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KAROL STARMACH

Homoeothrix janthina (Born. et Flah.) comb. nova mihi (= *Amphitrix janthina* Born. et Flah.) oraz sinice towarzyszące — *Homoeothrix janthina* (Born. et Flah.) comb. nova mihi (= *Amphitrix janthina* Born. et Flah.) and Associating it Blue-green Algae

Mémoire présenté le 4 mai 1959 dans la séance de la Commission Biologique de l'Académie Polonaise des Sciences, Cracovie

According to the former conception (Geitler 1932) there were in the *Rivulariaceae* family 5 genera which were characterized by the lack of heterocysts at the base of threads. These were: *Leptochaete* Borzi, 1882, *Amphithrix* Kützing, 1843, *Homoeothrix* (Thuret) Kirchner, 1900, *Tapinothrix* Sauvageau, 1892 and *Hammatoidea (Ammatoidea)* W. et G. S. West, 1897. In his new conception Geitler (1942) retained only the genera *Homoeothrix* and *Ammatoidea* classing the others as doubtful genera which may be crossed off this list.

In the Elenkin's monography (1949, II) the genera *Homoeothrix*, *Leptochaete* and *Amphithrix* were classified in the newly created *Homoeothrichaceae* family. The genus *Ammatoidea* (spelled by Elenkin *Hammatoidea)* was classified in the family *Hammatoideaceae;* the genus *Tapinothrix* was eliminated as being most probably, a stage of a species of the genus *Homoeothrix.*

The genera *Homoeothrix, Leptochaete* and *Amphithrix* form a group with similar characteristic. Threads without heterocysts at their bases characteristic all of them. Towards the apex they grow narrower and narrower and end with a hair characteristic in general for the *Rivulariaceae* family. On the other hand the genus *Ammatoidea* (formerly written phonetically *Hammatoidea* from ἅμμα — a noose) has threads which grow narrower and narrower and end with a hair on both ends.

Leptochaete and *Amphithrix* genera differ from *Homoeothrix* in having at the base of the threads a group of loose cells *(Leptochaete),* or

coalescent cells in the form of a disc (*Amphithrix*), with which they supposedly form a whole. Crust like thalli in these genera consist of two layers: a basal one, spread horisontally and a layer of vertical threads ending in hairs which are, however, often cast off.

It has long been suspected that the lower strata of thalli are neither genetically nor as regards development connected with the straightened threads and are an accidental group of associating cells belonging to other species primarily to the order *Chroococcales*, *Pleurocapsales* and *Chamaesiphonales*. On stones cells of these blue-green algae form a crusted substratum, which the threads of *Homoeothrix* type either ingrow or grow over its surface. As early as 1886 Bornet and Flahault (page 343) pointed this out, Geitler (1932) also writes about it, and finally on the assumption that these were different algae growing together, he places *Leptochaete* and *Amphithrix*, in the new elaboration of systematics, in the group of dubious genera.

Only Elenkin (1949, II, page 1823) defended the existance of the genus *Amphithrix* stating that when examining exicata he saw threads attached to the plate of the basal cells and that only careful examination of the material in vivo and its cultures in laboratory conditions could definitely solve this problem. Borzi's drowings of the *Leptochaete* genus are so suggestive that they did not cose any doubts. Elenkin's observations did not lead to a solution, doubtless due to indistinct pictures of very old dried material which one gets under the microscope. Or, perhaps, he also may have been influenced by suggestive drawings printed in all the keys and monographs of blue-green algae which were taken from the papers of Hansgirg (1892), Borzi (1882) and Frémy (1930). These drawings show the presence of loose cells and associations of cells connected with the bases of straightened threads. It is interesting, however, that very old drawings by Kützing (Tab. Phycol. I, 1845—48) and specially drawing II, tab. 60 and drawing IV, tab. 79 do not present either two layered thalli or any connection of loose cells with threads and so render better than the later drawings the type of species *Amphithrix janthina*.

Amphithrix janthina from Poland was given by Raciborski (1910) from the limestone rocks of the upper waterfall Siklawica at the foot of the mount Giewont in Strążyska Valley. Dried specimens were placed in Phycotheca Polonica, Part I, 1910, Nr. 12.

For a couple of years I have observed appearing of blue-green algae of the type *Amphithrix janthina* in great masses in almost all the Tatra streams as well as in a number of streams of the Western Beskid. This has induced me to undertake a detailful examination of this species.

I examined freshly gathered specimens in vivo in Zakopane, Krynica, Mszana Dolna and Cracow. I also compared them with specimens placed in the Phycotheca Polonica (Nr. 12) and with my own dried and preserved collections coming from various Carpathian streams. A detailed analysis of thalli showed a complete lack of any connection of straightened threads with cells which form a flat crust on the substratum. There are obviously no longer any grounds, for maintaining the existance of genus *Amphithrix*. The shape and structure of the threads of this blue-green alga are typical of the genus *Homoeothrix* and therefore they should be classed in this genus. Other properties were similar to those of the species *Amphithrix janthina* and therefore, in conformity with principles of nomenclature (Intern. Code 1956, art. 55), the new name of the species should be kept. In the new combination the species *Amphithrix janthina* Born. et Flah. (1886, page 344) is given the name *Homoeothrix janthina* (Born. et Flah.) Starmach.

