

Paper in:

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Ernst Gustav Gotthelf Marcus (1893–1968) and Eveline Agnes du Bois-Reymond Marcus (1901–1990)

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1. Introduction

The names of Ernst and Eveline Marcus are so well-known to bryozoan workers that it surprised me when preparing this paper to find little published biographical material available beyond a few brief obituaries. Fortunately, some additional sources have made it possible to create a more complete picture of their lives for the IBA history session. Meeting several current and former members of the Zoology Department at the University of São Paulo during the 16th International Congress of Zoology in Athens in September 2000, made me aware of Ernst's still vivid reputation as a great teacher and the founder of biological science at that university. One of those present, Cláudio Gonçalves Tiago, Centro de Biologia Marinha, University of São Paulo, generously offered to interview some older and retired colleagues concerning their remembrances of the Marcus's years in Brazil, to translate and e-mail their comments to me. He also found and sent copies of additional biographical material published in Brazil.

Another rich source was the correspondence of the American bryozoan worker, Mary Dora Rogick, passed on to me by Timothy Wood in the hope that I could find a permanent archive for it. Mary Rogick was a prodigious correspondent, who not only maintained letter writing relationships with bryozoan workers around the world, but kept files with carbon copies of her letters, as well as her correspondents' replies. The first few items in the Marcus file are reprint requests: two 1935 postcards, one in Ernst's handwriting and one in Eveline Marcus's, from the Zoological Institute in Berlin, requesting copies of Mary's papers, and a 1937 request from Ernst written from the University of São Paulo,

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asking to be placed on her permanent mailing list:

May I ask you to be so kind to send me a copy of your studies on fresh water Bryozoa V and also of all your future publications, because I am still working on Polyzoa. In a few months I hope to be able to revenge myself, sending you a copy of my paper on some marine brazilian Polyzoa, that is in print now. Very cordially yours, Ernst Marcus.¹

From that time on letters were exchanged between the Marcuses and Mary several times yearly until Mary's death in 1964.

Bryozoan worker Mary Dora Rogick (Figure 3), a professor at the College of New Rochelle, New York, was known by her colleagues for the humorous drawings and cartoons with which she illustrated her letters and papers. Eveline Marcus proved up to returning the challenge of replying in kind (Figure 1). The Marcus's letters, written by Eveline in her idiosyncratic style and spelling, were also illustrated by her with charming colour pencil drawings. The drawings, which illuminate the margins of fragile airmail letters or are interwoven with the text, illustrate animals, plants, the Marcus's research subjects, or other aspects of their lives in Brazil.

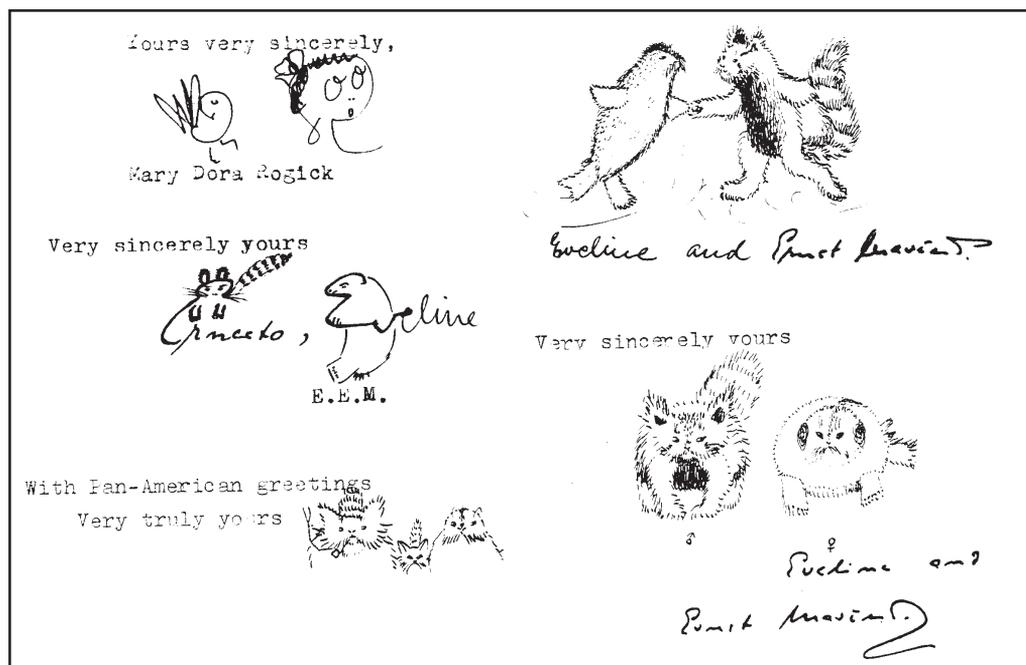


Figure 1. Characteristic illustrated signatures from the correspondence of Mary Dora Rogick and Ernst and Eveline Marcus: Mary Rogick (from letter to E. and Ev. Marcus, 4th September 1944), Ernesto and Eveline (from letter to M. Rogick, 27th February 1941), the Marcuses and their cat (from letter to M. Rogick, 29th July 1940), dancing Seal and Bear (from letter to M. Rogick, 3rd March 1938), Bear and Seal in frontal view (from letter to M. Rogick, 27th December 1937).

2. The years in Germany

Ernst Marcus was born in Berlin, Germany, on 8th June 1893, the son of Georg Marcus, a district court judge,² and Regina Schwartz.³ As a child he lived near the famous Berlin Zoo, where he learned to observe and appreciate all kinds of animals. He was educated at the Kaiser Friedrich Gymnasium in Charlottenburg and entered the Friedrich-Wilhelms-Universität (University of Berlin) in 1912 to study zoology. As a boy he had collected beetles, and he originally intended to become a coleopterist. He had begun his doctoral research in the Entomology Department at the Berlin Museum when his studies were interrupted by World War I. Ernst served in a cavalry regiment during the war⁴ and was awarded the Iron Cross, I & II Class.⁵ Once the war was over he returned to the University. He received his Doctorate in 1919, with a thesis on Coleoptera.

