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A Contribution to the Explanation of the Status of *Asterodiaspis variolosum* (RATZEBURG) *(Homoptera, Coccoidea, Asterolecaniidae)* on the Basis of Materials from Poland

[Pp. 389—404, pl. XXI and 6 text-figs.]

Przyczynek do wyjaśnienia statusu *Asterodiaspis variolosum* (RATZEBURG) *(Homoptera, Coccoidea, Asterolecaniidae)* na podstawie materiałów z Polski

К выяснению статуса *Asterodiaspis variolosum* (RATZEBURG) *(Homoptera, Coccoidea, Asterolecaniidae)* на основании материалов из Польши

Abstract. Materials for explanation of the status of *Asterodiaspis variolosum* (RATZEBURG) are provided. Having compared her own material with the data obtained from literature, the authoress has arrived at the conclusion that at the present state of research *Asterodiaspis variolosum* RATZEBURG) should be maintained as a species distinct from *Asterodiaspis quercicola* (BOUCHÉ). However, only larvae of the first instar may be used for faultless and reliable identification of the species.

INTRODUCTION

In spite of the fact that since the publication of RUSSELL'S paper *Asterodiaspis variolosum* (RATZEBURG), *Asteriodiaspis quercicola* (BOUCHÉ) and *Asterodiaspis minus* (RUSSELL) have generally been recognized as separate species, their status has not been explained sufficiently well and needs further study. This is ensuing from both the literature of the subject (RUSSELL, 1941; FERRIS, 1955; BORCHSENIUS, 1960; BORATYŃSKI, 1961; APEJI, 1964) and from a preliminary examination of the material gathered in Poland.

As will be seen from literature, *Asterodiaspis variolosum* (RATZEBURG) is morphologically best isolated from the other members of this group. In the

light of the studies carried out so far it is sharply demarcated from *quercicola* (BOUCHÉ) and *minus* (RUSSELL) in the first larval instar. The distinctive character is the lack of the sublateral series of dorsal 8-shaped pores in *A. variolosum* (RATZEBURG) (Fig. 5). The above-mentioned investigators claim that it is also possible to determine the adult females to species. They regard the number of multilocular pores as the distinctive character (Fig. 4G), giving their lowest number for *A. minus* (RUSSELL), the medium one for *A. quercicola* (BOUCHÉ) and the highest for *A. variolosum* (RATZEBURG).

The problem of the status of *Asterodiaspis minus* (RUSSELL) and *A. quercicola* (BOUCHÉ) as two separate species will not be taken into account in this paper, which will be given exclusively to the question of morphological differences between *A. quercicola* (BOUCHÉ) and *A. variolosum* (RATZEBURG). This is an essential problem, because in view of a very great resemblance between them in life history, the parthenogenetic reproduction, and the occurrence on the same host plant, only the clear-cut morphological differences may justify their recognition as two separate species.

The results obtained to date have an effect on the faunistic studies, because investigators inform of the presence of *Asterodiaspis quercicola* (BOUCHÉ) and *A. variolosum* (RATZEBURG) in an area on the basis of both adult females and larvae. Since RUSSELL'S publication SZULCZEWSKI (1949), BORATYŃSKI (1961) and KOTEJA & ŻAK-OGAZA (1969) have mentioned either of these species from the area of Poland. SZULCZEWSKI (1949) mentions *A. variolosum* from Ziemia Lubuska (Zielona Góra Province), without giving the developmental stage of the specimens. Moreover, according to the literature quoted (LINDINGER, 1912) Szulczewski uses this specific name in its old meaning and, therefore, it is not known which of the species recognized by RUSSELL the author had in mind. BORATYŃSKI (1961) recorded *A. quercicola* (BOUCHÉ) and *A. variolosum* (RATZEBURG) from Grybów near Nowy Sącz, without giving the developmental stage

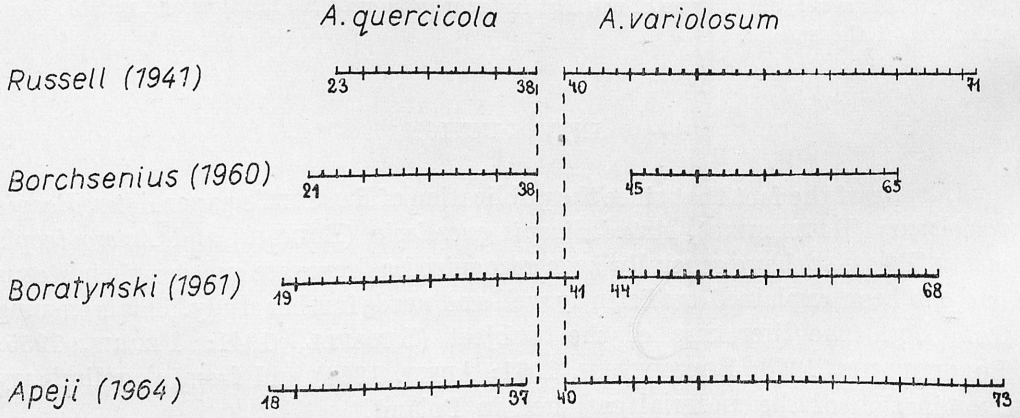

Fig. 1. Data from literature concerning the number of multilocular pores in adult females of *Asterodiaspis quercicola* (BOUCHÉ) and *A. variolosum* (RATZEB.)

of the specimens KOTEJA & ŻAK-OGAZA (1969) mention *A. quercicola* (BOUCHÉ) from the Ojców National Park, adult females and larvae of the 1st instar at one stand and only females at three others.