As exicata: Rabenhorst Alg. Exic. Nr. 1301 and Phyc. Borealis Amer. Nr. 262, were unaccessible and the above mentioned specimens impossible to controll, I regard the specimens in Phycotheca Polonica part I. Nr. 12 (1910), gathered by Raciborski, as the nomenclative type and specimens gathered by myself in the Kościeliska Valley in the Tatras and kept in the algological laboratory of the Institute of Botany of the Polish Academy of Sciences in Cracow, as a substitutive type. Drawings given in this publication are iconic types.

Detailed descriptions

1. Specimens in Phycotheca Polonica were scraped off from a limestone rock in Strążyska Valley together with other algae. They were dried on a mica plate and placed in an envelope. This material is well preserved. Soaked in cold water with an addition of detergent (I added a bit of powder called Igepon) they give a clear picture of threads, their cellular structure and associated algae. Figure 2 was mad from soaked herbarial material.

The thallus consists of straightened threads situated close to one another, 60 — 500 μ long. At its base — generally but not in all cases — there is a stratum of cells *Chroococcus minutus* (Kütz.) Näg. They achive 5 — 9 rarely 10 μ and have an unlayered though distinctly visible envelope (Fig. 2 a, b). When observed superficially the cells at the base of the threads look, indeed, as if they were connected with these threads and adherent to them. A thorough observation under a more powerful magnification shows their independance. *Homoeothrix* threads grow either on a stratum of cells or ingrow it. These threads, however,

never grow out of these cells as postulate in characteristics of the genus *Amphithrix*.

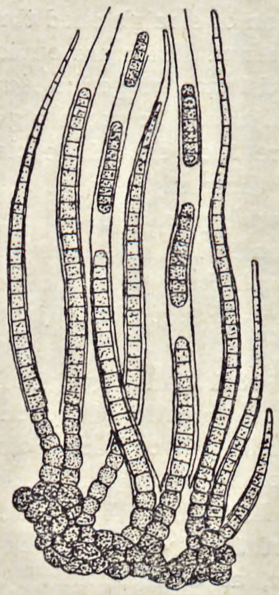

Fig. 1. *Amphithrix janthina* after Frémy

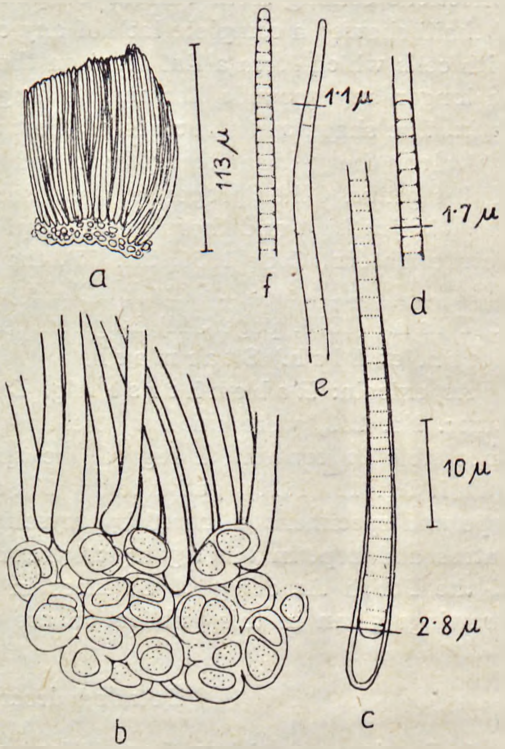

Fig. 2. *Homoeothrix janthina*. Drawing made from herbarial material in Phycotheca Pol. Nr. 12: a — fragment of thallus under low magnification; b — base of straightened threads growing on *Chroococcus minutus* colony; c — lower part of a typical thread; d — ending of the same thread; e — hair like ending of the thread; f — ending of a young thread.

The structure of threads is typical of the genus *Homoeothrix* (fig. 2, c, d, e, f). They have a rounded, or sometimes deformed base without heterocysts. They are widest at their base and grow gradually thinner towards the apex where they sometimes end in a hair. Typically developed hairs (e. g. fig. 2 e) are not often to be found. In thalli one generally finds thread endings as in figure 2 d, whereas, in young short threads — as in fig. 2 f. A delicate sheath protrudent over the appical cells corroborate the casting off of the hair, most probably caused by production of hormogonia. In fully developed thalli threads with cast off hairs are predominent. Sheaths are colourless, thin, distinctly visible only in the