After graduation he continued to work at the Museum where, according to Eveline, the museum's director assigned him the Bryozoa collection to study.⁶ In doing so, he was on his own, with no resident specialist to learn from, and only an old and inadequate collection of literature to use. Despite these drawbacks Ernst plunged wholeheartedly into the taxonomic study of bryozoans, working up collections from a number of German, Swedish and Danish expeditions to the Pacific, Australia, the Aru Islands (off New Guinea), and South Africa, in addition to various collections from Europe. In doing so he gained a valuable knowledge of the global bryozoan fauna, as well as facility in taxonomic writing. His work on collections made in the Pacific Ocean by Dr. Theodor Mortensen of the Zoological Museum, University of Copenhagen, also made him a Danish friend with whom he corresponded and eventually visited.

In 1923 he obtained the 'Privat-Dozent'. This credential permitted him to teach courses at the university level, and he was appointed assistant to Professor Karl Heider, the invertebrate embryologist at the Zoological Institute of the University of Berlin.⁷

Ernst was 31 when he married Eveline Agnes du Bois-Reymond in 1924. Eveline, 23 at the time of their marriage, was also from Berlin, the daughter of René du Bois Reymond, a physiology professor at the University of Berlin, and the granddaughter of Emile du Bois-Reymond, one of the founders of electrophysiology. Like Ernst, Eveline was devoted to zoology. By training she was a laboratory technician and zoologist, skilled in the new art of microphotography. According to those who knew her well, she had delighted in small invertebrates since childhood, when she had studied them under her father's microscope.⁸ Figure 2 taken in Berlin in 1926 shows the young couple with student bryozoologist Ehrhardt Voigt and the American Ray S. Bassler.

The marriage of Ernst and Eveline also became a scientific partnership that lasted until Ernst's death. She drew the illustrations for his papers, Ernst did the references and literature survey, both participated in the studies themselves.⁹ Visit(s) to the marine



Figure 2. Left to right: Ernst and Eveline Marcus with Ehrhard Voigt and Ray Bassler, Berlin, 1926 (Photograph from the Bassler Photo Collection, Department of Paleobiology, National Museum of Natural History, Smithsonian Institution)

station at Büsum on the North Sea coast resulted in the Marcus's first studies of living marine bryozoans, and they also began to study freshwater species.

Ernst's scientific career progressed satisfactorily for some time. He was appointed Associate Professor at the Zoological Institute in 1929 at the age of 34. However, the institution of Nazi laws in 1933 soon resulted in the dismissal of all German Jewish scientists from their jobs. Most Jews were dismissed immediately, but Ernst and others who had received military honors during the war were protected until Hindenberg's death in 1935.¹⁰ Correspondence between Ernst and Theodor Mortensen of the Zoological Museum, University of Copenhagen shows that he wrote to Mortensen in 1933 to say that he was afraid, but would not leave Germany. However, it is clear that the Marcuses soon started making plans to emigrate. He visited the Copenhagen museum for two or three days in January-February 1934, and stayed with the Mortensen family. Ernst and Eveline began studying Danish, and Ernst began writing to Mortensen in Danish in December 1934.¹¹ That he was completing a monograph on the Danish bryozoan fauna for Mortensen's *Danmarks Fauna* series was a compelling reason for learning Danish, of course, but a letter from Eveline to Mary Rogick¹² mentions that they also thought they might find refuge there.

In 1935 Ernst was dismissed from the University. However, he did not remain unemployed long. He wrote to Mortensen in March 1936 to say that he had finished the



Figure 3. Mary Dora Rogick (photograph taken from copy made by J.D. Soule in 1969 from original in the album of G. Bobin, Paris)

linguistic revision of the *Danmarks Fauna* bryozoans thanks to the help of a visiting Danish student. Later that month he sent Mortensen another letter saying that he had received a telegram from São Paulo with an offer of a professorship.¹³ He had been recommended for the Chair of Zoology at the new University of São Paulo in Brazil. According to Eveline,¹⁴ the offer came about through the efforts of the Society for the Protection of Science and Learning, Ltd, a group which tried to find jobs for displaced Jewish scientists.

The new University of São Paulo had been established in 1934. The university was well funded, able to import library resources and lab equipment and even provide the students' textbooks. It was patterned after European institutions, and its organizers hired faculty primarily from Europe, even to the extent of recruiting for each discipline from a particular country, e.g., France for philosophy, and sociology, Germany for botany, chemistry and zoology, etc.¹⁵ Ernst Bresslau, an embryologist and turbellarian specialist from the University of Cologne was originally invited to found the Zoology Department. His sudden death in 1935, shortly after he had arrived in Brazil, provided an opening for Ernst Marcus.