However, if the presence or lack of the sublateral series of 8-shaped pores in larvae seems to be a fit character for their distinction, the determination of adult females down to species on the basis of the number of multilocular pores raises doubt. The data obtained so far are presented in the form of a graph in Fig. 1. As will be seen, the dispersion of this character within the species is very great, whereas the differences between the species very small. BORCHSENIUS (1960) gives the narrowest ranges for the species. The results published by RUSSELL (1941) and APEJI (1964) are very similar, the ranges of pores within the species are very wide according to them and the differences between the species are two pores according to RUSSELL and three pores according to APEJI. BORATYŃSKI (1961) gives the highest numbers of multilocular pores for *A. quercicola* (BOUCHÉ), but these ranges were not established by him on the basis of larvae collected from under the test covering the body of their mothers and, as a result, it is not certain whether the females with the upper values of multilocular pores acknowledged by the author to be *A. quercicola* (BOUCHÉ) actually belonged to this species or to *A. variolosum* (RATZEBURG). I think, therefore, that the right procedure is to assume after RUSSELL (1941) the number of 38 multilocular pores, so far given in literature, as the highest for *A. quercicola* (BOUCHÉ) and, after RUSSELL (1941) and APEJI (1964), 40 pores as the lowest number for *A. variolosum* (RATZEBURG).

The purpose of the studies taken up on *Asterodiaspis variolosum* (RATZEBURG), *A. quercicola* (BOUCHÉ) and *A. minus* (RUSSELL) is to obtain data for the explanation of their status on the basis of materials from Poland. The results concerning a part of material collected in this area and worked out hitherto are given in the present paper.

STUDIES ON OWN MATERIAL

The material examined comes from an oak-tree *Quercus robur* L., growing in a small group of trees in the Bemowo District in Warsaw. I gathered it in 1966, 1968, and 1969. The material collected in 1966 and 1969 was examined directly, that obtained in 1968 was used to start individual cultures of these insects.

Study on Field Material

The material of 1966 consisted of 45 adult females gathered on 2nd April. As this was only a preliminary investigation, not all the examinations were carried out, namely, I did not make measurements and observations on living females, which instead were used to produce microscopic preparations.

In 1969 I collected 12 adult females on 13th June. This was the time of emergence of larvae. They crawled from under the test, which covers the body of the female, and scattered on the branches. Pieces of bark with adult females were cut off and the females were examined under a binocular microscope. I measured the length and width of their body inclusive of the test, noted the colour of the body, that of the test, and the degree of convexity of each adult female. After the removal of the larvae which were crawling outside the test and, therefore, may have derived from another mother, single females were isolated in tubes stopped with cotton wool, where the remaining larvae emerged. This method allowed me to fixforcertain the belonging of larvae to a definite mother and to compare the characters of sister larvae. Next I made preparations of the females and hatched larvae for microscopic study. The results of the study and observations will be dealt with in the third part of this paper, now I will discuss only the number of multilocular pores in adult females and the question of the sublateral series of dorsal 8-shalped pores in their larval progeny.

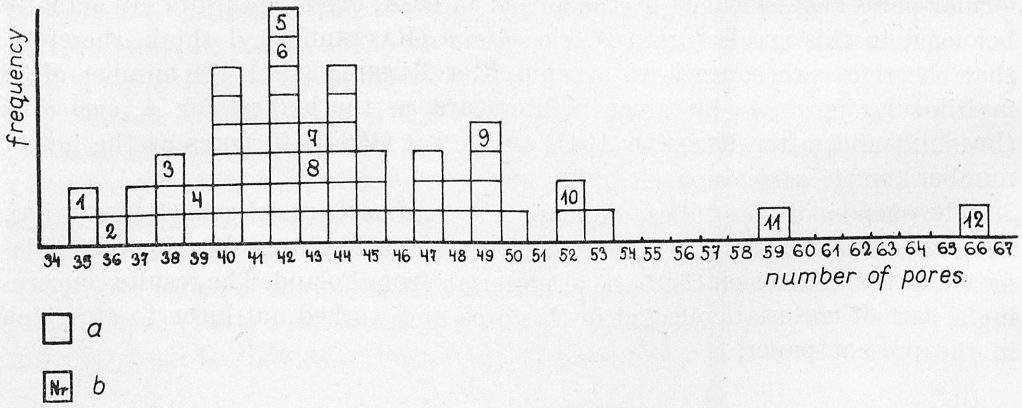

Fig. 2. Number of multilocular pores in adult females obtained direct from the field; a — adult females from which no larval material was obtained, b — adult females from which larval material was obtained

The number of multilocular pores in the adult females is illustrated in a histogram (Fig. 2), constructed after the example of BORATYŃSKI'S (1961) histogram. It shows the frequency of specimens with different numbers of multilocular pores. The empty squares represent the females collected on 2nd April 1966, which provided no larval material. The squares with a figure inside represent the females taken on 13th June 1969, from which larval material was obtained. The number of the larvae examined from each of the 12 females is given in Table I.

A total of 156 larvae were examined. All the larvae were the *variolosum* type, that is, they lacked the sublateral series of dorsal 8-shaped pores. In addition to the marginal series of 8-shaped pores (Fig. 5 Ba), they had a pair

of such pores or only one pore (Bb) on the dorsal side, this difference occurring both between the larvae obtained from different mothers and between those from the same mother.

Table I

Number of examined larvae descending from 12 adult females collected in the field

Female No.	1	2	3	4	5	6	7	8	9	10	11	12
Number of multilocular pores in females	35	36	38	39	42	42	43	43	49	52	59	66
Number of examined larvae obtained from given female	24	8	31	14	1	14	10	7	3	25	8	11

The presence of larvae of only one type and the one-peak structure of the histogram, with the maximum number of specimens in the middle and its gradual decrease towards the sides, indicate that the material examined represented a population of the same species. Determined on the basis of larvae, it appears to have been *Asterodiaspis variolosum* (RATZEBURG). In the adult females of the population examined the numbers of multilocular pores range between 35 and 66.