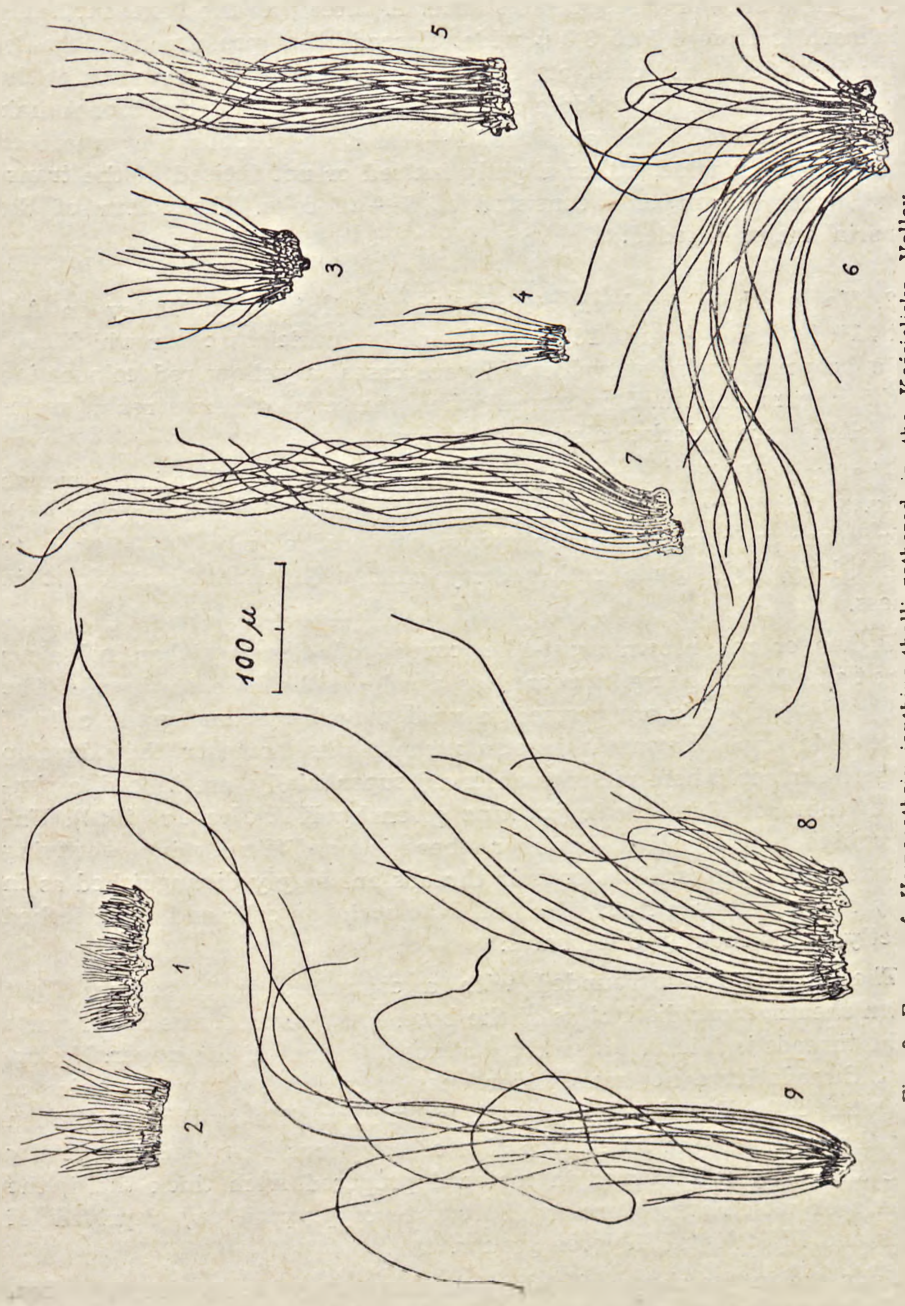

Fig. 3. Forms of *Homoeothrix janthina* thalli gathered in the Kościeliska Valley on August 21st 1956.

basal parts of the threads. The lower end of the sheath is, as a rule, hollow for a shorter or longer distance. A thread at the base, including the sheath is from 2,0 to 3,0 μ wide. Threads that produce hormogonia, that is fully developed ones, are for the most part 2,4 — 2,8 μ wide at the base, 1,6 — 2,0 μ in the middle and 1,4 — 1,6 μ wide at the top. A hair measured just below the apex is 1,1 — 1,4 μ wide. Cells are square or 1/3 shorter than wide, either slightly incised or not incised at the transversal walls. Hormogonia consisted of 8 — 20 cells. The colour of the herbarial material faded.

2. *Homoeothrix janthina* gathered in the Kościeliska Valley on August 21st 1956 and August 18th 1957 formed a lubricious cover which caused a brown red almost red or, in rare cases, a yellow red colouration of the stream bottom. Dry stones when the level of the stream water had fallen were a darker almost violet brown.

The form of thalli seen under low microscope magnification is shown in fig. 3. Thalli are built of straightened threads which are ingrown with their lower ends into the substratum, clustered closely, 46 — 900 μ (to 1 mm) long, light pink, rather dirty pink with a shade of violet in a mass.

Brown or red brown crust-like covers of *Chamaesiphon polonicus* (Rostaf.) Hansgirg, appeared as a rule at the base of threads. The *Homoeothrix* threads are pressed in with their bases among the cells of single or layered *Chamaesiphon* strata, sometimes, however, they develop on their surface. These pictures observed superficially, are indeed, a similar to those of *Amphithrix janthina* given by Kirchner (1900). Under a high magnification, however, there is no difficulty in identifying each of these species. *Homoeothrix* threads are easyly distinguished as in many cases they have no stratum of *Chamaesiphon* cells and are attached directly to the rock by their bases.

