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The "Golden Period" of Italian lichenology and its importance in modern times

Pier Luigi Nimis

Abstract: Towards the middle of the XIX century the study of "cryptogams", including lichens, underwent a sudden moment of blooming. In Italy this took on an unusual extent: in a period of about 15 years, from 1846 to 1860, Italy became one of the main centers of Lichenology worldwide. This was mainly due to the invention of a new microscope with acromatic lenses by G.B. Amici, which allowed a much more detailed investigation of microscopical characters. The pioneering work of G. De Notaris, A.B. Massalongo and V. Trevisan brought about a true revolution in lichen systematics, with the creation of many new natural genera. This, however, also produced a state of nomenclatural confusion which triggered the criticism of other lichenologists, such as W. Nylander, culminating in the catalogue of A. Zahlbruckner, where many very artificial genera were adopted. It is only after the II World War, and especially in recent times, with the advent of molecular systematics, that the work of the old Italian Masters is being resurrected from oblivion. As during the "Golden Period" of Italian lichenology, this is again resulting in an explosive inflation of new genera, in a severe loss of the information carried by generic names, and in a high degree of nomenclatural disorder. The conflict between the needs of taxonomists and those of name-users, which was one of the main reasons for the long-lasting oblivion of progress achieved during the "Golden Period" of Italian lichenology, is becoming increasingly evident, which suggests that a revision of the current rank-based nomenclatural system is badly needed.

1. Introduction

In the last few decades, the systematics of lichenised ascomycetes has undergone a true revolution, after a long period of stagnation due to the enormous influence of proponents of a conservative and typological generic concept, especially William Nylander (1822–1899) and Alexander Zahlbruckner (1860–1938). One of the first genera to have been segregated from a large classical genus was *Physconia*. Josef Poelt (1924–1995), in his seminal work on the European taxa of this group (Poelt 1965), was the first to use a combination of characters to circumscribe a homogeneous group in foliose lichens. Numerous studies followed, especially in the seventies, which used this approach to circumscribe small, homogeneous entities, such as genera in Physciaceae, and more intensely in Parmeliaceae. The real revolution, however, started at the end of the previous century, with the introduction of molecular phylogenetics. With the wide availability of DNA sequence data, the taxonomy of lichen is being rapidly and drastically changed, from the genus to the family and order levels. Most phylogenetic reconstructions of lichenized ascomycetes are now designed to test morphology-based classifications. As a result, the systematic value of morphological characters in diverse groups is now much better understood than it was before, and reconstructions of character evolution exist for many groups. Classical taxonomists make increasing

use of molecular data, because classical lichen taxonomy is riddled with problems that only independent data from molecular analyses are likely to solve. On the other hand, this has also created a state of great confusion, especially as far as nomenclature is concerned, mainly because – with the current binomial system – the name we give to an organism depends on the ever-changing hypotheses we make on its common ancestors (Nimis 2005). Several individual researchers or research groups are competing for the often hasty creation of new generic names, not always paying the due attention to the basic need of name-users, that of nomenclatural stability. This state of things is somehow similar to what happened around the middle of the XIX century, during the "Golden Period" of Italian Lichenology (Nimis 1998, 1993), so that a brief review of that period could be of some interest also for modern readers.

2. The new microscope of G.B. Amici

Towards the middle of the last century, immediately before the unification of Italy, the study of "cryptogams", especially lichens, underwent a sudden moment of blooming. The phenomenon affects, more or less at the same time, most of the countries of Northern and Central Europe; in Italy, however, it took on an unusual extent: in a period of about 15 years, from 1846 (the year of publication of the *Frammenti Lichenografici* by De Notaris) to 1860 (death of A. Massalongo), Italy became the main center of Lichenology worldwide, a position perhaps never achieved by this country in the field of Botany.