Study on Material from Individual Cultures

The material of 1968 consisted of 10 adult females gathered on 12th June in the initial period of emergence of larvae. The females collected were used to start 10 individual cultures. The purpose of these individual cultures was to acquire reliable material for the examination of the adult females derived from the same mother for the number of multilocular pores, and to find what type of larvae were produced by the adult females of the second generation. The procedure adopted was as follows:

I planted three-year-old oaks *Quercus robus* L. singly in clay pots and, having made sure that they were not infested by any species of the *Coccoidea*, I placed one female on each plant, by tying a piece of bark with in to a twig. Thus, each of the females gave rise to a culture in which sororal larvae developed and metamorphosed into adult females towards the end of the summer. I gathered some of these females in October of the same year, others on 10th July in the next year and isolated them, as mentioned above, in tubes in order to obtain larval material from them. I usually took 10 adult females from one maternal female. The numbers of multilocular pores in each mother and its female offspring are presented in the form of a histogram (Fig. 3). I made 10 such histograms, one for each of the cultures. Particular cultures are marked with Roman numerals in it. The hatched squares represent the maternal females,

the empty squares the adult females obtained from them, collected in October 1968 and providing no larval material, and the squares with a figure inside the females gathered on 10th July 1969, which produced larvae.

I did not give the numbers of multilocular pores in mothers for cultures VI, VIII and IX. The female of culture VI had undergone a complete destruction and those of cultures VIII and IX had been destroyed in part. There were 38 multilocular pores in the undestroyed part of the maternal female of culturee VIII and 40 multilocular pores in the maternal female of culture IX. However, the number of these pores was probably considerably higher in both these females. Be that as it may, the results of these cultures are important, because they allowed us to ascertain that the female offspring in each of them were sororal females.

Under the tests of some mothers there were dead larvae. There were 3 such larvae under the test of female I, one in female III, and two in female VI. All of them were the *variolosum* type.

The histograms presented show that the variation ranges of the numbers of multilocular pores in adult females derived from the same mother are generally wide. There were females in which the number of multilocular pores went beyond the 35—66 range obtained for females gathered directly in the field. Two females had fewer multilocular pores than 35. They were the maternal female of culture III with 34 multilocular pores and a daughter female from culture X with 33. In 7 adult females the number of these pores exceeded the upper value of the range. Two adult females, one from culture VII and one from culture VIII, had 67 multilocular pores, four females, two from culture III, one from culture VII and one from culture X, had 68 multilocular pores, and one female from culture IV had 70. Thus the general range of the numbers of multilocular pores in females derived from the individual cultures was from 33 to 70.

The number of larvae descending from the daughter females collected on 10th July 1969 is given in Table II.

The total of larvae examined was 143. They were all the *variolosum* type, i. e., they had not the sublateral series of dorsal 8-shaped pores. This fact once again confirms the statement that the material examined consisted of specimens of *Asterodiaspis variolosum* (RATZEBURG).

RESULTS

The morphology of larvae of the first instar and adult females on the basis of the whole material studied is given in this section.

Habitat

The adult females are attached immovably to the branches of oaks on which they live, causing their deformation in the form of depressions.