The threads are surrounded with a colourless or sometimes light brown sheath, more distinct as at the base. The sheath of the lower parts of the threads is thicker and more distinct than that of the upper. Young, short threads have no hairs, older ones often have colourless hairs of elongated cells. For the most part hairs are invisible in thalli and then long threads look like blue-green alga of the genus *Lyngbya*. A specially close similarity is observed in material prepared from thick thalli, the threads of which were torn in the course of preparation, deprived of bases and lay twisted in loose groups.

Cells are in the shape of a disc, shorter than wide or almost square, a slightly incised or in rarely cases not incised at their transversal walls,

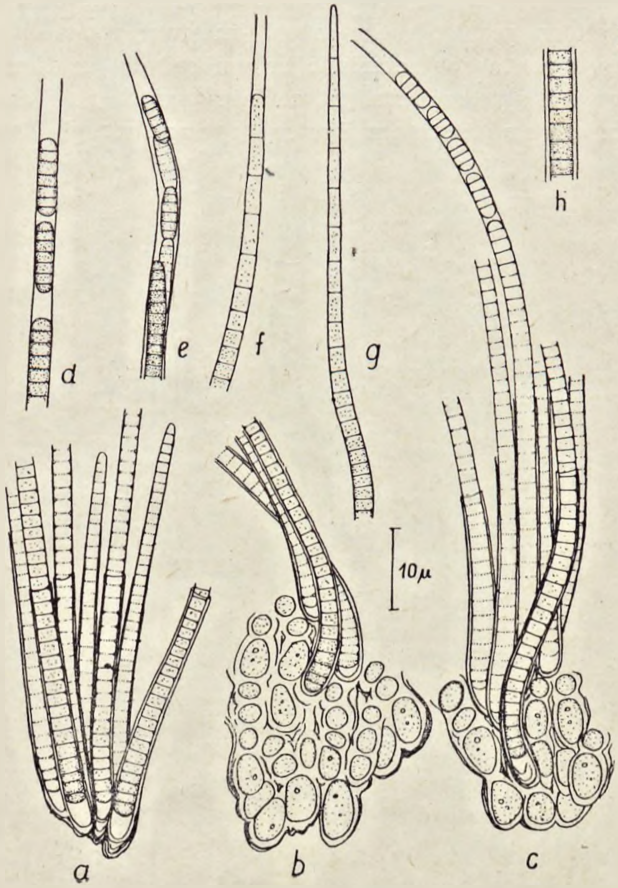

Fig. 4. *Homoeothrix janthina* from the Kościeliska Valley in the Tatra mountains: a — fragment of a thallus composed of straightened threads without *Chamaesiphon* cells at their bases; b, c — threads growing upon *Chamaesiphon polonicus* colonies; d, e — threads forming hormogonia; f, g — hair like endings of the threads; h — fragment of the middle part of the thread under a higher magnification.

coloured light pink or violet pink. Hormogonia are rather short 6 — 16 cells, situated in rows one after the other; sometimes they are condensed in the sheath and rounded at their ends (fig. 4 e).

A thread, together with the sheath, measured at its base is 2,4 — 3,0 μ, more frequently 2,6 μ wide, in the middle 1,6 — 2,7 μ most frequently 2,0 μ, below the apex, when ended with a hair 1,0 — 1,6 μ wide. The length of the cells in the middle part of a thread varies from 1,2 to 2,0 μ, in the hair about 4,0 μ.

Homoeothrix janthina is always to be found in almost all the Tatra streams as well on granite rocks as on limestone rocks from spring till autumn. They cause a characteristic brown red colouration of stones on the bottom of the stream beds. At certain periods this colouration also appears in the regulated stream Bystra flowing through Zakopane.