3. The years in Brazil

The Marcuses arrived in Brazil on 1st April 1936.¹⁶ They plunged immediately into the study of Brazilian bryozoans, utilizing both preserved material collected by others and living animals and larvae they collected on the coast near Santos (50 km from São Paulo), and they began publishing a series of papers in the Zoology Department's journal, *Boletim Zoologia*. They were concerned about whether bryozoan workers would be able to read Portuguese, writing to Mary:

If you are familiar with Latin, you can perhaps find out of the "Bryozoarios marinhos brasileiros" which I hope to send to you in the course of September; the English summary is surely quite insufficient for systematic matter. I beg you to write frankly, whether it is possible with help of my wife's nice drawings to understand the diagnoses and discussions, though they are written in Portuguese. The embryological studies, with which we now are occupied, will be summarized much more amply.¹⁷

Mary reassured them:

I certainly do admire your ability to write in and to use so many different languages so well. The Portuguese articles do not appear to be so very hard to translate—at least, not nearly so difficult as German. . . . The drawings in the Brazilian Marine Bryozoa paper are exceedingly clear and the diagnostic characters are well brought out. You are most lucky to have such an able and willing assistant as Mrs. Marcus! With the aid of the excellent drawings and also some slight knowledge of Bryozoa in general, it should not be difficult for anyone to understand the taxonomic discussion in the Brazilian paper. I wish more writers would follow your plan of including a list of definitions of terms in large papers,—it is a most helpful feature.¹⁸

To which Eveline and Ernst replied

We are very glad that you don't find it impossible to work with our Portuguese paper; the old Sir Sidney Harmer unfortunately has much trouble with reading it. But most scientists, especially the older generation, were brought up with so much Latin that they ought to be able to understand Portuguese. I myself always blamed my teachers for the exaggerated time we had to spend on Latin but now I see the use of it. I expect you won't enjoy my Danish paper from the linguistic point of view. Unfortunately, science as well as we will have to wait til 1940 until it gets printed. They lack money for the print in Denmark though the Bryozoa for "Danmarks fauna" lie ready since two years. (MM to MDR, Dec. 27, 1937).

Their work on the marine Bryozoa seems to have progressed rapidly, for in March, 1938 they wrote

We are now beginning to study the anatomy of the marine Bryozoa from Santos, because we have found and classified nearly all species that occur there in shallow water. For preserving material we had a week's trip to the seashore and have been bathing in Bryozoa. We also could

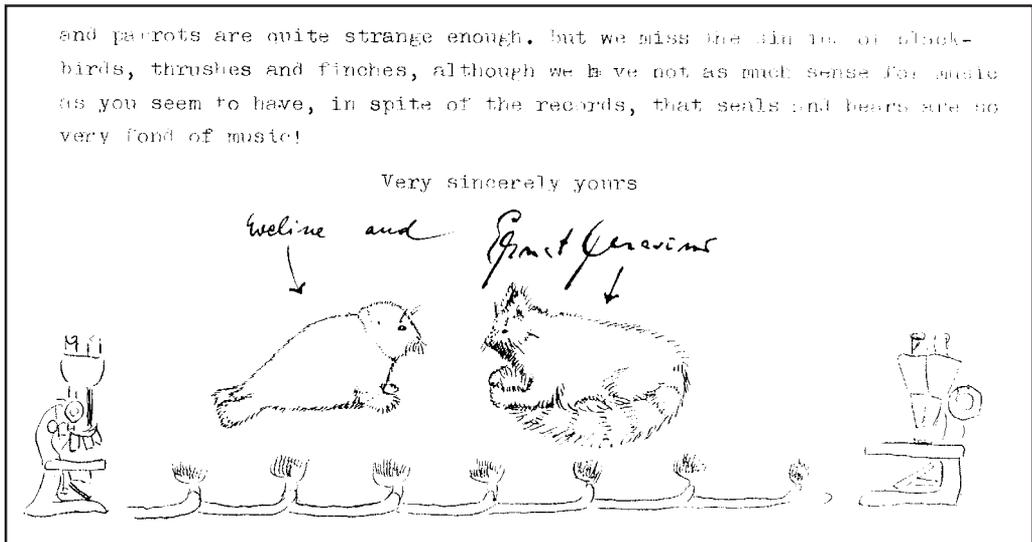


Figure 4. Eveline and Ernst as Seal and Bear, complete with microscopes and phylactolaemates (from letter to M. Rogick, 27th July 1938).

observe some colonies alive, unfortunately they all died very soon because of the warm water, but we have seen some of the marvelous larva alive with their brilliant colors that lose themselves completely in alcohol. We hope to get some colored pictures printed in our next paper.¹⁹

As in many countries, the students who took up science at São Paulo were generally not from the top of the social hierarchy, but included women, children of immigrants, and country people. They may have been lacking in formal biological training, but they were enthusiastic about the new world of science and the opportunities it opened to them.²⁰ The Marcuses returned their students' enthusiasm. They had no children of their own and seem to have treated their students and students' children as their extended family:

We have so much to do with the education of our 3 little girls, now they are beginning to grow up, that I often think of the old woman that lived in a shoe. 1.) Marta is modest and does not claim much of our time--if she does not just have a ms to be looked at. (She has written a kind of report on her year's work at Yale.) 2.) Gabriella is doing her first morphological steps with anatomy of *Saccocirrus gabrielleae* with sectioning, staining, and reconstruction. The latter needs near accompanying and often help. Number 3, Diva is building her thesis on the embryology of *Bugula flabellata*. We had preserved one beautiful colony richly beset with embryos in 1938 and had patiently waited for a student to study it. When Diva accepted the place of our third assistant, she had to begin to elaborate her thesis and chose this subject. She made nice models of Plasticine of the segmentation and nice drawings of the totality of the fertile colony. Now she is finishing text and the definitive drawings and also needs much of our time. In the July holidays we will all together go to the seashore to have some rest and some new material.²¹