After the period of the Napoleonic wars, the economic situation of most of Europe, including the North of Italy, underwent a marked improvement, due to the progressive expansion of the industrial revolution. The revolutions of "48" were the expression of the inadequacy of the old political-economic system compared to the new needs of the rising bourgeoisie. Enlightenment considered Natural Sciences as an indispensable element of the culture of any person. Many encyclopaedists cultivated botanical studies as part of their cultural interests, and the botanical work of Goethe is a further example of how the scientific culture was expanding under the impetus of the political and economic upheavals of the French Revolution and the subsequent Napoleonic campaigns. In Italy these developments were hampered by the persistence of the old humanistic literary tradition: they were felt mainly in the North of the country, that was closest to the historical developments in the rest of Europe (Poelt 1991). Moreover Botany, in the first half of the XIX century, was an integral part of the curriculum of studies of physicians and pharmacists, by themselves emblematic representatives of the increasingly prosperous middle class. No wonder that in this period many of the greatest botanists were physicians, pharmacists, priests, or offsprings from noble families. However, the sudden bloom of cryptogamic studies cannot be attributed only to cultural or economic causes. In particular, it is difficult to explain on this basis alone the

leading position assumed by Italy, an area that, in both economic and cultural terms, was lagging behind other European countries. In fact, the main reason lies elsewhere: the sudden flourishing of cryptogamic studies in Italy around the middle of the previous century is mainly due to technical reasons.

The first important lichenological system, that of the Swedish lichenologist E. Acharius (1757–1819), was mainly based on macroscopic characters, and with hindsight consequently very artificial. This might appear surprising when it is appreciated that asci and ascospores were first figured by P.A. Micheli (1679–1737), perhaps the true "father of Lichenology", in his *Nova Plantarum Genera* (Micheli 1729). However, the cost, availability and performance of microscopes was a problem, and it was only in the 1840s that microscopical characters, and especially those regarding spore colour and septation, were increasingly adopted as paramountly important taxonomic criteria; the new emphasis on spores resulted in a revolution of previous taxonomic schemes, exactly as it is happening today with molecular data. Also in that case, a technical development put at disposal a wealth of new characters which could be used to define more natural groups. This was the invention of a new microscope with acromatic lenses by Giovanni Battista Amici (1786–1862), which allowed a much more detailed investigation of microscopical characters (Nimis 1988, 1993, Nimis & Bartoli 1990). Amici was the foremost Italian optical scientific instrument maker of the 19th century and one of the leading figures of his period at an international level. He made important contributions in the field of microscopic optics, including improvements to the modern compound catadioptric and achromatic microscope. His name is also associated with the construction of reflecting and refracting telescopes, terrestrial telescopes, micrometers, etc. Amici applied the hemispherical front lens to the microscope object-glass (1838), and introduced the technique of immersion in water (1847) and in various types of oil (1855). Between 1857 and 1860, he invented the direct vision prism which continues to be used in spectroscopy and still bears his name. A very first version of the new microscope was produced in 1827, and the instrument was available on the Italian market between 1830 and 1840. Italian botanists were consequently the first to have the opportunity to acquire it, which opened a new world ripe for exploration by the astute observer (Nimis & Bartoli 1990).

That all species of a natural genus should have the same type of spores had already been stated by the eminent French cryptogamist A.L.P. Feé (1789–1874) in 1837. Many of Feé's contemporaries in lichenology, however, objected to this thesis as with the microscopes then generally available the observation of spore characters was considered too difficult for practical use. Feé soon abandoned lichenology for pteridology. Starting from 1846, however, there was a true explosion of lichenological studies by Italian botanists, where the use of the microscope played a major role. The Italians G. De Notaris (1805–1877) and A.B. Massalongo (1824–1860), both now recognized as of

world stature in lichenology, worked with Amici's microscope. Massalongo, for example, gave the following response to the criticism of the Finnish lichenologist W. Nylander (1822–1899) concerning the "impossible" precision of his spore measurements: "*first of all I invite Mr. Nylander to acquire better information about the new, great microscopes of the famous Amici...*" (Massalongo 1857). In conclusion, the prominent position briefly taken by Italy was due to the fact that fundamental technical progress was first achieved in this country. This explanation does not want to detract from the merit of the Italian scholars of the time, but emphasizes the fact that the history of science cannot be reduced to a mere sequence of individual stories.