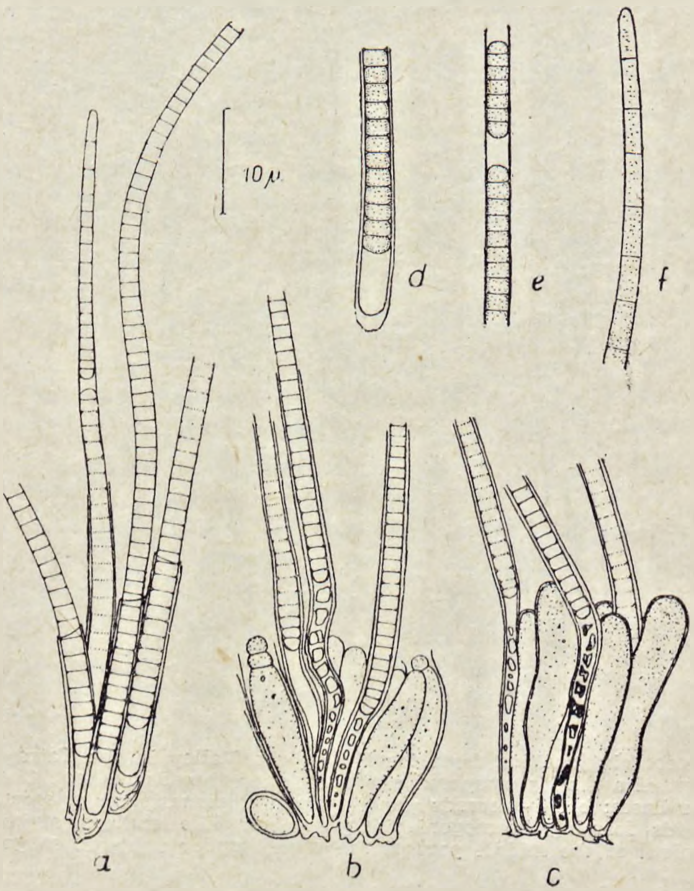

Fig. 5. *Homoeothrix janthina* from the stream „Leśny" in Krynica, a — fragment of a thallus without associated *Chamaesiphon* cells; b, c — threads pressed in among *Chamaesiphon carpaticus* sporangia; d — base of a thread; e — thread forming hormogonia; f — hair like ending of the thread.

Homoeothrix janthina thalli are as a rule associated with *Chamaesiphon polonicus*. It is very common in almost all the Tatra streams. Sometimes,

however, cells of *Hydrurus foetidus* Kirchn. are to be found at the base of *Homoeothrix* threads when the young thalli of *Hydrurus* form flat widely spread membranes. In such cases the colour of the stones covered both with *Homoeothrix* and *Hydrurus* is rather yellow red, sometimes with the yellow colour predominent. On the rock surfaces of waterfalls and cascades, and specially in zones where there is splashing water, the *Homoeothrix* thalli are associated with *Chroococcus minutus*. I found it with *Homoeothrix varians* in the Strążyska Valley as well as on the rock surfaces of the Siklawica waterfall, on the rocky cascades in the stream below the waterfall and in Białej Wody Valley on rocky blocks continually splashed by stream water.

I also found *Homoeothrix janthina* of similar form of threads and thalli in the streams of the Beskid Śląski as in Biała and Czarna Wisełka, Brennica, Żylica, Kamesznica, in the river Mszanka which rises in the Gorce, in the Beskid Sądecki and in the streams in the vicinity of Krynica.

Thalli of *Homoeothrix* in the Beskid Śląski and Mszanka river are generally associated with *Chamaesiphon polonicus*, rarely with *Ch. fuscus* (Rostaf.) Hansg. In the streams in the vicinity of Krynica chiefly *Chamaesiphon carpaticus* Starm. is found and sometimes *Ch. fuscus*. Typical thalli of *Homoeothrix janthina* associated with *Chamaesiphon carpaticus* are presented in fig. 5.

The structure of *Homoeothrix* threads taken from streams in the vicinity of Krynica does not differ from that of threads taken from Kościeliska Valley. They were, however, not so wide measuring at the basal part an average of 2,2 μ rarely 2,6 μ, in the middle 1,8 — 2,2 μ, below the apex 0,9 — 1,3 μ. Cells were generally 1/3 shorter than their width. Hair cells were longer. Thread bases pressed by compact cell groups of *Chamaesiphon carpaticus* have degenerated, deteriorating cells (fig. 5 b, c).

On stones thalli form dispersed, sometimes fused, lubricious spots of brown red, violet brown colouration, sometimes they are dark but not so dark as the thalli of *Chamaesiphon fuscus*, which are also found on stones in the same streams. *Homoeothrix* covers, so common in the Tatra, never appeared in great masses in the streams in the vicinity of Krynica. They covered only fragments of stream bottoms most frequently in their upper course.

My specimens differ somewhat in dimensions from the description of *Amphithrix janthina* given after Bornet and Flahault in all the new keys to blue-green algae. Specimens from the Tatra and the Beskidy attain 2,7 μ in their middle parts of the thread whereas, according to Bornet and Flahault their maximum size is only 2,25 μ

to 2,3 wide. Rabenhorst, however, (1865, page 229) gives for *Amphithrix amethystea* — which was then accepted by Bornet and Flahault as being synonimous with *A. janthina* — the width of 2,6 μ. As specimens examined by me, only in extreme cases attain 2,7 μ in the middle part or threads, these small differences may not be considered vital and may give no grounds to distinguish any wider forms.

