Interview with Arild Stubhaug

Ulf Persson

Arild Stubhaug, who is known among mathematicians through his biography of Abel, has also produced a noted biography of Sophus Lie and is now involved in the project of writing a biography of the Swedish mathematician Mittag-Leffler, concomitantly painting an account of the mathematical period in which he was exerting his influence.

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—U.P.

Persson: *You are an established literary writer in Norway, and if I recall correctly, you had your first work published at the age of twenty-two. You have written poetry as well as novels. What made you start writing biographies of Norwegian mathematicians in recent years?*

Stubhaug: "In recent years"—that is not exactly correct. The biography of Abel I started on back in 1988, and during the eight years I worked on it I also concomitantly published three collections of poetry. That I at the time started to write about Abel and his times had many different reasons. To write poetry—however exciting it may be by itself—has turned into a narrow groove of work, not to say a marginal one. New poetry has difficulties to get properly recognized and appreciated, maybe because of the steadily diminished importance and influence it exerts in the development of language, in particular as regards innovative constructions. Thus I wanted to try out alternative means of expression. Mathematics has always been a source of fascination. Abel was early on somewhat of a hero, and my historical interest was kindled when I lived in the town of Arendal in the south of Norway, where the past is still alive and moreover kept alive in a special way.

Persson: *What are your qualifications for writing about mathematicians? You studied as a young man a variety of subjects at the university, including mathematics and the history of religion. Am I correct, and if so, would you be able to explain what to most of us may appear as a strange combination?*

Stubhaug: It is correct. Mathematics was initially my primary interest. But this was back in 1968, and many other things caught my interest and engagement, especially the great priority which was accorded verbal expression at the time. Whatever could be caught and formulated in language became more important than anything else. By and by language became for me the most interesting subject of work. After mathematics I studied Latin, the history of literature, and Eastern religion purely out of personal curiosity and desire. At that time such a combination could never be part of a regular university degree; hence I have never been regularly employed.

Persson: *But why Mittag-Leffler? Abel is one of the greatest mathematicians ever—this is an uncontroversial fact—and his short life had all the ingredients of romantic tragedy. Lie may not be of the same exalted stature, but of course the notion of "Lie", be it in group theory or algebra, is a household word in mathematics. But Mittag-Leffler? I think that any mathematician would be hard-pressed to come up with a single significant result that has been attributed to Mittag-Leffler. The theorem of Mittag-Leffler is of course duly mentioned and can be seen as an elementary precursor of sheaf theory, but clearly it is rather lightweight and hardly anything to get very excited about.*

Stubhaug: Many people have indeed asked me, Is Mittag-Leffler really worth such an ambitious biography? The reason for expressing such doubts may be that one easily confuses biography with a

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celebration of genius. Many have a romantic tendency to make its subject into an object of wonder rather than simply trying to understand the individual concerned as a human being. It is as if one would conceive biography solely in terms of an adventure story, neglecting its more mundane aspects. I do not believe that the differences between us humans are necessarily where we usually look for them, as if somebody by virtue of genius would live on a different planet. The crucial differences are of a far less grandiose nature, consisting in the way key decisions are made or points of view formed by the individual rather than by a fundamental otherness. But it is true the main motivation to write about Mittag-Leffler is of course not because of his direct scientific contribution. But one can exert a crucial influence on mathematics without proving any theorems. In his book on Swedish mathematicians until 1950, Gårding hails Mittag-Leffler as the father of Swedish mathematics. Also what makes it different to write about mathematicians rather than artists, politicians, explorers, and other classical subjects of the genre is that the subject matter of mathematicians is incomprehensible to most readers. This puts even tougher demands on the approaches one chooses to present the subject. I believe that by the choice of Mittag-Leffler one will be able to write a biography of a mathematician in a way that can hold the interest of non-mathematicians, as I want not only to give a portrait of Mittag-Leffler the man but also to use him as a springboard to describe an era and a concomitant mentality. Behind this lies a basic conception of what constitutes the human. An individual is to a great extent a mirror of his or her times. If we take as our point of view ourselves or people to whom we are very close, we realize that the way we express ourselves is largely determined by whom we express ourselves to, i.e., our contemporaries. Not to write out of the corresponding perspective means depriving the reader of a necessary sounding board for understanding, automatically present whenever we read about our own contemporaries.

