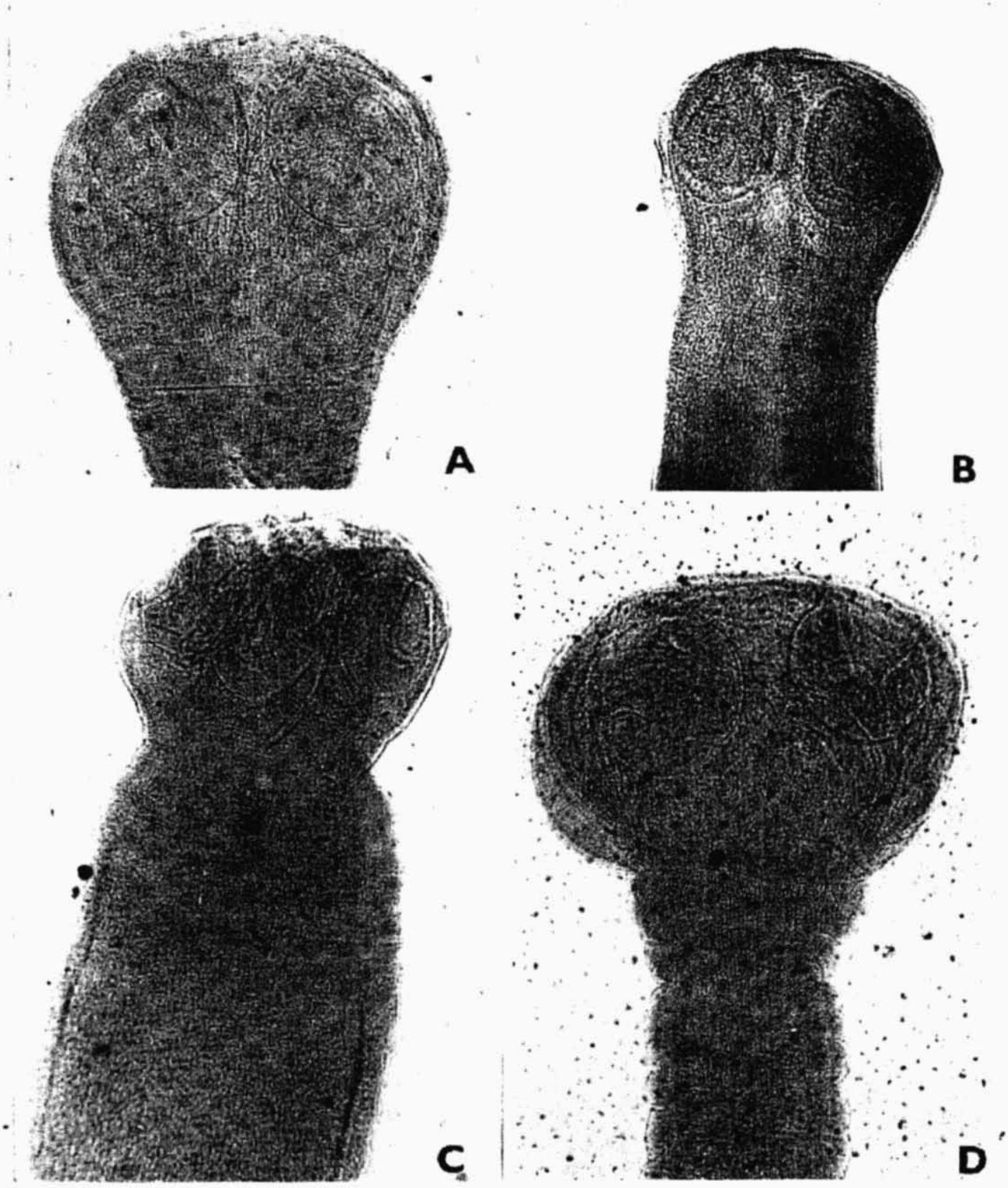
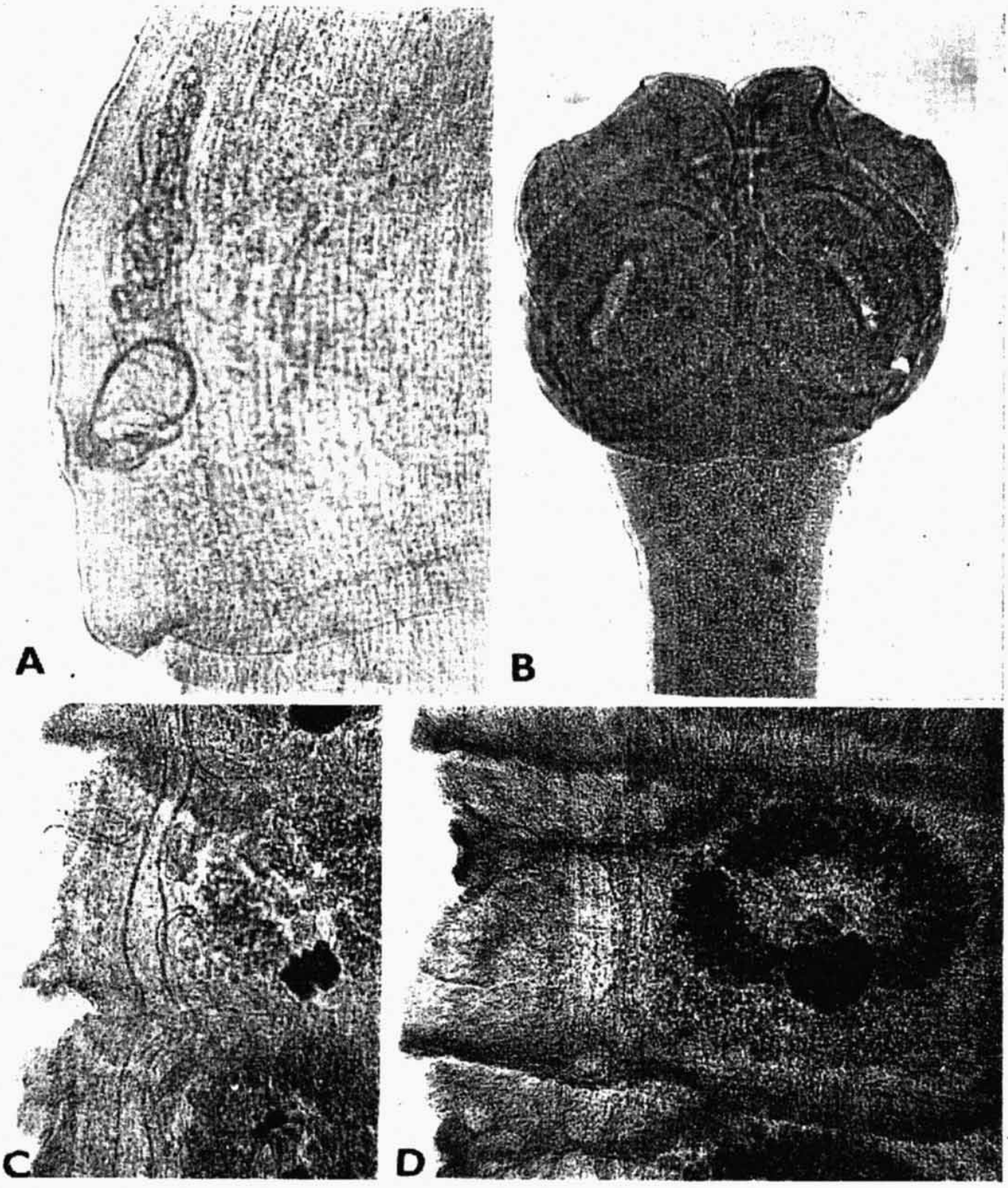
FOLIA PARASITOLOGICA (PRAHA) 23: 129—130, 1976.