3. The "Golden Period" of Italian lichenology

The main protagonists of the "Golden Period" of Italian Lichenology are Giuseppe De Notaris (1805–1877), Abramo Bartolomeo Massalongo (1824–1860), Martino Anzi (1812–1881), Vittore Trevisan di San Leon (1818–1897) and Francesco Baglietto (1826–1916). De Notaris, Massalongo and Trevisan were primarily interested in Systematics: the old classification schemes dating back to Acharius, based on macroscopic characters, were completely revolutionised by the use of microscopic characters, such as shape, colour and size of the spores, and the microstructure of ascocarps. The international importance of these studies was remarkable, and caused a series of often fierce discussions, which involved the major lichenologist of the time.

The figure of De Notaris has a clear position as a pioneer and forerunner: already in 1867 in his *History of Lichenology*, Krempelhuber (1867) subdivided it into six major periods, of which the fifth (1801–1845) was called "*from Acharius to De Notaris*", thereby stressing the revolutionary character of the work of the great Italian botanist. De Notaris can be considered as the founder of a new period in the history of ascomycete classification as a whole, and not only of the lichen-forming species. In his vast scientific production, articles on lichens are a numerically small portion. The same De Notaris said, with his usual modesty, that he used to deal with Lichenology "in the hours of leisure" (Nimis & Bartoli 1988). His lichenological work consists in a dozen publications, only one of which (De Notaris 1846) would have sufficed to grant him a key place in the development of lichenology. Referring to the statements of A. Fée on the importance of sporological characters for a natural classification of lichens, De Notaris analysed and accurately described the anatomy of sixty species. Starting from the observation that similar species are found in most genera which appear clearly distinguished on the basis of macroscopic characters, he came to the conclusion that those genera which are macroscopically similar, but substantially different in sporological characters are not natural. Therefore, he suggested the possibility of creating a much more natural classificatory system by utilizing, in order of importance: (a) spore characters; (b)

structure of the ascomata; and (c) thallus morphology. De Notaris' papers had an enormous influence throughout Europe, and his basic ideas were applied and developed with extraordinary intensity by Abramo Massalongo, certainly the most outstanding of all Italian lichenologists.

In just eleven years, Massalongo produced an impressive series of papers, some issued posthumously, where the taxonomy of lichens was drastically altered on the basis of microscopical characters, chiefly, but not only, those of the spores. A typical example is his interest in the so-called "blasteniospore lichens", i.e. those with widely different growth-forms and appearance, which share the typical polar-diblastic spores of what is today recognised as the family Teloschistaceae. The *Synopsis Lichenum Blasteniosporum* (Massalongo 1852b) was a bold attempt to recognise the affinity of these lichens and to arrange them into more natural genera, most of which were almost completely forgotten after Massalongo's death, when hundreds of species were placed into three main, very artificial genera, mainly defined by growth-form: *Caloplaca* (crustose), *Xanthoria* (foliose) and *Teloschistes* (fruticose). Today the molecular taxonomy of Teloschistaceae is in full swing, and the recent treatment by Arup et al. (2013), where 39 genera are recognised, has resurrected from oblivion some Massalongian generic names, such as *Blastenia*, *Gyalolechia*, *Pyrenodesmia* and *Xanthocarpia*.

During his short life, Massalongo had to fight to defend his ideas, especially against Nylander, but also against other Italian lichenologists – including Vittore Trevisan di San Leon. While Trevisan accepted the taxonomic importance of spore characters, he was often in conflict with Massalongo in the application of such principles and simultaneously investigated the taxonomical arrangement of several groups.

The greatest part of the lichenological papers of Trevisan was published between 1853 and 1869. The publication of Massalongo's fundamental *Ricerche sull' Autonomia dei Licheni Crostosi* (Massalongo 1852) was probably the main stimulus to Trevisan's concentration on lichenological papers in the early 1850s. In the following months, Trevisan hastily published 7 lichenological papers. It is difficult to understand the effect that Massalongo's papers produced on Trevisan, without knowing that in the previous years he had intensively worked on a new synopsis of lichenised genera, in which the new sporological ideas were taken up. The publication of Massalongo's work, whose importance he could not deny, anticipated some of the new genera he wanted to describe, and compelled him to revise his previous ideas, to adopt a critical position against several of Massalongo's concepts, and above all to publish as soon as possible what he had worked out until that time, without having the possibility of rounding up the whole, as he probably had wished. This situation led to serious misunderstandings between the two lichenologists (Nimis & Hawksworth 1994).