Professor Poincaré (1) med sin värd, professor Mittag-Leffler (2) å Djursholm

Entitled "H. Poincaré. One of the all-time foremost mathematicians", the photograph shows Poincaré on the left and Mittag-Leffler on the right.

Persson: *To write a biography of Abel must have been a challenge, because there is so little documentation; but with Mittag-Leffler the challenge is of quite another kind, as we find here an embarrassment of riches instead. With Abel one got the impression that you included everything you had managed to ferret out, but this will of course be impossible where Mittag-Leffler is concerned. In fact, the habit of writing letters and keeping diaries has, much to the consternation of historians, waned during the twentieth century. Thus ironically the subjects of which we can really present full-rounded biographical pictures are those of the nineteenth century, and of course Mittag-Leffler is exceptional even among those, as he really kept a systematic account of his epistolary output, keeping copies of essentially all the letters he ever penned. Are you first going to produce a preliminary text, a gross version so to speak, say a thousand pages long, out of which you will distill a net version of suitable length?*

Finally, you earlier told me that you are able to follow Mittag-Leffler day by day, something I doubt that you can do with your own life. But with all that documentation, are you really able to see the forest for the trees? In particular, do you feel that you really get to know Mittag-Leffler, or in spite of all the writing does nothing remain but exalted verbiage, hiding the man and his innermost thoughts?

Stubhaug: Those were many questions, so let me confront them one by one. It is true that Mittag-Leffler's *Nachlass* is impressive, some 75 meters of correspondence, diary notes, articles and drafts thereof, of which about 60 meters are archived at Kungliga Biblioteket.[1] There are about 3,000 correspondents, and I estimate the number of letters to be around 20,000. It certainly takes time to go though so much material and to try and digest it. This is why I feel that this biography cannot be rushed. There is so much potential that I feel must be realized before I let go of the work. Besides, the idea of having at some later date to start all over again and redo it in greater detail is just too daunting to be contemplated. As to the final version, it may happen that I in the end will be forced to

[1] *Literally the "Royal Library" in Swedish.*

make a distillation out of a gross version, but for the time being I have not committed myself to any a priori length, and I am still working under the assumption that the format will have to comply with the contents. The ultimate aim is to weave together the different strands of history relating to that of the individual, especially his intellectual development and that of mathematics, and the enormous material available simply forces such a biography—namely, that of writing Mittag-Leffler, the father of modern Swedish mathematics as noted above, into a context in the same way in which traditionally great artists, politicians, barons of commerce, etc., have always been understood.

As to Mittag-Leffler remaining opaque in spite of all the things he wrote, I do not agree. In fact, I feel that I know him inside and out. Especially in his early letters he is not committed to any preconceived image of himself which he wants to live up to and sustain. On the contrary, they testify to a desire to express the anxious excitement arising out of his encounters with new people and new thoughts. The young Mittag-Leffler looked upon his own self as an exciting subject of investigation, in fact as exciting as anything else. Perceptions, feelings, ideas, ways of thinking—nothing was too insignificant nor too grand for that matter to be touched upon in letters or in diary notes.

This is the fourth person I am writing a biography on, and I must admit that on the whole I feel that I know those people better than people around me. And Mittag-Leffler, by virtue of the rich and extensive documentation available, maybe to an even higher degree than those previously portrayed.

Persson: *The British biographer Peter Ackroyd*[2] *claims, somewhat paradoxically, that the writing of a biography makes more demands on your imagination than the writing of fiction. Would you care to comment on that?*

Stubhaug: It reminds me of a remark that at its time was attributed to the French writer and philosopher Voltaire to the effect that Archimedes displayed more imagination than Homer. A statement that, needless to say, epitomizes the opposition between a classical concept of erudition and a more modern one based on scientific methods and paradigms of thought, in recent years actualized by the discussion of the two cultures of Snow.

The statement of Ackroyd is interesting, provided one defines imagination not only as unfettered fabulation but as a power to survey and deal with a large, amorphous, and many-faceted subject matter, because if so, the writer of biographies is in more need of it than a weaver of fiction. The more constraints are imposed on the ways imagination can be articulated, the greater the necessity for surveying and balancing. The narrower the latitude, the more demand for an imagination of precision. It becomes like comparing a tightrope walker constrained to his suspended line of rope with one who is free to walk on the surface of the ground: the latter may sway and dither—it does not matter much—while the former must engage his complete concentration to avoid falling off....