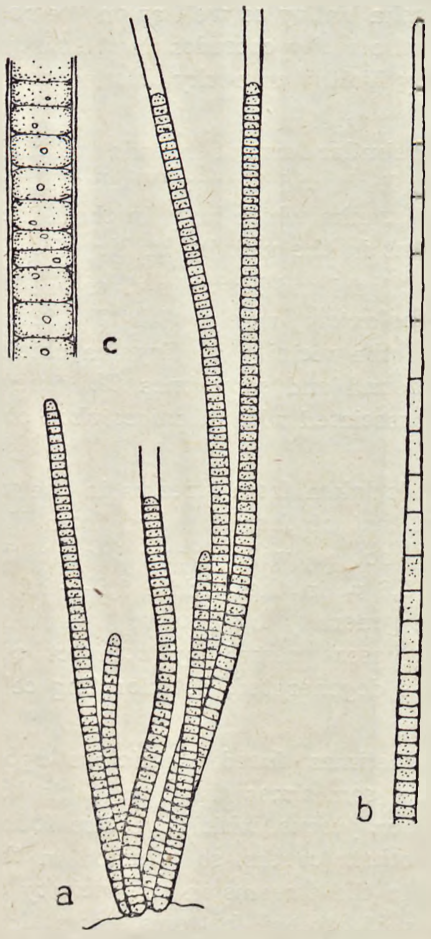

Fig. 6. *Homoeothrix varians* Geitler; a — form picture; b) — thread apex ended with a hair; c — fragment of the middle part of the thread

Homoeothrix janthina threads deriving from the Tatra and Beskid streams are verw similar to the species of *Homoeothrix varians* Geitler (fig. 6). Geitler described this species in 1927 from material gathered in a cold stream rising in lake Lunz in Upper Austria (Northern part of the limestone Alps). It forms on stones in slow flowing water at first small spots which then grow into uniform covers of black violet or brown violet colour. With age they become more or less orange yellow. Covers of algae may spread over the whole surface of stones of the stream bed giving them a characteristic colouration. This colour is shown in the picture reproduced in Biologia Generalis 3, 1927, tab. 18. *Homoeothrix janthina* thalli observed by me in the Tatra streams are more red sometimes almost crimson a little like thalli of red alga *Hildenbrandia rivularis*. However, after they have dried, their colour is reminiscent of that given by Geitler — violet brown, sometimes with a black shade. In the vicinity of Krynica thalli are of a darker colour than in the Tatra. Their colour is more similar to that in Geitler's picture. After they have dried their colour turns black brown, sometimes even olive brown.

As to ecology alga presents, according to Geitler, a form characteristic of streams of cold slow-flowing water. Its threads are unbranched or rarely branched, ending in a hair, generally cast off, covered with a thin sheath, as a rule colourless. Threads are 2,5 — 3,0 μ wide, the cells range from discshaped to square, usually shorter by one half than their width.

In the original description Geitler (1927) does not write about any associated blue green algae, whereas, in the article in Biol. Gen. (1927 a) he speaks about associated green and blue green algae of the *Chamaesiphon* genus. He mentions it in the elaboration of blue green algae in the volume 1 b of Engler Prantl (1942) stating that *Homoeothrix varians* often grows not alone but together with various blue green algae especially those of the *Pleurocapsales* and *Chroococcales* order.

From this it results that in Austria *H. varians* grows in a community and habitats similar to those of *H. janthina* in Poland. It is not impossible that it is a species identical with *H. janthina* in my conception and that it corresponds to the species *Amphithrix janthina* if one does not take into consideration the concentration of cells at the base of threads given by former authors. This description is certainly the result of inaccurate observation.

There are some differences between the specimens described by me and those described by Geitler. There are no branchings in my material and the sheath, which is not visible in Geitler's drawings, is quite distinct in the lower part. Dimensions and other properties are in almost complete agreement. As to ecology both these species resemble each other; they are forms from cold mountain streams. Geitler certainly did not try to identify the blue green alga found by him with the species *Amphithrix janthina* but described it as a new species.

5. It has been found that the classification of *Amphithrix* as characterised by threads growing out of a group of small *Chroococcus*, *Pleurocapsa* or *Chamaesiphon* like cells is unsatisfactory, and as a typical thread structure for the genus *Homoeothrix* has been established, a revision should be made of all the known species of the genus *Amphithrix*, and they should be re-classified as corresponding species of the genus *Homoeothrix*.

The same is, doubtless, the case with the genus *Leptochaete*. My suggestion is to change both these genera into *Homoeothrix*, as it is practically impossible to maintain such artificial forms.

Even if, as is stated in the case of *Leptochaete*, the sheath of the thread sometimes opens at the bottom and individual cells in the form of spore detach themselves, this phenomenon is not an important enough property to justify a separate genus. It is, however, known that in some cases

Calothrix threads may also have a sheath through which individual cells may fall off the thread. These are, however, rather exceptional even pathological cases.

6. *Chamaesiphon polonicus* (Rostaf.) Hansgirg and *Ch. carpaticus* Starmach are always associated with *Homoeothrix janthina* thalli and deserve a special attention.

Chamaesiphon polonicus from the Tatra was described by Rostafiński (1883) under the name *Sphaerogonium polonicum*, then changed to *Chamaesiphon polonicus* by Hansgirg (1892). A detailed study on this species was made by Geitler (1925) based on the material gathered in rushing torrents in the Alps (Upper Austria). Drawings presented by Geitler (1925) on page 326 and coloured pictures in table 12 do not cover the scale of variability characteristic for this species. This is why, in fig. 7, I present some fragments of thalli of blue green alga growing together with *Homoeothrix janthina* on stones in the stream in Kościeliska Valley.