In the "*Saggio di una classificazione naturale dei licheni, Sulla tribù delle Patellarieae*", Trevisan (1853) clearly takes a position in favour of the use of microscopical characters. The "*Ricerche*" of Massalongo was on his desk fresh from the printers; Trevisan's article contains a detailed criticism of the generic arrangement proposed by Massalongo, but accepts several Massalongian genera. Trevisan limited his praise of the monumental work of Massalongo to the statement that after De Notaris "*a third Italian entered in the difficult field of lichenology... dr. Massalongo, who, with the publication of 400 nice illustrations, produced a real advancement for science*". Massalongo's answer was: "*I am rather disappointed to know that all that I did for science was a painter's job, but I would be curious to know who was the second Italian who preceded me in proposing fundamental reforms in lichenology*" (Massalongo 1853).

During 1853 and 1854, Massalongo's lichenological activity exploded in a series of important papers which brought about a true revolution in the generic arrangement of lichenised fungi. In the introduction to one of these fundamental contributions, the *Memorie Lichenografche*, Massalongo (1853) provided a detailed response to Trevisan's former criticism. First, he expressed his disagreement on the relative importance of characters for taxonomic purposes: according to Massalongo, Trevisan underestimated the importance of thalline characters, the size of spores, and the structure and genesis of the apothecia. These considerations were illustrated by means of a decided defence of some Massalongian genera that had not been accepted by Trevisan. For example, *Aspicilia* (characterized by the form of apothecia), *Ochrolechia* (characterized by spore size) and *Placodium* (differing from *Lecanora* in the placodioid thallus) and *Rinodina* (differing from *Buellia* in the type of exciple). Finally, Massalongo tried to demolish many genera proposed by Trevisan, either because they were very poorly characterized, or because they were too heterogeneous. It must be recognized that much of Massalongo's criticism seems to be fully justified today. The Veronese lichenologist was a much more acute scientist than his Paduan colleague; Trevisan continuously strove towards a synthesis, but had the misfortune to live in a period in which analytical work was much more important and productive.

After the first reaction against the "*Ricerche*", and the papers published in 1853, two years later, Trevisan tried to take up again a position on the ferocious taxonomic disputes brought about by Massalongo's work. In 1855, he held a conference at the Accademia di Scienze Lettere ed Arti of Padua entitled "*Sul valore dei caratteri generici nei licheni*". The short abstract of this meeting (Trevisan 1855) is of interest because he changed rather drastically his ideas as to the relative importance of several characters for taxonomic purposes. The new order of importance adopted was: thalline characters, spores, asci and ascomata. Here the influence of Massalongo's criticism is evident. However, the number of new generic names created by Massalongo was too

much for Trevisan. In his introduction, he drew attention to the fact that J.A.P. Hepp (1797–1867) recognized 47 genera in Europe while Massalongo accepted three times as many; Trevisan stated that he preferred to take an intermediate position, perhaps more close to Hepp's than to Massalongo's concepts.