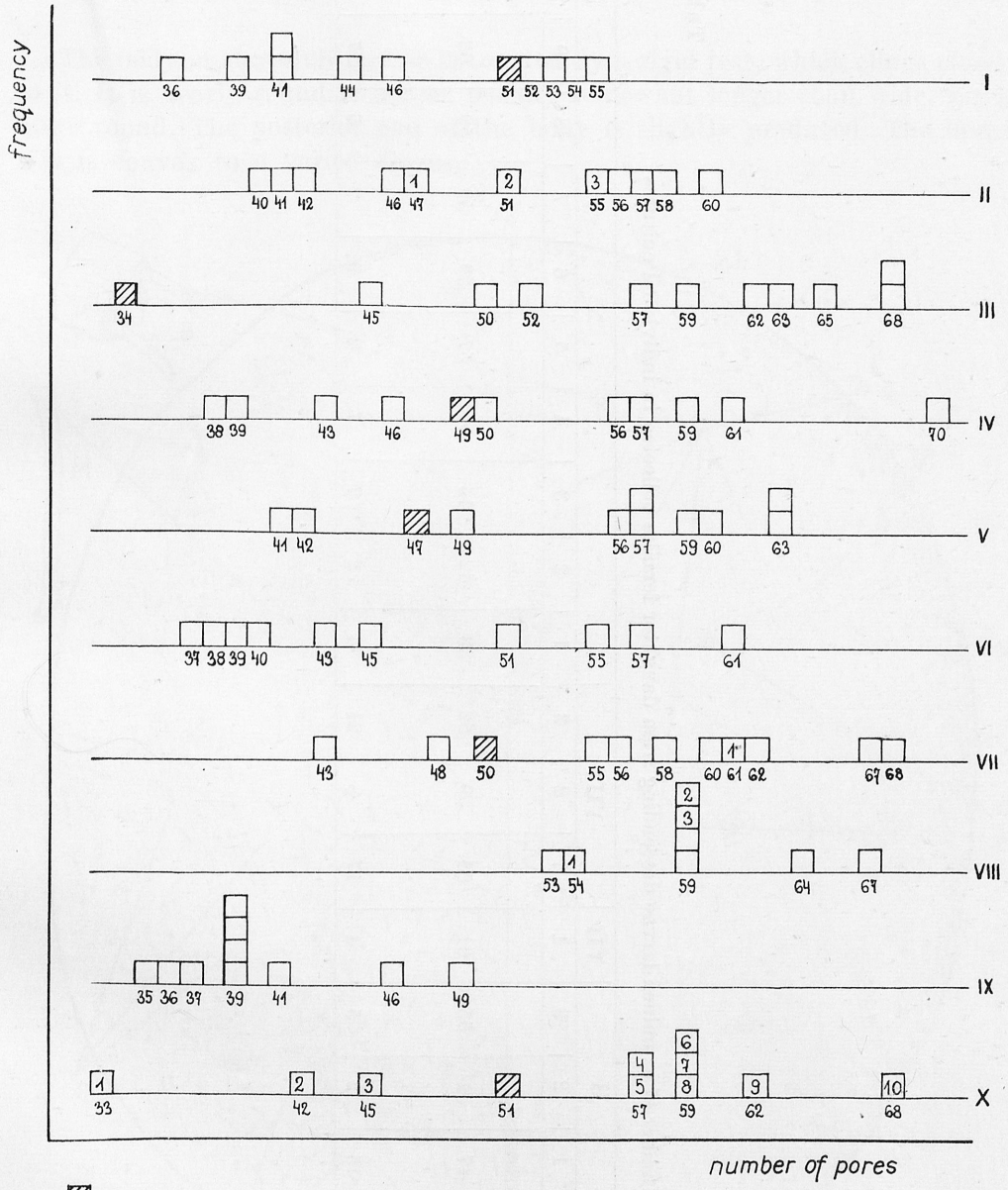

Fig. 3. Number of multilocular pores in adult females derived from individual cultures; a — adult maternal females, b — adult daughter females which provided no larval material, c — adult daughter females which provided larval material

Table II

Number of examined larvae descending from daughter females collected in individual cultures

Culture No.	II			VII	VIII			X									
Female No.	1	2	3	1	1	2	3	1	2	3	4	5	6	7	8	9	10
Number of multilocular pores in females	47	51	55	61	54	59	59	33	42	45	57	57	59	59	59	62	68
Number of examined larvae obtained from given female	15	2	5	4	17	8	21	4	2	7	7	2	9	2	5	17	16

Morphology of Adult Female

(Fig. 4)

The body of the adult female is covered by a rigid test, which clings closely to it. It is nearly round in shape, usually somewhat longer than wide, rarely quite round. The posterior end of the body is slightly produced. The dorsal side is convex to a varied degree.

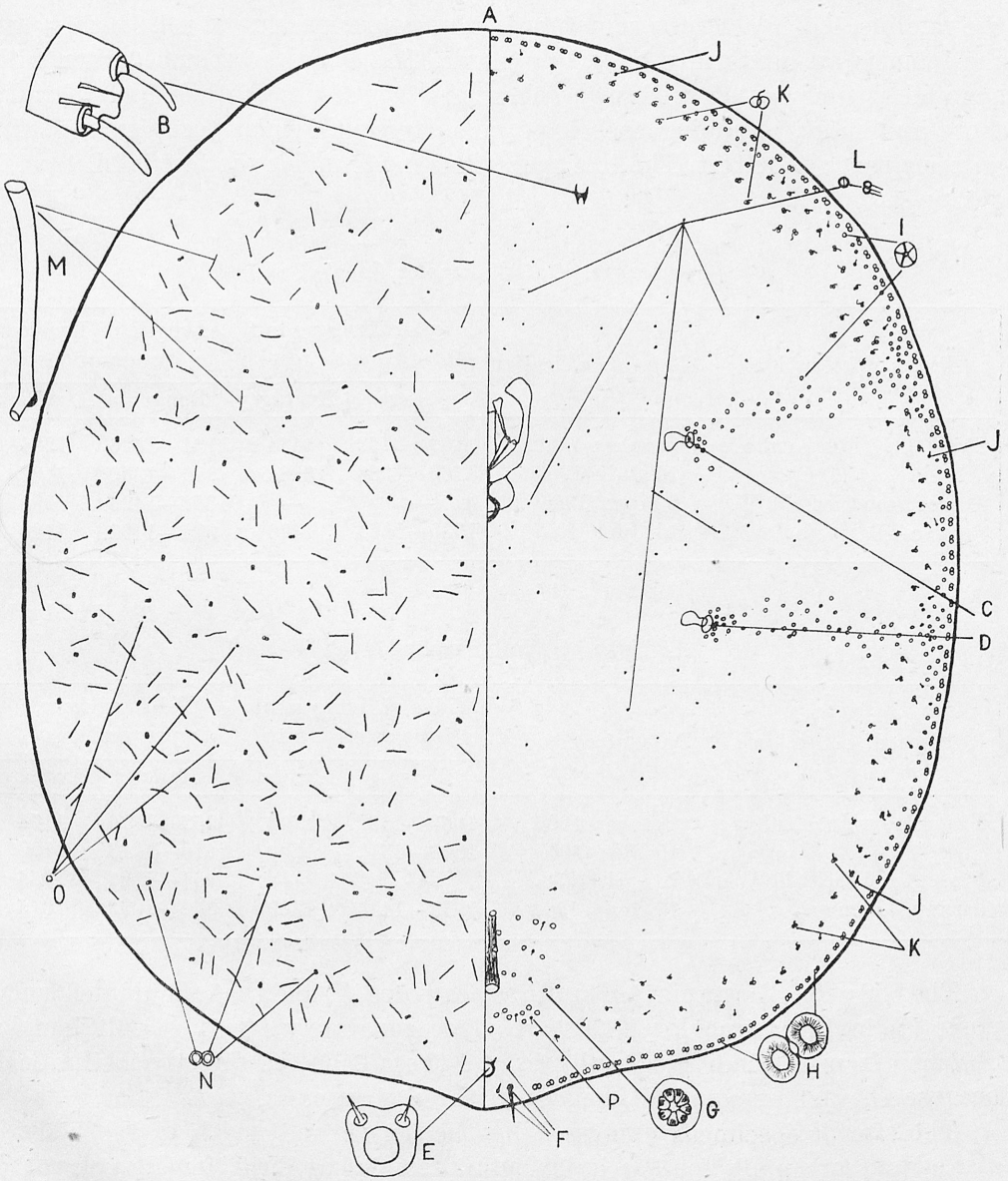

Fig. 4. *Asterodiaspis variolosum* (Ratzeb.). Adult female (from Warszawa—Bemowo, on *Quercus robur* L.)