## The 65th anniversary of RNDr. Bedřich Pokorný

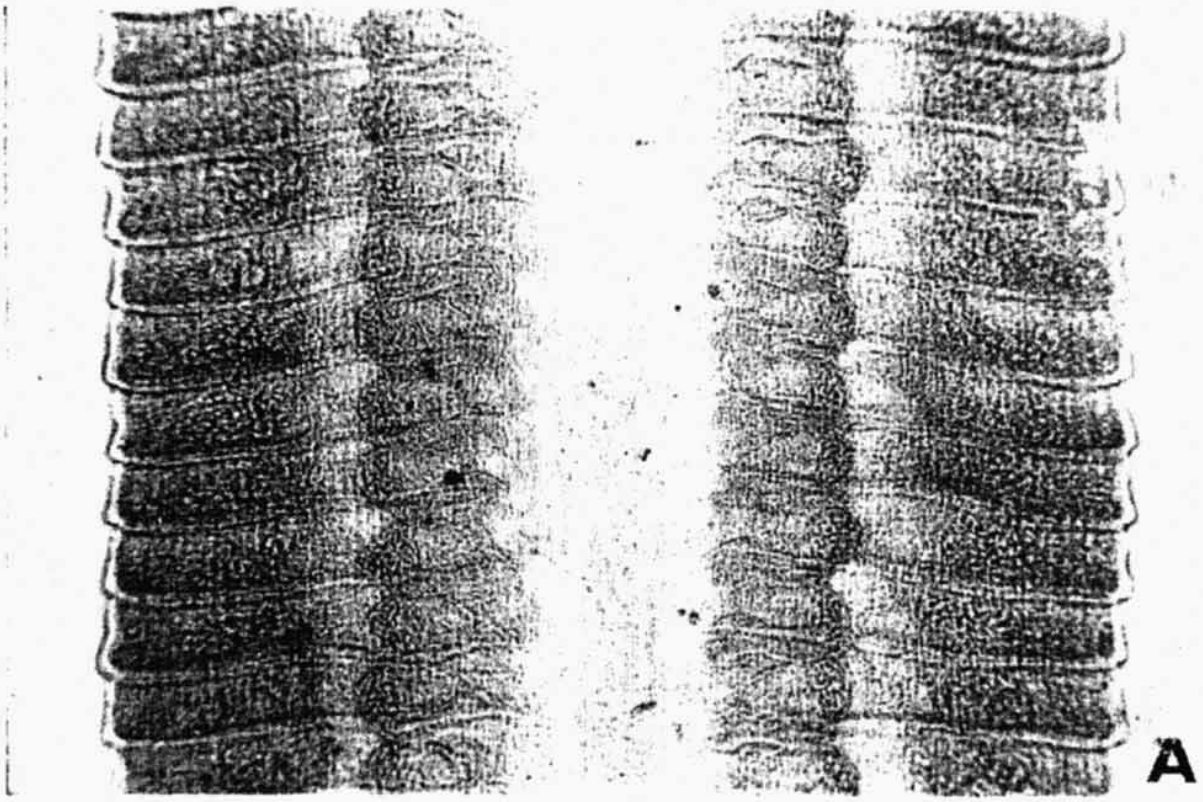
On May 11 1975 the well known parasitologist RNDr. Bedřich Pokorný celebrated his 65th birthday. Born in Tábor where he completed his secondary school education, he was admitted in 1929 to the Charles University in Prague to study natural sciences and geography, a combination of subjects which indicated his broad interest and liberal educational aspirations. He graduated in 1935 and from then to 1945 matured in the discipline of secondary school teaching being awarded the degree of Doctor of Natural Sciences in 1938. He had from the beginning evidenced a keen interest in zoology