In 1860, the year of Massalongo's demise, Trevisan published what is perhaps the most important of his works today, a general conspectus of pyrenocarpous lichens, which also deals rather fully with the lichenicolous species known at that time. The *Conspectus Verrucarinarum* (Trevisan 1860) is a typical example of Trevisan's style: the text is extremely concise, being limited to the presentation of a taxonomic conspectus with the main characters of the accepted taxa, the main synonymies, nomenclatural information, and numerous telegraphically presented new combinations. Hidden in the dense smaller-typed text are nomenclatural details all too frequently overlooked. In the paper on *Dimelaena* (Trevisan 1868), written eight years after the death of Massalongo, Trevisan, perhaps for the first time, inserted some words of praise for his former enemy-friend: "*And came the year 1850, the memory of which will be always great to me, as I recall that in that year I put all the books of my library and all the lichens of my herbarium at the disposal of a young man, an enthusiastic collector of these small plants, eager to learn, which was recommended to me by the famous author of the Flora Dalmatica, my friend prof.* de *Visiani. I recall how in genial discussions I tried to convince him that it was necessary to get out of the ditch, and to follow the new way indicated by Feé and by* de *Notaris. This young man, in which our school, a few years later, had to find the most tenacious and, until his life lasted, the most active and tireless representative, was Abramo Massalongo*".

Massalongo and Trevisan followed similar principles and were members of the same school. However, their scientific attitudes were quite different. Massalongo was a powerful analytical spirit, whereas Trevisan had a clear tendency towards synthesis and the correction of the historical record. Almost all his lichenological papers show a continuous effort to bring about clarity in a period characterized by a confusing flow of new information deriving from the developments of the sporological school. From carefully examining his lichenological papers, we have the impression that his contribution to lichenology would have been much greater if he could have published his ideas a few years before the "Massalongian" period of 1852–1860, and if he had not become so preoccupied with what he perceived as putting the past into order (Nimis & Hawksworth 1994). Unfortunately for him, the activity of Massalongo thwarted his plans, and his concept of an all-embracing classificatory system was reduced to a scattered series of hastily published fragments in need of continuous re-building and adjusting after the appearance of every Massalongian paper. Nevertheless, Trevisan's system, although published in a fragmentary form, constitutes one of the last examples of a general taxonomic

arrangement of lichenised and lichenicolous fungi based on microscopical characters which appeared in the last century.

4. The end of the "Golden Period"

After the death of Massalongo, the interests of the main Italian lichenologists moved toward the floristic study of the territory, with the important studies of M. Anzi, F. Baglietto and A. Carestia (1825–1908). The excellent work of these lichenologists aroused some international attention mainly because of the distribution, in exsiccata, of the many new species that were gradually described, but this was much smaller than that caused by the publications of De Notaris, Massalongo and Trevisan. During the second half of the Century the crisis sharpened quickly: already at the turn of the XX century Lichenology in Italy was virtually extinct (Nimis 1988). The life of the *Società Crittogamologica Italiana* was short-lived: the publication of the *Atti* ceased in 1868, while in 1872 the distribution of the "*Erbario Crittogamico*" ceased as well. The attempt to revive the Association, in 1878, failed, and in 1885 it was again virtually extinguished. Towards the end of the XIX century Italian Lichenology was represented mainly by Antonio Jatta (1853–1912), a wealthy landowner from Southern Italy who began a meritorious work of synthesis that culminated in the publication of the part devoted to lichens in *Flora Italica Cryptogama* (Jatta 1900–1909). This work is undoubtedly laudable, but would have required lasting improvement by a new generation of lichenologist. Unfortunately, at that time, Lichenology could be considered as extinct in Italian universities.

The rapid decline of Lichenology in Italy cannot be attributed solely to the disappearance of three outstanding personalities such as De Notaris, Massalongo and Trevisan. It is evident that it was decisively influenced by the unification of Italy, and the resulting profound changes in university policy of the Government (Nimis 1993). The new state had to face a series of difficult economic problems, including the restructuring of the agricultural system. Frequent outbreaks of pathogenic fungi in the second half of the XIX century further aggravated the situation. Botany was increasingly seen as an applied science, following the developments in this late-nineteenth-century positivism, increasingly influenced by the impressive progress of the industrial sector. Systematics, in particular, started to be seen as a "science of the second category", something comparable to the activity of petulant stamp collectors, and appeared as obsolete and of little use when compared to the progress of plant physiology and the need to acquire detailed information on the biology of pathogens. After the unification of the Country, the university system underwent drastic reform. Botany, in particular, previously included in the Faculty of Medicine, was generally transferred to the Faculty of Sciences, with the creation of several new positions of full professor (Nimis 1988). The

results of the new policy were disastrous for the Italian lichenological school: only De Notaris managed to become full professor, but only at a very old age, and his last years at the University of Rome were rather bitter for him. He was honoured as a great Master of Botany, but remained substantially isolated from the scientific world, and was left without means for carrying out his researches (Nimis & Bartoli 1990).