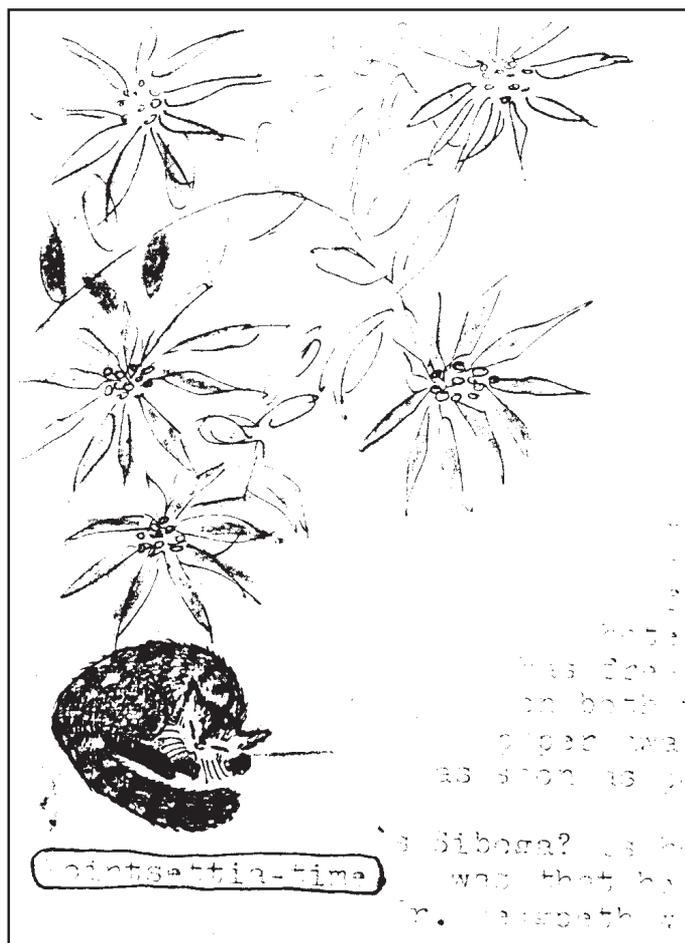


Figure 5. 'Poinsettia-time', the Marcus cat with Brazilian flora (from letter to M. Rogick, 11th June 1946)

By all accounts Ernst and Eveline were devoted to each other. The signatures of their letters to Mary show their fond characterizations of each other as favourite zoo animals (Figure 4). Eveline is a Saima Seal, Ernst, a Red Panda (often a pipe-smoking Red Panda). They were also devoted to their pets (Figure 5):

... we dedicate all our free time to research and publication with exception of the hours our cat requires. He is a yellow beauty and very tame, only every night he strays about with his black lady-love.²²

However, even pet animals were subjected to their scientific scrutiny:

His yellow fur seems to grow in the rhythm of the northern hemisphere, where his ancestors

came from: he had a beautiful mane all along his back in December, and now his coat is much thinner in spite of our winter. It is true that until now the weather is exceptionally warm but nevertheless he ought to put on his winter coat, it might turn cold over night. After only one year of observation this fact is NOT ready for publication but if his mane grows again at the end of this year we at least can, but need not state the cycle of the fur for ONE South American Tomcat.²³

Their love of zoos continued strong, and they seem to have interested Mary Rogick in zoos, also, for in 1937 and 1938 she visited the New York Zoological Park, the Brooklyn Zoo, the Central Park Zoo, and the Aquarium and sent photographs she had taken of some of the animals to the Marcuses who replied:

We get a lot of information about your North America by means of the *National Geographic* magazine and have read the article about procuring animals for the Washington Zoo with special interest. Ernst grew up very near and therefor most of his time IN the Berlin Zoo and was acquainted with most of its inhabitants. Here in SP they only have a small private zoo but a very fine garden with domestic animals and also a few native wild ones among which the huge Tapir is so tame that we could stroke her fur. She is quite black with white tipped ears. Of the brasilian colored birds we do not see many but for us Europeans hummingbirds and parrots are quite strange enough.²⁴

The Marcus's scientific productivity burgeoned in their new hunting grounds around São Paulo. Mary Rogick, who had a very heavy teaching load, as well as the care of her ailing elderly mother, wrote wistfully:

The amount of work that you have done in the last two or three years is truly amazing. About all I can do is to publish one little paper each year. This year I have 238 girls in my classes (General Zoology, Embryology and Teaching of Science). I spend most of my time grading their papers and drawings. My research I have had to leave for the vacations and summers.²⁵

She asked the Marcuses how they managed to produce so many papers. Eveline described their São Paulo life and work schedule:

Our working technique has several secrets that we can easily reveal, as they are not so easy to copy: lessons claim three mornings weekly from 8-12, with the three previous afternoons for preparation (for one half hour of lecture and 2-1/2 of dissection or work with the microscope). I, woman, have nothing whatever to do with the teaching, and little with our household of two persons that are more concerned in much than in complicated food (of course it shall also be tasty). We have a Yugo-slavian housekeeper that comes from the frontier of Rumania and speaks German. She has been with us for 8 years now, and does everything necessary, including washing and ironing in 4 half days weekly. So all my free time and three full days (except of course lots of conversation at the Department and some instruction for the younger members of the staff, viz. Miss Zuccari) of his go to our own research work. Sundays serve for collection. Sao Paulo, 750 m over sea level, city of one to two millions of inhabitants, spreads over ca. 15 x 15 km of rolling country with deep cut valleys. Our hired house lies half way between the