and in parasitology in particular and these were to exert a keen influence on his subsequent career. So the course of his life was set. In 1945, after

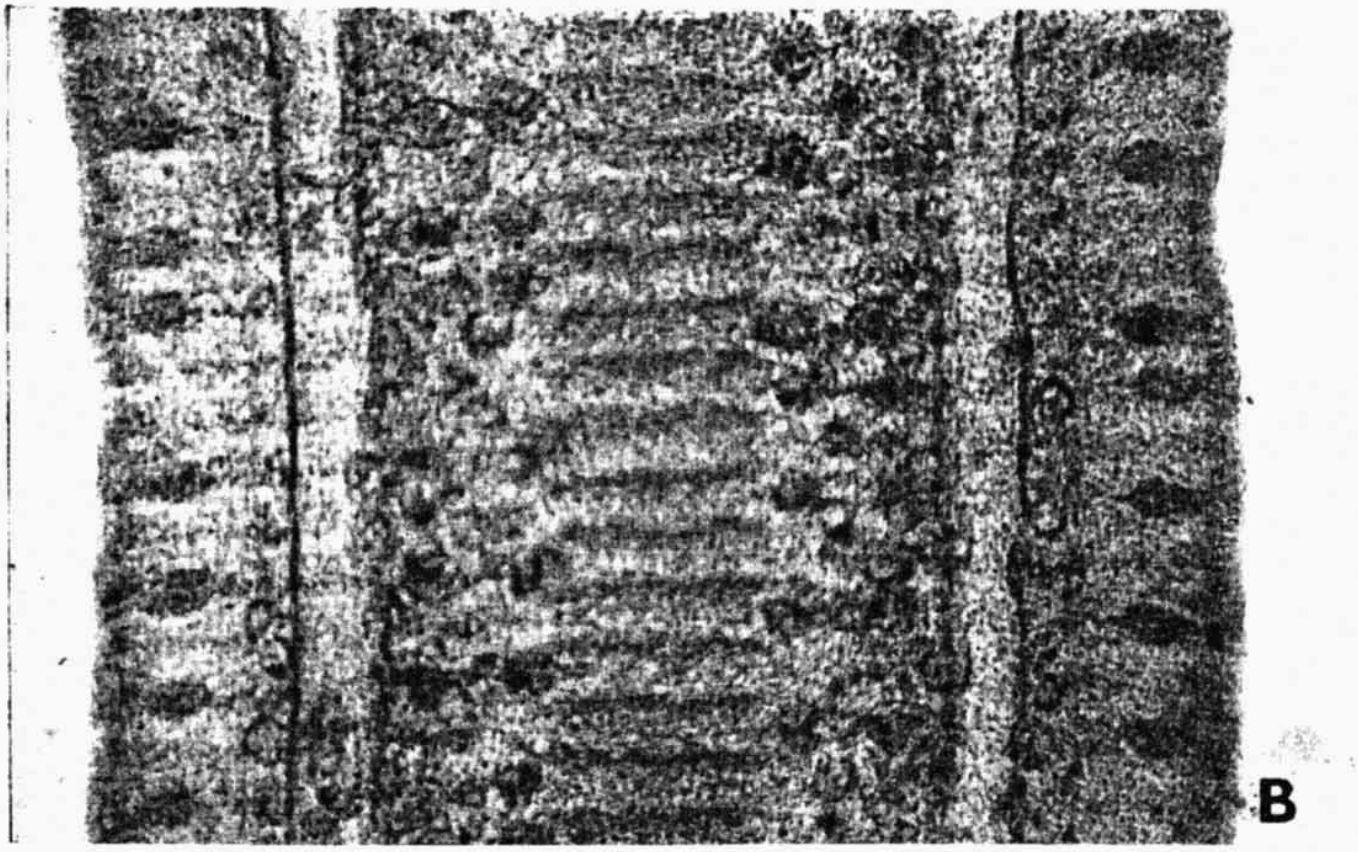



A — scolex of *Moniezia benedeni*; B — scolex of *Moniezia expansa*; C — scolex of *Avitellina centripunctata*; D — scolex of *Stilesia globipunctata*.




A — proglottides of *Thysaniezia giardi*; B — scolex of *Thysaniezia giardi*; C — a portion of proglottides of *Moniezia expansa*; D — a portion of proglottides of *Moniezia benedeni*.




A — a portion of immature proglottides of *Stilesia globipunctata*; B — a portion of immature proglottides of *Avitellina centripunctata*.