Very different was the fate of another prominent Italian cryptogamologist, a contemporary of De Notaris: Santo Garovaglio (1805–1882). He worked thoroughly in Lichenology before the publication of the works of De Notaris and Massalongo, but after the unification of the country, in 1869, he launched the idea of establishing a laboratory in Pavia specialised in fighting diseases caused by parasitic fungi. This captivated the confidence of the Ministry of Agriculture and of the administrative authorities of Pavia, and the Laboratory, which had a long period of deserved glory, was founded in 1871 (Nimis 1993). The last important work by Garovaglio devoted to lichens, the distribution of the *Lichenes Langobardiae Exsiccati*, dates back to 1864. In Rome something similar happened a few years after the death of De Notaris: his student G. Cuboni (1852–1920), in the new cultural atmosphere, was appointed as director of the Royal Experimental Station of Plant Pathology of Rome, with the creation of a large experimental field, while the new Botanical Garden of Panisperna, promised to the poor De Notaris for years, failed to see the light due to some gardeners that the authorities were unable, or unwilling, to dislodge from the ground that should host it (Graniti 1989). The political misfortunes of Systematics meant that none of the great Italian lichenologists honorably managed to fit in the new university system: some of them, being nobles or priests, were entirely unrelated to the academic environment, while those who had already entered into universities, as F. Zanfrognini in Modena and F. Baglietto, who was assistant to De Notaris in Genoa, were unable to advance in their careers, leaving no school. The *Sylloge Lichenum Italicorum* (Jatta 1900) and the part devoted to lichens of the *Flora Italica Cryptogama* (Jatta 1909–1911) appear today not as a new starting point, but as a conclusive work, a sort of gravestone lying on the "Golden Period" of Italian Lichenology, which was brought to almost complete extinction over a very short time as a result of a changed political, economic and cultural climate.

5. The rediscovery of the "Golden Period"

The application of microscopically based characters initiated by De Notaris produced a revolution in lichen taxonomy: in a few years, many new genera were proposed and the old classificatory systems soon became outdated. However, the hasty description of new genera, and the rapid demolition of old, well-established classificatory schemes, also produced a state of extreme nomenclatural confusion – exacerbated by the tendency of some of

those involved to take up names mentioned in correspondence and the rapid publication of short papers and privately printed pamphlets (Nimis & Hawksworth 1994).

The new taxonomic system created by Massalongo following the guidelines marked by De Notaris was immediately subjected to ferocious criticism, of unprecedented violence, by W. Nylander (1822–1899), a Finnish lichenologist who did not accept the splitting of genera based on microscopic characters. Massalongo, still alive, was staunchly defended by G. Körber (1817–1885), a German lichenologist born in Silesia, who collaborated directly with Massalongo and adopted many of the genera he proposed. Nylander, with his usual malice, once coined the derogatory expression of "Italian-Silesian School" to designate lichenologists who followed the new trends, among them J.C. Flotow (1733–1856) and Körber himself, which in any case, were not few, at least until 1870. However, in the last decades of the century Nylander, who personally described more than 3,000 lichenised species, became one of the leading lichenologists of his time through the shear volume of his outputs (Ahti 1967–1990). and the work of the "Italian-Silesian School" soon fell into oblivion. According to Poelt (1991) this was also conditioned by historical and political events. The progress of colonialism in most European countries determined the acquisition, by the main museums, of a huge amount of botanical material, including lichens, which urgently needed to be described, catalogued, and classified. There were few lichenologists able to do so, including Nylander, and these could hardly worry about the definition of "natural" taxa: their business was eminently descriptive, and the main concern was to enter the new species into a simple and clear classification system, as artificial at it might be. The result was that A. Zahlbruckner (1860–1918) in his *Catalogus* (Zahlbruckner 1922–1940), while providing an immense work of synthesis, adopted very artificial generic concepts, which were followed slavishly until a few decades ago, relegating into oblivion the often much more natural subdivisions proposed by the "Italian-Slesian School". Something similar happened for non-lichenised fungi, with the work of P.A. Saccardo (1845–1920).