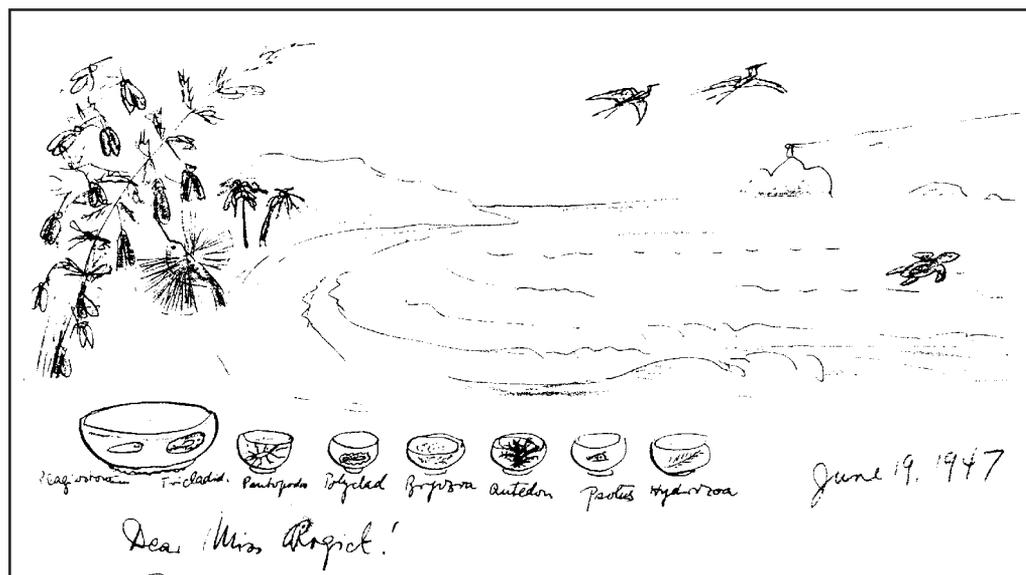


Figure 6. The coast at Ihlabela, São Sebastião Island, Brazil, showing some marine animals collected there; note the ciliate capital R on Rogick. During this visit the Marcuses stayed at a weekend house belonging to the sister of Marta Vanucci, one of their graduate students (from letter to M. Rogick, 19th June 1947)

"city" and the boundaries, so that we are at the outskirts of the town with a 15-minute tram-ride. We love to walk, and in our reach there are some rivers and many mostly very dirty, rivulets, a bit of wood, about 1000 m. square, and in the further range hills up to 1100 m. Unfortunately they are beginning to make use of the rivers for electric power and are damming them and turning them so that the water is often quite putrefied. . . . The illustration of our papers is exclusively my dominion, and with a double set of genes of the painter and engraver Chodowiecki from two great grandmothers, and 30 years of experience, I do not spend too much time with drawing. F. ex. the figures in Danmark's fauna, that are reduced to $\frac{1}{2}$ of their original size, took 3-4 hours each. I admire the enormous, ant-like assiduity of your statoblast-dotting. The effect is marvelous and much superior to many of my drawings. We have very good binocular microscopes as well as Greenoughs both in the Department and at home, so the microscopical work does not strain the eyes, even with many hours of work every day. (Waldo Schmitt considered it a South American hobby of luxurious apparatus, when he saw our microscopes, but it's not, it is only common sense and self-preservation). The scientific libraries of Sao Paulo are very rich; beside the department that has a number of complete sets of reviews (Quarterly Journal of Microscopical Science, Biol. Bull, Zeitschrift Wissenschaftl. Zoologie, etc.) the Instituto Butantan, the Museu Paulista, and the Instituto Biologico have got collections of books so that most of the papers we want are available. A great number of separate copies of Bryozoan papers is in our private library, bought before we left Europe, and an equally rich one on Turbellaria the Dept. bought from the widow of our predecessor Bresslau. We even have several acquainted Russians that love to translate Russian articles for us. Can anyone combine so many favorable factors for scientific research?²⁶

In 1940 Ernst and Eveline became Brazilian citizens, an event which they celebrated by buying a gold medal with a symbol of the Brazilian Republic.²⁷

Ernst's scientific interests had always been broad. A 1928 directory listed them as 'Tardigrada, Tiergeographie, Coleoptera, Bryozoa (Systematik, Verbreitung, Embryol., Physiol.)'.²⁸ With a vast unstudied neotropical fauna before them, the couple's scope of work continued to increase (Figure 6 shows some examples of their interests). When they first arrived in Brazil the Marcuses had inquired about the presence of freshwater bryozoans, but without much success:

We did not yet find *Lophopodella* here but we confess we have not looked for freshwater Bryozoa and of course the people that "naturally have met them so often" can't find them again if we ask them to give us some.²⁹

However, when World War II began marine work became impossible for them because of their German origins,³⁰ so the Marcuses turned to the study of freshwater bryozoans, as well as to research on other freshwater and terrestrial groups, particularly the Oligochaeta and Turbellaria. They also utilized collections they had previously made of animals associated with marine bryozoans, such as pycnogonids:

With the same you receive our *Boletim Zoologia* 4, this time not dealing with Bryozoa, but with all the Pantopoda, that we in the course of our studies could pick from our Bryozoa.³¹

The Pantopoda were also an old "faible" of ours. Among the tufts of Bryozoa we had gathered so great a number during the first years here, that they were worth the while. But it seems that their biology is nearly inaccessible. They want living Hydroids for dinner, and we can only offer them bananas and coffee.³²

Both Mary Rogick and the Marcuses wrote of the changes brought by World War II:

The war is just beginning to make itself felt in our school system. Some of its effects are delayed deliveries of scientific equipment, shortening of courses so that students can graduate sooner in some of the schools. Some schools plan to arrange a number of courses during the summer so that students can finish in 3 or 3-1/2 years instead of 4 the work for their B. A. degrees. About 4 months ago I received a reprint from Dr. Anna B. Hastings so evidently she is still alive and well. I have written her since but have not yet had a reply and probably won't for some time. I have not communicated with Borg or some others in Europe since the war.³³

The war has cut nearly all our correspondence with family and scientific relations, with exception of England and North America. There is a rather great colony of old and new acquaintances here, and we have enough occupation with zoological research, not to feel the gap too strongly. . . . with very good wishes for you and your country, we remain very truly yours, Eveline and Ernesto Marcus.³⁵