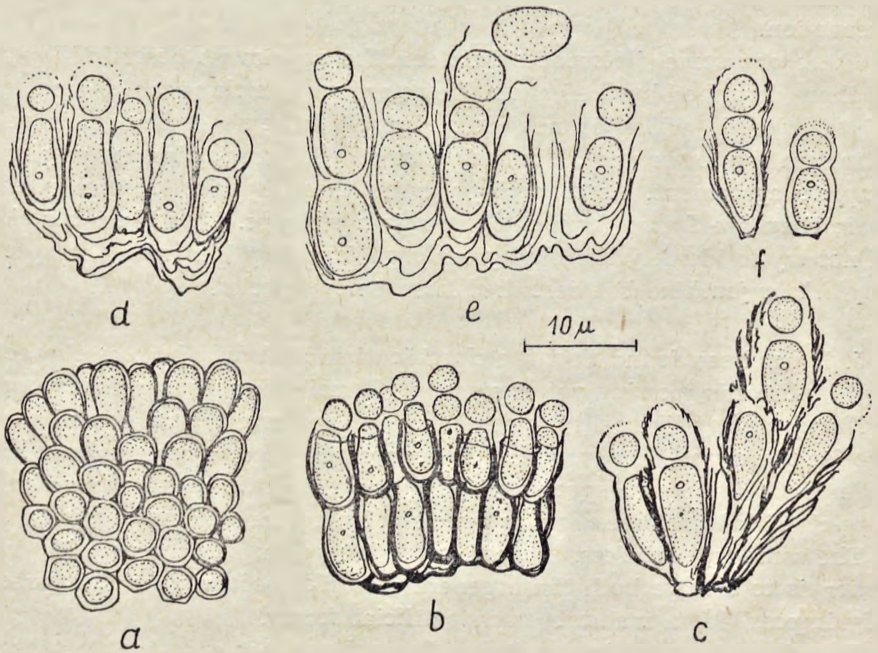

Fig. 7. *Chamaesiphon polonicus:* a — young thallus partly seen from above; b — colony of thick strongly coloured membranes; c, d, e — different types of colonies growing together with *Homoeothrix janthina;* f — individual sporangia.

The colour of *Ch. polonicus* is red brown very similar to that of copper. This colour is caused by coloration of sheaths and not by assimilatory pigments (fikoerytryne). The inside of cells is more or less yellow green. The sheaths are strongly developed, layered and in the course of growth break into pieces and unravelle. Sometimes they are thick and almost black. Cells are elongated, bottle shaped, reverse mace like or ovoid, sometimes almost spheric. Colonies rather low, arranged in, at most, two storeys. *Homoeothrix* threads were fixed among the cells of colonies or directly on themselves. Sporangia (without spores) are upto 10,6 μ long and 5 μ wide. The diameter of a newly produced spore (not a germinating one) is 2,6 — 4,0 μ.

Ch. polonicus deriving from the Tatra streams and specially from the Upper Vistula, Żylica and from the Beskid Śląski shows a smaller scale of variability, above all a weaker development and less layered sheaths. In these streams *Ch. polonicus* does not form such wide spread covers which colour the stones as in the Tatra, but occurs in smaller patches of red brown colour.

The localities in the Beskid Śląski and Beskid Sądecki are new for Poland.

7. *Chamaesiphon carpaticus* was described in the year 1929 (Starmach) as an epiphyt which covers first of all the older filaments of *Cladophora fracta* gathered in the Beskid Wyspowy (Pcim) and Ojców (Southern edge of the Upland of Małopolska). Relatively long, mace or spindle shaped sporangia which form in course of time fan like colonies somewhat similar to the colonies of the genus *Dinobryon (Chrysophyta)* are very characteristic of *Chamaesiphon carpaticus*. In the streams in the vicinity of Krynica and specially in the stream „Leśny", in the stream originating at the foot of the mount Hawrylakówka and the streams „Kryniczanka" this species is to be found both on the lower parts of rarely here growing boundles of *Cladophora glomerata* filaments, in rare cases found here, and on stones among other algae, specially in company with *Homoeothrix janthina*. Cells growing in the shade are violet to crimson. Specially sporangia growing in the stream „Leśny" in a deep shadowy ravine are violet crimson colour. Such a change of colour from blue green (verdigris) to crimson is also found in other *Chamaesiphon* species. *Ch. incrustans* var. *elongatus*, for instance, when growing in shaded Carpathian streams is crimson (Starmach 1929), *Ch. incrustans* changes in the depth of the Boden lake into crimson whereas, in full light its colour is blue green (Zimmermann 1927).