Thus, attention to the creation of natural systems reflecting evolutionary relationships became eclipsed in mycology (including lichenology) in a period when biologists generally were starting to embrace evolutionary concepts, although not necessarily the mechanism of natural selection. The Nylanderian approach and its adoption in the compendium of Zahlbruckner conspired to hold back the development of the recognition of natural groups, i.e. monophylogenetic units, amongst lichen-forming fungi for over a century.

After World War II, the Systematics of lichenised Ascomycetes had a quick revival worldwide. Again, technical progress, such as the use of the electron microscope and of chromatographic analysis, greatly contributed to the resurgence of systematic studies, revealing several new, important taxonomic

characters. With the introduction of molecular data, this revival is still in full swing: the old, artificial container-genera are now broken up into smaller and more natural units based on characters such as the ultrastructure of the apical apparatus of asci, the ontogeny of ascocarps, chemistry, and, above all, DNA. Many highly polyphyletic genera have now been split into better defined monophyletic units, often being found to belong to different families and even orders rather than a single genus. During this revisional process, a considerable number of long-synonymised generic names proposed by the "ltalian-Silesian School" have proved to be well-founded, and are now universally accepted after an interval of well over a century. Many young lichenologists have picked up, not without difficult research in libraries, old works of De Notaris, Massalongo, Trevisan and Körber, resurrecting many long-forgotten generic names. According to Hale (1984), about one-half (806) of the 1618 generic names proposed for lichen-forming fungi catalogued in Farr et al. (1979) were introduced by only nine authors: Ciferri (in part with Tomaselli, 215), Massalongo (138), Nylander (83), Müller Argoviensis (77), Clements (77), Trevisan (75), Vainio (54), Zahlbruckner (44) and Choisy (44). Massalongo and Trevisan, who followed very similar principles, were between them responsible for 213 generic names. In my Catalogue of Italian Lichens of 1993 (Nimis 1993), 52 genera from Italian Authors from the Golden Period were accepted (mainly by Massalongo and Trevisan), while in the new version to be published in 2016 this number rises to 67.

6. Lesson learnt?

In his commemoration on the occasion of the centennial of Massalongo's birth, Poelt (1991) wrote: "*It is easy to prophesy that the recent trends of lichen Systematics will bring to a review of Massalongo's work. It will be recognized that he was a great pioneer and precursor, a great Lichenologist ... Massalongo died 130 years but can be considered as a modern lichenologist of our times*". Thus, the history of the "Golden Period" of Italian Lichenology and of its rapid and long-lasting oblivion could be of some interest also today. One of the main reasons for the long-lasting oblivion of the progress achieved around the mid of the XIX Century in lichen Systematics was the state of extreme nomenclatural confusion which derived from the creation of many new, more "natural" genera. This is exactly what is happening today, not only in lichenology. The genus rank has a particularly delicate position in this context, because, due to the Linnaean binomial system, it is at the same time an integral part of the names we give to organisms, and – as all other taxonomic ranks – it also reflects hypotheses on their phylogenetic affinities (Nimis 1998, 2001, 2005, Lumbsch 2002). Names should remain reasonably stable, while taxonomists should be free to change their hypotheses according to the flow of newly available data. The story of the "Golden Period" of Italian lichenology

shows that the conflict between taxonomists and name-users did not always end in favour of the former, and that nomenclatural instability could become a main cause for the poor public credibility of Taxonomy as a science. The current rank-based nomenclature so far has failed to accomplish a reasonably stable association of taxonomic names and clades (see e.g. Higguet & Donogue 1998), and attempts should be made to curb unnecessary nomenclatural instability, for example by adopting phylogenetic nomenclature (see e.g. de Queiroz & Gautier 1994), and/or by eliminating the binomial system altogether.

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