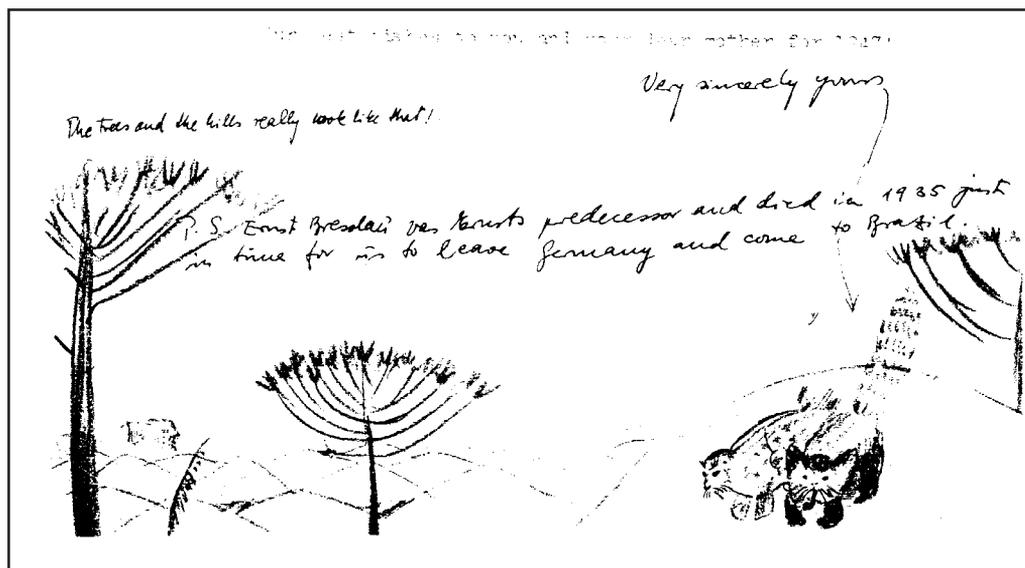


Figure 7. Seal and pipe-smoking Bear, the Marcuses on vacation in hill country (from letter to M. Rogick, 13th January 1947), according to Eveline this was their first vacation since arriving in Brazil more than 10 years earlier, even so, they couldn't resist collecting some *Fredericella* in the hotel's pond).

Under separate cover I have sent you and your faithful coworkers some fairly recent reprints. I had them packed as early as last July but hesitated to send them on account of the war because shipping space is so important. . . . The cancellation of the annual meeting of the American Association for the Advancement of Science was a disappointment since the meeting was to have been held at New York City. . . . This is the first cancellation of the annual meetings since our Civil War days (1865) and was due to the war.

In 1945, Ernst became a Full Professor of Zoology, presenting a large thesis about microturbellarians to the University in support of his promotion.³⁶ They wrote to Mary:

We fear you will have to buy a Danish-English dictionary next, because now we hope you will soon receive your copy of the Bryozoa in "Danmark's Fauna" (No. 46) written in Danish 400 pages and ca. 200 figs in 1935 and published in 1940. Our copies were on the train in Dec. 1941, via Siberia and never found their way. But we promise to stop publishing in further languages; Ernst has just signed his definitive nomination in his position here, so we hope we won't need to learn more languages.³⁷

And, in fact, when Ernst was offered a position back in Germany after the war he declined:

In the course of the last year we had the surprise to receive the invitation to return to Germany to the chair of Eugen Korschell at Marburg but we are not willing to begin with reconstruction

a third time, once after 1918, once here, and now once more. So we decided to stay here, where we have plenty to eat and plenty to investigate. The facilities for studying marine fauna are a great attractive for us.³⁸

The end of World War II brought a return to normal times. Ernst and Eveline took a real holiday at a hotel in the hills, their first since moving to Brazil (Figure 7).

The post-war economic boom also brought rapid changes and growth to both New Rochelle and São Paulo.

It seems so unusual to go into stores and groceries in town and to find their shelves filled again with all sorts of canned foods and goods. . . .The black-outs have been lifted long ago and very few things (sugar) are being rationed any more. . . .The housing shortage is terrific. There have been no vacancies in many of the apartment buildings about town for a long time. No one dares move.³⁹

The Marcuses replied:

If you find it unusual to buy your food without points now, we find it much more astonishing that we are here and now beginning to have our bread rationed. Until now only sugar was really scarce, but now wheat is going to Europe. and Brazil is not at all autarc. The housing problem is much like yours, also for building we need foreign materials, so that the number of new houses built during the war did not suffice for the many workmen that came to town.⁴⁰

As the post-war boom progressed, both North and South American biologists noted with dismay the effect of increasing human population density on the animals they studied:

We are always on the lookout for *Lophopodella iheringi*, though it is every year more difficult to collect fresh water-fauna near S. Paulo. The city is growing too rapidly, about one house every ten minutes or so, and the sewage problem has not been solved better than through the natural ways. Downstream from town the rivers are a mess of decaying substances, and animal life is restricted to Chironomids and Tubificids. How now and then a fish still manages to breathe in the stinky soup is incomprehensible.⁴¹

New Rochelle is growing fast. Many new (but very expensive and luxurious) apartment houses are springing up around our waterfront. Soon it will be difficult to take classes on field trips along the shore because of so much new building. Automobile traffic is becoming frightful. The chief criticism seems to be that there is not enough reasonably priced housing which poor or middle class professional people can afford. There are plenty of expensive places in which to live and the new housing is practically all of that type.⁴²

Your description of the growing New Rochelle might be applied to the city of S. Paulo too. Enormous scy-scrapers (sic) of most elegant apartments and scarce housing for the poor. LIFE certainly did not picture the living quarters around the town, though they are picturesque in their