The test which covers the body is thin, lustrous and transparent, greenish or greenish-yellow in coloration, sometimes clouded. Its edge bears a whitish waxy fringe.

The body of young adult females is generally ununiformly coloured (Pl. I). The ground colour is yellow with dark pigmentation. The pigmentation forms a fairly characteristic pattern: a dark broad streak round the body and two semicircular streaks situated near the midline of the body and touching each other at the anterior and posterior ends. The pigmentation occurs also along the midline. This pattern is sometimes indistinct or missing at all. In this case the females are uniformly brown in colour. The females become darker with age and assume a uniform brown colour. As they lay eggs, their body shrinks more and more, assuming the shape of a crescent, which occupies only the anterior part of the test. The free space thus made under the test is filled with the eggs.

Table III

Length of adult females (in μ)

Place of collection	Date of collection	Length of living adult females with test		Length of female preparations	
		Range	Average	Range	Average
From individual cultures	October 1968	1190—1750	1484·9	1134—1526	1286
	10 July 1969	1260—1680	1508·5	980—1330	1197
Direct from the field, Warszawa—Bemowo	2 April 1966	—	—	1064—1426	1230
	13 June 1969	1330—1624	1470	882—1400	1120

Table IV

Width of adult females (in μ)

Place of collection	Date of collection	Width of living adult females with test		Width of female preparations	
		Range	Average	Range	Average
From individual cultures	October 1968	1050—1582	1266	952—1330	1174
	10 July 1969	1008—1512	1290	910—1218	1120
Direct from the field, Warszawa—Bemowo	2 April 1966	—	—	961—1204	1056
	13 June 1969	1078—1484	1209	868—1092	1015

The body size, the number of multilocular pores (G) and that of quinquelocular pores (I) in the spiracular bands are given separately for the adult females obtained from the individual cultures and those collected directly in the field, because they show some differences in these characters.

The size of specimens expressed by the length and width of the body is also given separately for the living adult females and the females prepared. In addition, the lengths and widths of the specimens gathered before and after egg-laying are given separately both for the material from the individual cultures

and for the field material. In the material from the individual cultures the former females came from October and the latter ones from July. In the field material the females collected before egg-laying came from April and those taken after egg-laying from June. The lengths of the specimens are compared in Table III, the widths in Table IV.

A comparison of the mean sizes calculated for the preparations of adult females gathered in the cultures and in the field before egg-laying reveals that the laboratory females were somewhat larger than the field ones. This is also true of the prepared females gathered in the cultures and in the field after egg-laying.

The prepared females taken before egg-laying compared with those collected after egg-laying show that the size of the latter was somewhat smaller both within the group from the individual cultures and in the group from the field. This is probably due to the fact that after laying eggs the females are shrunk and cannot be straightened up thoroughly. Therefore, the results obtained on females after egg-laying are not quite adequate, because the females are actually somewhat larger.

Dorsal Side

Small dorsal 8-shaped pores (N), 3·5 μ long, dorsal simple pores (0), 1 μ in diameter, and tubular ducts (M), 29—39 μ long with an average of 34 μ, scattered all over the surface.

Ventral Side

Antennae tubercular, with 2 curved thick setae and 2 fine trichoid sensillae. Beak with 2 pairs of setae. Anterior and posterior spiracles (C and D) more or less equal in length.

Pores: Marginal 8-shaped pores (H), about 9 μ long, arranged in a single regular row along body margin and with their long axes parallel to circumference. Submarginal ventral 8-shaped pores (K) smaller, 3 μ long, in a submarginal band composed of 2—3 irregular rows. Quinquelocular pores (I), 3·5 μ in diameter, in a spiracular band extending from the spirales to the body margin, with a more or less isolated group near the spiracles. Their number in the adult females from the cultures was 39—96, averaging 65·7, and in the adult females from the field 34—64, on the average 50·9. The analogous quinquelocular pores form a single submarginal row beside the marginal 8-shaped pores. This row ends at some distance from the terminal part of the body and is frequently interrupted in its anterior part. In the places where the spiracular band of quinquelocular pores approaches the margin, it is partly doubled. The ventral dark-rimmed pores (L), 1·5 μ in diameter, are scattered in the region of the beak, in the region of the spiracular bands and in the anterior part of the abdomen. The multilocular pores (G) lie in four irregular transverse lines in the paravaginal region;

they have generally 8—10 loculi and are about 6 μ in diameter. Among them there occur some smaller pores with a smaller number of loculi, sometimes even hardly 3. There are also sporadic larger pores with 11 loculi. The number of multilocular pores in the adult females from the cultures was 33—70, averaging 51·5, and in the adult field females 35—66, on the average 43·7.

Setae: A pair of apical setae, 32—37 μ long, on the average 35 μ, occurs on the posterior tip of the body. In the proximity of it there are smaller interapical and anteroventral setae, about 6 μ long, a pair of each. The setae among the multilocular pores (P) are 4—8 μ long. In typical cases, two pairs of them occur in the last row, one pair in each of the three front rows, and another pair in front of them. Sometimes one of the setae is missing or there occurs an additional seta. The submarginal ventral setae (J), about 3 μ in length, are arranged in a single submarginal row round the body.

Morphology of First-Instar Larva

(Fig. 5)

Body membraneous, in crawlers about 250 μ long and about 150 μ wide.

Dorsal Side

The small dorsal single pores (C) form a single sublateral row on the abdominal segments and several of them occur in the cephalothoracic area. There is an 8-shaped pore, or a pair of then, in the proximity of the midline of the anterior body part, whereas the sublateral and submedial rows of such pores are lacking. One seta is sometimes present in the cephalic area.