Ch. carpaticus growing together with *Homoeothrix* forms compact

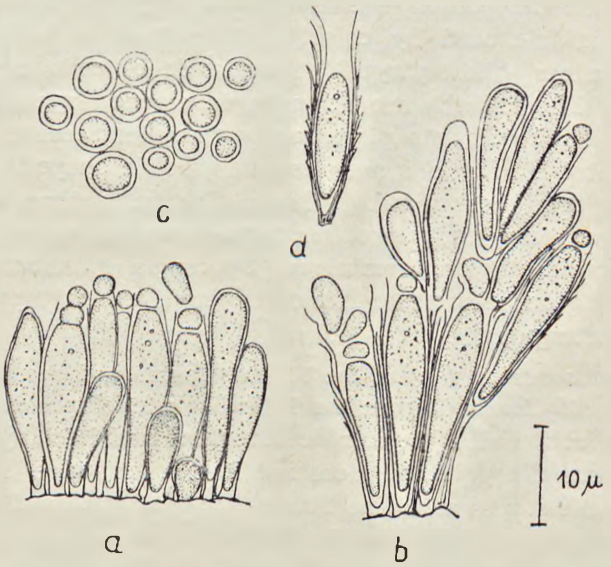

Fig. 8. *Chamaesiphon carpaticus* deriving from the stream „Leśny" in Krynica: a — group of sporangia on the stone surface; b — typical colony; c — grouping of sporangia seen from above; d — sporangium having cast off the spores, surrounded with a layered sheath.

groups of vertically arranged 30 μ long and 6,5 μ wide sporangia (fig. 8 a, c). These sporangia are mace or spindle shaped, sometimes irregularly narrowed and, as a result undulated (fig. 5 c). Spheric spores of 2 — 4 μ diameter germinate on the stem and in this way colonies of *Dinobryon* type, presented in fig. 8 are formed. Very young sporangia are surrounded with a colourless, tightly fitting membrane which with older ones is open at the top, layered and on their outer side unravelled (fig. 8 b, d) composed of cup like segments pushed one into the other.

The above given description and fig. 8 are a supplement to the diagnosis given in 1929. Habitats in the streams in the vicinity of Krynica are new for Poland.

STRESZCZENIE

Do rodzaju *Amphithrix* zaliczano sinice posiadające plechy złożone z nici charakterystycznych dla rodziny *Rivulariaceae*, a więc zwężające się od nasady ku szczytowi, oraz skupionych u nasady nici drobnych komórek, przypominających kolonie typowe dla rodzajów *Chroococcus*, *Pleurocapsa* lub *Chamaesiphon*. Dawni i nowsi autorzy piszący monografie i klucze do sinic przypuszczali wprawdzie, że

jest to sztuczne powiązanie dwóch zupełnie odmiennych elementów morfologicznych, cechujących z jednej strony rząd *Hormogonales*, a z drugiej aż 3 inne rzędy: *Chroococcales*, *Pleurocapsales* i *Chamaesiphonales*, lecz nie sprawdzając, wzgl. nie mając możności sprawdzić oryginalnych typów nomenklatorycznych, opierali się jedynie na rysunkach i powtarzali nadal opisy rodzaju *Amphithrix* o tak nienormalnej budowie.

Szczegółowe zbadanie materiału zielnikowego z Phycotheca polonica Nr. 12, pochodzącego z Tatr (1910) oraz okazów żywych występujących obecnie w Tatrach i niektórych potokach karpackich wykazało, że sinice odpowiadające cechom rodzaju *Amphithrix* i gatunku *A. janthina* składają się z plech nitkowatych, typowych dla rodzaju *Homoeothrix*, porastających lub przerastających rozpostarte na kamieniach skorupiaste pokłady kolonij sinic z rodzaju *Chroococcus*, *Chamaesiphon*, a niekiedy również płaskie plechy rozwijającego się gatunku *Hydrurus foetidus*. Nie stwierdzono związku rozwojowego pomiędzy plechami złożonymi z drobnych, kulistych lub kulistawych komórek i plechami zbudowanymi z nici. Nici nie wyrastają z pojedynczych komórek skorupiastej stopy, jak to wskazują niektóre rysunki, lecz porastają płasko rozpostarte plechy innych gatunków, w konkretnym przypadku: *Chroococcus minutus* (Kütz.) Näg., *Chamaesiphon polonicus* (Rostaf.) Hansg., *Ch. carpaticus* Starm., a niekiedy także *Hydrurus foetidus* Kirchn.

Nie ma zatem podstaw do utrzymania nadal rodzaju *Amphithrix* i zachodzi konieczność zaliczenia należących tu sinic do rodzaju *Homoeothrix*. Występujący w Tatrach i Beskidach zachodnich gatunek odpowiadający cechom *Amphithrix janthina* Born. et Flah. musi więc otrzymać nazwę *Homoeothrix janthina* (Born. et Flah.) Starm.

Do rodzaju *Homoeothrix* należy zdaniem autora zaliczyć również gatunki z rodzaju *Leptochaete*, wykazujące podobnie sztuczną budowę jak *Amphithrix*.

Z *Homoeothrix janthina* identyczny jest zapewne gatunek *Homoeothrix varians* opisany z Austrii Górnej przez Geitlera (1927).

Podane zostały również uzupełnienia do opisów plech *Homoeothrix janthina*, *Chamaesiphon polonicus* i *Ch. carpaticus* oraz nowe dla Polski stanowiska tych gatunków.

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Adres autora — Author's address

prof. dr Karol Starmach,
Zakład Biologii Wód PAN, Kraków, ul. Sławkowska 17.