Persson: *As a writer of a biography one may work as a historian most of the time, seeking out the relevant sources, reading, and summarizing. Do you find that this aspect of your work takes almost all of your time, or will there at least in the final write-up be enough time for fashioning a literary narrative? If you had the option of choice, what would you prefer: the historically correct narration you have been assigned to produce or a freer dramatization of his life?*

Stubhaug: I would claim that what may appear as a straightforward account in practice will put the same kind of demands on writing skills as that of a dramatization. To arrange facts in such a way that they form a wave in which the reader is carried away by the feeling of making his own discoveries and conclusions and drawing of parallels with his own life is a form of dramatization that demands its due share of work. To structure the extensive material in front of you in such a way that all components fit seamlessly together as strands of the great warp which will constitute the final book I consider as a truly literary challenge.

Persson: *For whom is this biography really written? Is it for the mathematician, and thus we are inevitably talking about an international audience, or is it for the educated Swedish public? Much of the subject matter lends itself to the painting of a panorama of the Oscarian period,*[3] *of much concern and interest to the Swede but maybe of less interest to a wider public.*

Stubhaug: First I would like to repeat what I mentioned before. The material cries out to be articulated according to its intrinsic nature, and this of course has been my leading star, so to speak. It is true that Mittag-Leffler knew everybody who was somebody: he was active not only scientifically but also knew all the main artists, writers, and intellectuals in general in Sweden. As the twentieth century broke, for example, he was in Egypt consorting with the great writer Selma Lagerlöf. Thus the biography ought to be of interest to any

[2] *Known among other things for his biographies of T. S. Eliot and Charles Dickens and, in later years, extending the genre to the city of London.*

[3] *King Oscar II, grandson of Bernadotte (erstwhile Napoleonic marshal and later an almost unwitting founder of the present Swedish royal dynasty) and great-great-grandfather of the present king, reigned from 1872 to his death in 1907, a period thus coinciding with the late Victorian period. As in the case of his British relative, the personality of the king very much epitomized the period for better and for worse.*

educated Swede, and in fact it will be put out by a Swedish publisher that has brought out many works on Swedish history. But I believe that the microcosm I present will intrigue readers with no previous acquaintance. After all, there have been successful popular histories of the late Habsburg Empire which present similar intimate hotbeds of intellectual ferment, albeit on a grander scale. Then of course Mittag-Leffler had a unique perspective on mathematics; he did indeed know all the important players and maintained personal friendships with a few of them and extensive correspondence with a wider circle. Such matters will inevitably arouse the curiosity of mathematicians in general.

Persson: *One thing that surely is going to interest an international audience is the relationship between Mittag-Leffler and Nobel and how it might have influenced the (unfortunate?) fact that there is no Nobel Prize in mathematics. The story that Mittag-Leffler had an affair with Nobel's wife can of course be discounted (for obvious reasons), but that does not invalidate the general question. Personally, I believe that Nobel was a practical man and that his ambitions for the prize were very down-to-earth and that he in fact never had an inkling of the scientific prestige the prize would eventually be accorded. The thought of awarding a prize to the esoteric subject of mathematics must never have entered the mind of the businessman Nobel.*

Stubhaug: It is of course true, as you indicate, that Nobel was never married. But it is not true that Nobel and Mittag-Leffler never had anything to do with each other. I have unearthed previously unknown correspondence between the two, and although their exchanges were polite, they were not particularly cordial. When Nobel announced that he was going to make a major donation,[4] Mittag-Leffler wrote him a long letter pleading for support for a professorship for Sonja Kowalevski. Nobel wrote back that the donation was made in memory of his mother and thus his intentions were more of supporting charities than scientific advancement. And he also added, which I find remarkable by its gratuitous impertinence, that Mlle. Kowalevski would be much better served staying in St. Petersburg, a milieu far better suited to a lady of her gifts and abilities, rather than remaining a winged bird in a cage in provincial Stockholm. I do not think it is utterly unreasonable to suspect that there might have been some kind of rivalry between Mittag-Leffler and Nobel as regards Kowalevski, who as a beautiful lady was accustomed to expect attention of a gallant kind.