Ventral side

Eyes positioned at margin, anterolateral to bases of antennae. Antennae 6-jointed. Legs well-developed, with very short tibia, $\frac{1}{4}$—$\frac{1}{3}$ length of tarsus. Beak pentagonal, with 3 pairs of setae at tip (G). Anterior and posterior spiracles small in size. Anal opening (L) at end of ventral side of body, somewhat retracted inwards. Anal ring sclerotized, with 2 setae, 5 μ long.

Pores: The marginal 8-shaped pores (Ba), 6·5 μ long and 3·5 μ wide, are disposed in a single regular row, their long axes being parallel to the body margin. The small dark-rimmed pores (H) form a single sublateral row on either side of the body. There are 6 pairs of these pores on the abdomen, one pair between the spiracles and one in the anterior part of the body, postlaterally to the bases of the antennae. A pair of larger 8-shaped interantennal pores (I) occurs between the bases of the antennae, one quinquelocular pore and one tri- or quadrilocular pore (J) near the anterior spiracle, and one trilocular pore (K) near the posterior spiracle.

Body setae: At the tip of the body there are 1 pair of apical setae (Da), about 60 μ long, 1 pair of interapical setae (Db), about 8 μ long, and 1 pair of anteroventral setae (Dc), about 3 μ in length. The abdominal segments bear 7 pairs of submarginal ventral setae (E). Two pairs of anterior marginal setae (F) occur between the eyes and two pairs of setae between the antennae and the beak. A seta is occasionally present in front of the antennae.

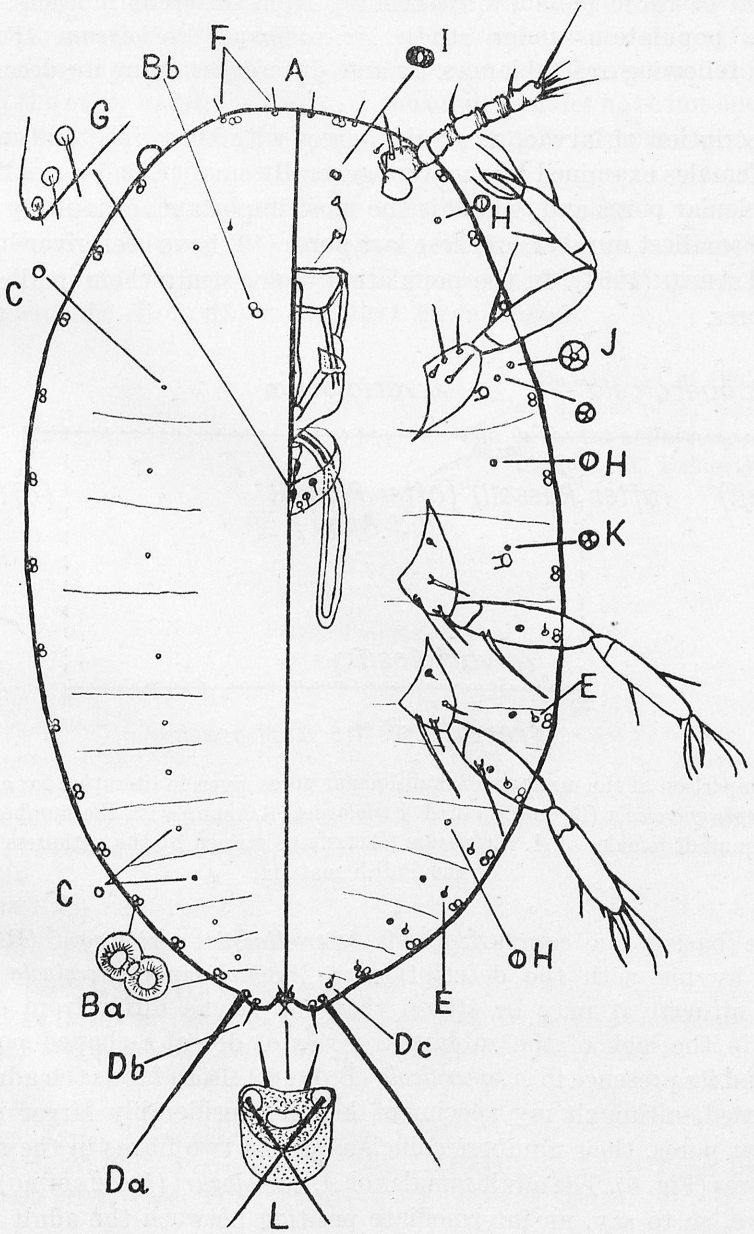

Fig. 5. *Asterodiaspis variolosum* (RATZEB.). Larva of the first instar (from Warszawa—Bemowo, on *Quercus robur* L.)

Discussion

I identified the specimens examined by me in this study as *Asterodiaspis variolosum* (RATZEBURG). The determination was made on the basis of the larvae of the first instar, which lacked the sublateral row of dorsal 8-shaped pores. Its lack was characteristic both of the groups of larvae derived from one mother and of those of larvae descending from different mothers.

In the population under study *Asterodiaspis variolosum* (RATZEBURG) shows the following resemblances to and differences from its descriptions in literature:

My description of larvae, as a rule, agrees with those in literature, whereas the adult females examined by me were generally smaller, had a smaller number of quinquelcular pores and, which is the most important, of multilocular pores. So far, the smallest numbers of these last pores (40) have been given by RUSSELL (1941) and APEJI (1964). In the population under study their smallest number was 33 pores.