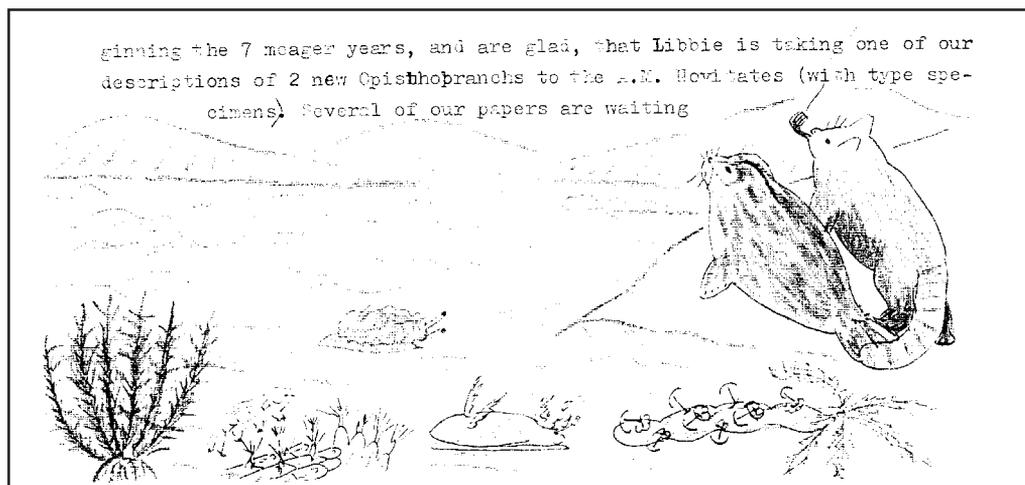


Figure 8. Seal and Bear on the Brazilian coast, with some of their favourite marine animals, including tardigrade, opisthobranch molluscs and bryozoans (from letter to M. Rogick, 6th February 1956).

variety. The hills are covered with most primitive shacks built of old boards and the like, it is true, sometimes crowned by a television antenna. The nearby swamp, where we had collected numbers of *microturbellaria*, new for science, has also been filled up and is going to be sold for nice family homes, and the scientific *turbellaria* have to look for new lodgings, poor things.⁴³

New Rochelle is experiencing quite a building boom and also urbanization. Many new apartments and also new industries have arisen in this area. Our waterfront is far more occupied and bordered by large apartment buildings. Collecting of marine specimens in this area has been rendered almost impossible. In previous years we could collect about 50 spp. of marine animals without even getting our feet wet. Now, about all we can collect is Mytilus, Modiolus, Littorina, Fucus, Enteromorpha, Nassa, Mya, and a few other forms.⁴⁴

When Ernst Marcus joined the University of São Paulo Zoology Department it was housed in a former private home called the Street Mansion, located in Alameda Glette near Princess Isabelle Square in São Paulo.⁴⁵ Although luxuriously built, with marble staircases, the building soon became too small for the growing department. In 1954 the department was moved to a new building on a new university campus 5 km out of town. The extra space in the new building was much appreciated, but the developing campus still had a few drawbacks:

In the meantime we have every day the exciting expedition to the Department that has moved to the incipient University Campus 3 years ago. The building is so to say ready, but the roads have only been begun 2 years ago, and the bus varies its circles on different dirt tracks. If it only is dry dust, it is not so bad, but now it has been raining, and we slide through the red soap, fortunately in a plain, where there are precipices, there is a little sand. They have peeled off all

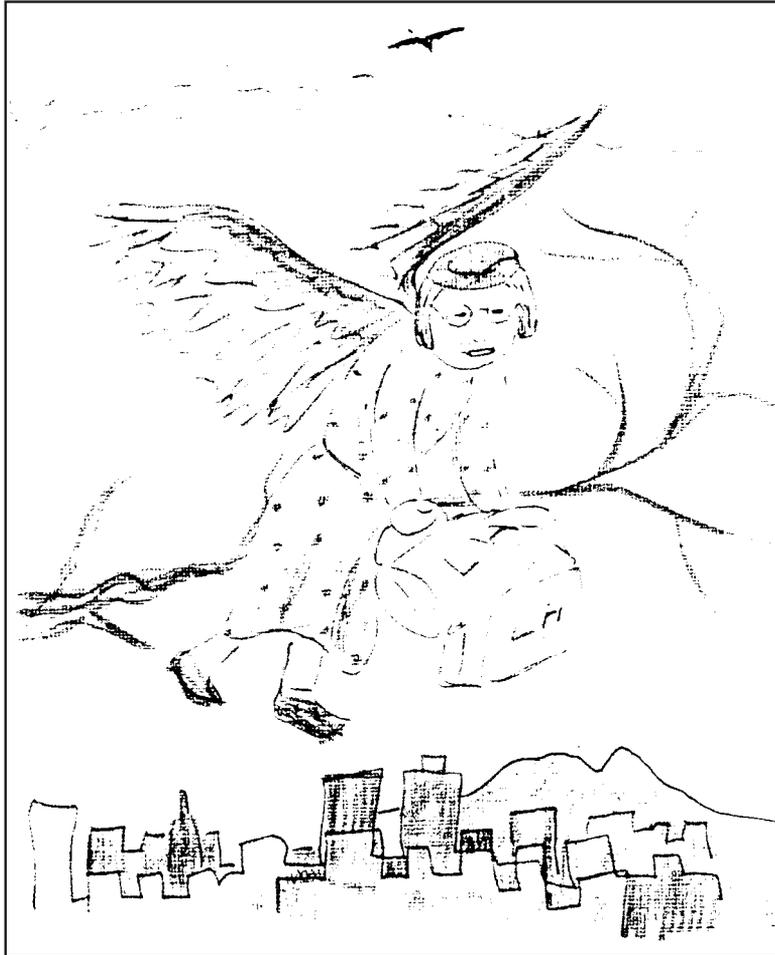


Figure 9. Libbie Hyman arriving to visit the Marcuses in São Paulo (from letter to M. Rogick, 6th February 1956)

the humic layer and left the red laterite, and erosion works on it, we have grand Canyons in all the colors of the rainbow that would make your Grand Canyon blush, through they are in minor scale, and when it rains the book gurgles and everything drips, it is so natural!!⁴⁶