Also, it is not true that the prize was even initially thought of as a practical one, and the fact that Nobel had neglected both what later would turn into the University of Stockholm[5] and mathematics in his will was early on commented upon, leading to speculations unfavorable to Mittag-Leffler. I doubt that the issue will ever be fully resolved, just like most other historical bones of contention, but personally I do not hold it unreasonable after all that the relation between Mittag-Leffler and Nobel did in fact influence the latter to the detriment of mathematics. In fact, once, at the very end of his life, Nobel, dining at a restaurant, caught sight of Mittag-Leffler walking in the street outside. He is then reported to have remarked that there goes the worst scoundrel in the country, meaning in matters financial.

Persson: *The name of Sonja Kowalevski is also one to which Mittag-Leffler is inextricably linked. Cannot we mathematicians take pride in the fact that unlike the case in many other scientific fields at the time, we harbored no objections to women in science? And thus the fact that there are so few women in mathematics is hardly due to any active obstruction, a conclusion otherwise so easy to jump to by an outsider. Mathematical talent is supposedly very easy to recognize, so although Mittag-Leffler, as a publicist friend of mine has remarked, may have been something of an arch conservative, he acknowledged talent wherever it was to be found, regardless of gender, and thus ironically, in this respect at least, can be seen as ahead of his times.*

Stubhaug: It is true that Mittag-Leffler did everything he was capable of to promote Sonja Kowalevski. He also tried to get her elected to the Swedish Academy of Sciences, but its president infamously remarked that if we are going to include women, where on the scale of creation will we then stop? That president was not, needless to say, a mathematician. Mittag-Leffler also took a very keen interest in the literary career of his sister, and he once remarked to her in a letter how important it is that works of art should not be viewed from a perspective of gender, warning her about being identified with the parochial concerns of the bluestockings.

What is much less known than his championing of Kowalevski is that he also intervened for the benefit of Marie Curie. Initially it looked like only her husband and Bequerel would receive the prize, but Mittag-Leffler actually wrote to Pierre Curie, explicitly asking about his wife's contribution, and the lengthy reply which he got he forwarded to the Nobel Committee. Awarding Marie Curie the prize was a pivotal decision, and I think that Mittag-Leffler deserves a lot of credit for it. In fact, to return to the issue of the Nobel Prize, Mittag-Leffler played a very active role. He tried to lobby for

[4] *One in 1890 and thus not to be confused with his ultimate donation in his will.*

[5] *Stockholm's Högskola, only in the 1950s formally designated as a university, was an independent institution of higher learning guided by very progressive ambitions.*

Henri Poincaré unsuccessfully (in connection to which I have discovered a wonderful picture taken of Poincaré on his visit to Djursholm in 1905 [see page 1043]) and later for Einstein successfully. For many years he arranged a dinner for the laureates at his sumptuous villa in Djursholm on the day after the awards (although when Marconi got his prize in 1909, he scheduled it the day before so as not to have to invite a person he considered to be a humbug).

Persson: *Mittag-Leffler is often presented as an imposing but vain figure appearing not a little ridiculous. He is also criticized for his weakness for high society. His relations to women, although correct, seem formal and artificial. In his letters as a boy and a young man he comes across as exemplary and very chaste, telling his mother everything. It is hard to reconcile this dependent and introverted young man with the extroverted figure that won the confidence and respect of so many of the leading mathematicians of the day and successfully, not to say brutally, brokered many a business deal.*

Stubhaug: It is true that his letters to his mother are very intimate and honest, definitely more so than to his wife, although they had their fair share of glow of conventional passion, at least during the initial courting stage. In fact, there is nothing that he is able to confide to friends or to his diary which he is not also able to confide to his mother. To some extent this might illustrate the tenor of his times, in which women, especially as mothers, were objects of adulation. But Mittag-Leffler clearly goes beyond this. One may partly explain this by his being stricken as a child by a serious disease, through which he was nursed back to health by his mother. This must have created a strong bond. Relations with his father were more distant, which was not unusual at the time, and they certainly were not helped by his father's mental collapse when Mittag-Leffler was in his early twenties. His father was committed to mental institutions for the rest of his life, a source of worry and maybe above all of embarrassment. Mittag-Leffler was quite clear about his strong relationship to his mother. He writes to her that any marriage he would conceivably enter into was to be one of convention, giving explicitly as an explanation his strong attachment to her. He eventually married a young and beautiful girl who was also very rich. But the marriage was not particularly happy and resulted in no issue, which one surmises must have been a source of common disappointment, not to say sorrow. His relationship to his sister, who like his well-known protegé died rather young, was also very close, and he took a great interest in her writing career. Her death as well as that of Kowalevski which had preceded it, left him shattered.