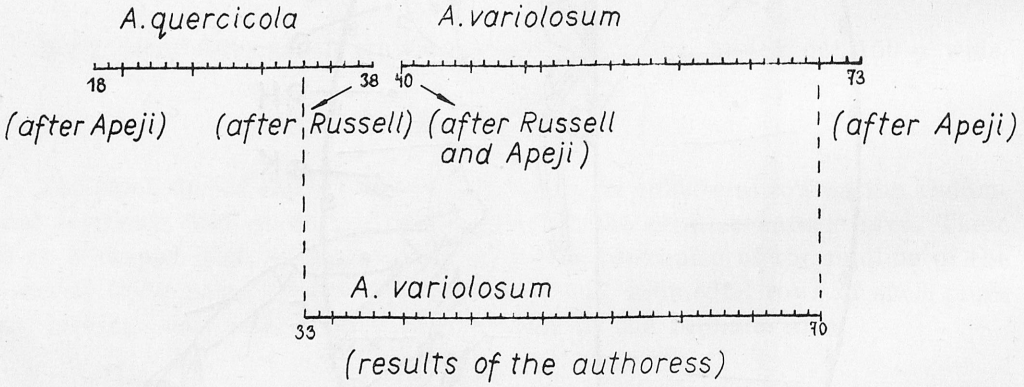

Fig. 6. A comparison of the numbers of multilocular pores given in literature for adult females of *Asterodiaspis quercicola* (BOUCHÉ) and *A. variolosum* (RATZEB.) with the number of multilocular pores in adult females of *A. variolosum* (RATZEB.) obtained by the authoress on the basis of the Polish material

On the basis of a comparison of *Asterodiaspis variolosum* (RATZEBURG) examined by me with the description of *Asterodiaspis quercicola* (BOUCHÉ) published hitherto it may be stated that the larvae differ from each other distinctly in the lack of the sublateral series of dorsal 8-shaped pores in my material and its presence in *A. quercicola* (BOUCHÉ). In so far as the adult females are concerned, although my specimens had a considerably larger number of multilocular pores, their numbers coincided in the two forms in the range from 33 to 38 pores (Fig. 6). The adult females of *A. variolosum* (RATZEBURG) examined by me have, so to say, an intermediate position between the adult females of *A. quercicola* (BOUCHÉ) described in literature and those of *A. variolosum* (RATZEBURG) from literature, with a shift towards these last.

CONCLUSIONS

On considering the contribution of the study carried out on the material from Poland to the explanation of the status of *Asterodiaspis variolosum* (RATZEBURG), it may be stated that the results obtained in the study of the adult females differ in some measure from those concerning the larvae of the first instar. The procudtion of larvae of one and the same type (*variolosum*) by each mother confirms the distinctness of *Asterodiaspis variolosum* (RATZEBURG) from *Asterodiaspis quercicola* (BOUCHÉ) and, consequently, its status as a distinct species. On the other hand, the fact that the adult females have not one character that would make it possible to identify each female impairs the rightness of this statement.

In the present state of knowledge the properest attitude seems to be the maintenance of *Asterodiaspis variolosum* (RATZEBURG) as a distinct species, assuming, however, that the only stage in which it can be distinguished infallibly from *A. quercicola* (BOUCHÉ) is the first larval instar.

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BIBLIOGRAPHY

APEJI S. A. 1964. Studies on species of *Asterodiaspis* (*Coccoidea*) on oak in Britain. Unpublished thesis submitted for the Diploma of Imperial College (University of London). 201 pp. and appendix.

BORATYŃSKI K. 1961. A note on the species of *Asterolecanium* TARGIONI-TOZZETTI, 1869 (*Homoptera, Coccoidea, Asterolecaniidae*) on oak in Britain. Proc. roy. ent. Soc. London, (B) **30**: 4—14.

BORCHSENIUS N. S. 1960. Podotrjad červecy i ščitovki (*Coccoidea*) semejstva *Kermococcidae, Asterolecaniidae, Lecanodiaspididae, Aclerdidae*. Fauna SSSR, Moskwa—Leningrad, **8**: 1—283.

FERRIS G. F. 1955. Atlas of the Scale Insects of North America. Stanford, London, **7**: 1—233.

KOTEJA J., ŻAK-OGAZA B. 1969. The Scale Insect Fauna (*Homoptera, Coccoidea*) of the Ojców National Park in Poland. Acta zool. cracov., Kraków, **14**: 351—373.

LINDINGER L. 1912. Die Schildläuse (*Coccidae*). Stuttgart. 388 pp.

RUSSELL L. M. 1941. A classification of the Scale Insect genus *Asterolecanium*. Misc. Publ. U.S. Dep. Agric., Washington, D.C., **424**: 1—322.

SZULCZEWSKI J. W. 1949. Przyczynek do fauny czerwców (*Coccinae*) Ziemi Lubuskiej. Pr. Kom. mat. przyr. Pozn. TPN., Poznań, **2**: 219—224.

STRESZCZENIE

W pracy podaję wyniki własnych badań na materiale z Polski. Badania o charakterze taksonomicznym i morfologicznym prowadzone były nad populacją gatunku z rodzaju *Asterodiaspis* SIGNORET. Badano dojrzałe samice oraz ich potomstwo w pierwszym stadium larwalnym i w stadium dojrzałych samic. Na podstawie cech larw oznaczono badany gatunek jako *Asterodiaspis variolosum* (RATZEBURG).

Porównanie zbadanych samic *Asterodiaspis variolosum* (RATZEBURG) z opisami z literatury wykazało istotne różnice. Pod względem cech taksonomicznych zbadane samice *Asterodiaspis variolosum* (RATZEBURG) zajęły pośrednie miejsce między *Asterodiaspis quercicola* (BOUCHÉ) z literatury a *Asterodiaspis variolosum* (RATZEBURG) z literatury, z przesunięciem w kierunku tego ostatniego. W badanej populacji liczba wielootworowych gruczołów u dojrzałych samic wynosiła 33—70.