Admittedly, early on in his career he cultivated useful relations with nobility. It is revealing to learn of his initial scepticism, not to say distaste, and the ease with which he discarded such reservations. As to why he managed to establish such fruitful ties with the leading mathematical lights, one simply should ascribe to his personal charm. When he traveled on the continent in his late twenties, he was a striking figure, tall and handsome, able to carry on cultivated conversations, and also, although not in a historical sense, a more-than-competent mathematician. He became a personal friend of several of his teachers (Hermite, Kronecker, and of course Weierstrass, just to mention a few), participated in several scientific conferences, and established a network of contacts with many of his contemporaries. In short, he was brought up to date with international mathematical research on the cutting edge, or, more precisely, he established solid personal contacts with the greatest mathematicians and their schools, giving him standards of excellence he was to maintain for the rest of his life.

It is also true that he did amass a fortune, although the First World War seriously eroded it, but I think one should not conceive of this ambition in purely personal terms. His worldly and financial success had a definite purpose, namely that of promoting mathematics. I believe that those standards of excellence he acquired in his first encounter with continental mathematics, this awareness and conviction of what a first-rate mathematician or scientist really represented, had a deep impact on Mittag-Leffler, providing him with a basis on which both to judge his contemporaries and to determine his own positions on various issues. Of course it could appear arrogant and disparaging when he would apply those standards of excellence to his colleagues in the north and the scientific scene in which he found himself. Naturally many people around him thought that he was living in his own world with his head in the clouds. As founding editor of *Acta Mathematica* (from 1882) Mittag-Leffler confirmed his claim as an arbiter of mathematical taste and importance, and the journal quickly became one of the leading ones in the world, providing the foundation for his international standing.

Mittag-Leffler was a scientist at heart; he strongly believed in the Victorian concept of progress, especially the scientific one. He had inscribed over the fireplace words to the effect "by the emergence of number thought was born and beyond the number thought does not reach".[6] This inscription later inspired much scorn, but to me it illustrates his deeply set idealism. Man was not just a tabula rasa on which experience and external stimuli were

[6] *It comes out much better in Swedish with the ambiguity of the word* number *that can also mean* speech: *"Talet är tänkandets början och slut. Med tanken föddes talet."*

scratched, but was endowed with a higher spirit actively engaged in the world and its understanding.

Persson: *Mittag-Leffler left a tangible legacy. His villa, in which we now find ourselves, which for almost forty years, thanks to the successful efforts of Lennart Carleson to stave off plans to raze it to the ground,*[7] *has served as the kind of institution he had envisioned. Do you think he looks down from his heaven, or wherever his ultimate destination happened to be, with satisfaction?*

Stubhaug: The question is of course impossible to answer, at least literally. However, I think that an institution of mathematics with no examinations was his dream. In fact, he tried to turn Stockholm's Högskola into such a one. Mittag-Leffler was not a classical scholar, and the requirements of learning Latin had been an ordeal for him and to his mind an utterly meaningless hurdle in the pursuit of mathematics. Such personal experiences strongly colored his view of education, which must be conceived of as progressive, once again giving the lie to his arch conservative image.

Persson: *If you were asked to make a comparison between the writing about Abel, Lie, and Mittag-Leffler, what would you emphasize?*

Stubhaug: The main differences are not primarily to be found in the actual work of writing, although the difficulty may be even greater this time around, but that we are talking about three profoundly different personalities. What strikes one first is Mittag-Leffler's gradually acquired consciousness of and faith in his position as a prominent scientist and the uses to which he put it. Abel never really understood his position and influence; he was standing outside, banging at the door, but was never let in. Lie kicked in the door by brute force and appropriated the position that clearly was his due. Mittag-Leffler simply had the key.

Note: The photograph on page 1047 was first published in 1905 in a magazine in Stockholm called "Hvar 8. Dag". The name of the photographer is presently unknown. The scanning of the photo was done by Jonas Förare at The Royal Swedish Academy of Sciences (in March 2005).

—Arild Stubhaug

[7] *The villa, being part of the property of the Swedish Royal Society, was actually at one point valued negatively by a substantial amount corresponding to the projected costs of its demolition. It should be noted that at the time there was a craze in Sweden for demolishing old buildings.*