Na podstawie własnych wyników uzyskanych na materiale polskim oraz danych z literatury autorka sądzi, że na obecnym etapie badań najlepiej utrzymać *Asterodiaspis variolosum* (RATZEBURG) jako oddzielny gatunek, przyjmując jednak tylko larwy pierwszego stadium jako jedyne stadium pozwalające na bezbłędne oddzielenie go od *Asterodiaspis quercicola* (BOUCHÉ).

РЕЗЮМЕ

В труде представлены собственные результаты автора по исследованиях материалов Польши. Исследования таксономического и морфологического характера производились по популяции вида, принадлежащего к роду *Asterodiaspis* SIGNORET Исследовались взрослые самки, а также их потомство в 1-вой стадии личинной и в стадии уже взрослых самок. На основании признаков личинок опредлено исследуемый вид как *Asterodiaspis variolosum*(RATZEBURG)

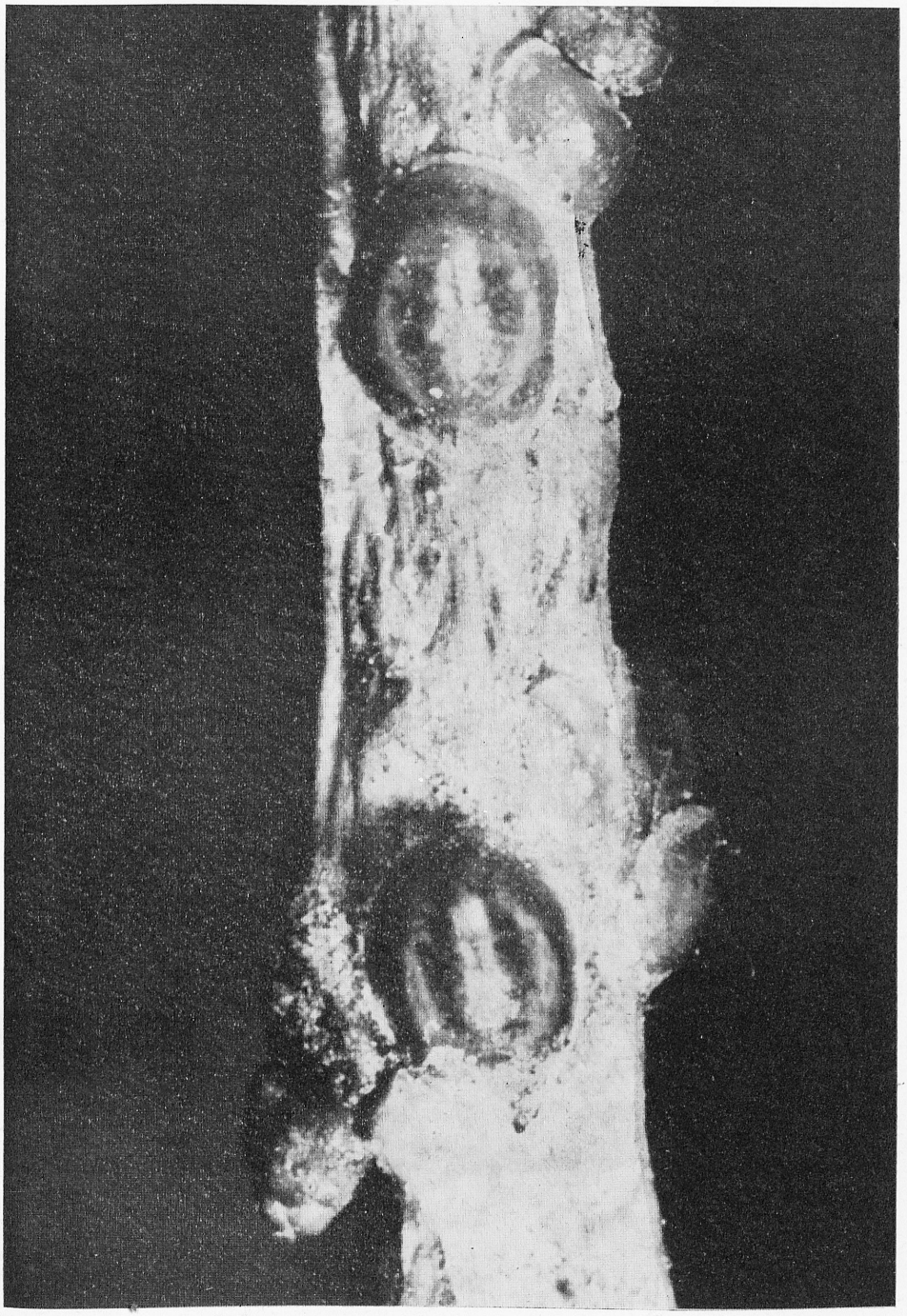
Сравнение исследованных автором самок *Asterodiaspis variolosum* (RATZEBURG) с описанными в литературе *Asterodiaspis variolosum* (RATZEBURG) выявило существенные различия. С точки зрения таксономических признаков, исследованные самки *Asterodiaspis variolosum* (RATZEBURG) заняли серединное место между приведенными в литературе *Asterodiaspis quercicola* (BOUCHÉ) и *Asterodiaspis variolosum* (RATZEBURG), с перемещением в направление этого последнего. В исследуемой популяции количество многоячеистых желез составляло у взрослых самок 33—70.

На основании собственных результатов, полученных на польских материалах и на основании данных в литературе, автор полагает, что в настоящем этапе исследований лучше всего удержать *Asterodiaspis variolosum* (RATZEBURG) как отдельный вид, принимая однако только личинки 1-вой стадии как единственно несомненную стадию по безошибочному отделению его от *Asterodiaspis quercicola* (BOUCHÉ).

PLATE

Plate XXI

Young adult females of *Asterodiaspis variolosum* (RATZEB.) from individual cultures



E. Podsiadlo
phot. B. Galka