In the post-war years Mary and the Marcuses continued to correspond a couple of times a year, but they wrote less frequently about bryozoans. Although the Marcuses continued to produce papers on bryozoans (1946, 1949, 1953, 1955*a*, 1955*b*, 1957, 1962, 1968), they had also become increasingly involved with research on other invertebrate groups, first with Turbellaria, then with Eveline's favourite animals, opisthobranch molluscs (Figure 8):

Many thanks for *Emballotheca* with the beautiful ample illustration. We are very far away from

the Bryozoa with our studies now in fact our sea-slugs eat Bryozoa! One had its gut full of avicularia bitten off from the Bugula on which it is found. Another digests by intracellular vacuoles that contain teeth of the gizzards of Amathia.⁴⁷

Mary missed their contributions to bryozoan work and wrote to them:

When are you going to work again on the Bryozoa? I miss your absence from the group. How about some physiological, embryological, or ecological experiments with the group? Or studies with the electron microscope or polarized light? Such work is badly needed and you are the most logical and best qualified team for the work.⁴⁸

Shortly afterwards, a new opportunity did draw them briefly back to the Bryozoa:

Furthermore we can inform that your claim for our return to Bryozoa is granted, at least temporarily, because we have received such a charming sample of easily attainable Cupularia-like colonies. So we took advantage of the July-holidays and went dredging for more. Our furnisher took us, and at the point he indicated, he lowered a small bottom sampler, about 6 inches square, and from the bottom of the bay 5 m below us he brought up a scoop with 30 colonies of dark red discs in pure sand. What do they eat there? We brought 'em home alive, but they did not say much. They evaginated shyly, and the big vibracularia made some tentative very slow movements, but that was all; they did not show anything of ravishing dance Bassler had imagined, it was disappointing. However, we have an ample material, and it will justify a morphological study to be undertaken after the finishing of the Californian opisthobranches.⁴⁹

Although the Marcuses do not seem to have traveled far themselves during those years, they corresponded with invertebrate biologists from around the world, including Theodor Mortensen, O. Nordgaard, Sidney F. Harmer, Anna B. Hastings, Libbie Hyman, R. S. Bassler, Raymond C. Osburn, Fritz Wiebach, and Patricia L. Cook, as well as Mary Rogick. One of their students, Marta Vanucci Mendes, spent a year in the U.S. on a fellowship to Yale University. During this time she met Mary Rogick and took the invertebrate course at the Marine Biological Laboratory in Woods Hole, in which Mary was one of the instructors. A number of scientists also visited the Marcuses in São Paulo, including Helena Fyfe from New Zealand and Waldo Schmitt and Libbie Hyman from the U.S.⁵⁰ Libbie Hyman's visit (Figure 9) was in support of her her work on volume V of *The Invertebrates*. The Marcuses wrote to Mary of Libbie's visit:

Your kind letter of Jan. 9 was received together with one from Lima Peru informing us, that Libbie Henrietta would be here the 23. We expected her at the airport and attending her wishes went to the beach with her to show her living Bryozoa. We found living Watersipora quite common, but the most beautiful species with red tentacles; and enormous tufts of Zoobotrion that impress more by size than by beauty, and bulks of Schizoporella that kindly evaginated under the microscope. Libbie is not in the best state of health, and the January warmth is a strain for her. Nevertheless we hope she enjoys herself a little. Just now we are expecting her back from a 4-days trip to the Iguassu Falls that are larger than the Niagara and that she wanted to see, only 900 km. from S. Paulo.⁵¹



Figure 10. Ernst and Eveline in old age (Photograph courtesy of Professor Dr Ehrhard Voigt, Hamburg).

Ernst retired from his position as Director of the Zoological Institute of the University in 1963, when he was 70. Eveline described their life after retirement in one of the last letters written before Mary Rogick's death:

Research can go on as usual, and we will have more time on the beach. . . . Our pleasures outside zoology are f. ex., long walks, generally in the town, where the different ethnic groups are more or less united in different centres and suburbs. Italians and Japonese are the most picturesque ones. Further we enjoyed reading the French plays of Marcel Pagnol, that we found in one of the Oceanographic Institutes' libraries, Marius, Fanny, and the others. Friends of ours let us hear records of most variable types: Russian church songs, German silly songs, Bach, Elvis Presley, Negro spirituals, so that in our old age we learn to appreciate music.⁵²

It is clear that the Marcus's zest for life and knowledge of all kinds had not diminished. Although music may had to wait for retirement, their interest in literature was long standing. Claudio Tiago wrote⁵³ of having received from a former Marcus student a 1945 copy of John Steinbeck's *Cannery Row* that had originally belonged to the Marcuses. In the book was pasted a portion of a letter to them from Florence and Joel Hedgpeth, announcing the death of Ed Ricketts, real-life model for the book's protagonist.

Ernst Marcus died at the age of 75, on 30th June 1968. Eveline Marcus continued to publish scientific papers, mostly on opisthobranchs, on her own, and traveled extensively to visit mollusc workers and other colleagues around the world⁵⁴ until her death in 1990. Ernst and Eveline are buried together in the Cemitério da Paz, São Paulo.⁵⁵

In an obituary published in Brazil Ernst's colleagues at São Paulo remembered him with affection as a good companion, a friend to his collaborators and students, and a person who lived for science.⁵⁶ Throughout Ernst's career it is clear that the Marcuses continued to make students (including at least 11 graduate students⁵⁷) and colleagues their family, closely following their lives. For example, the death of Gabriella Zuccari in a motor vehicle accident before she could even finish her Ph.D. greatly saddened them. Ernst kept her picture hanging in his department office⁵⁸ and named a bryozoan in her honour.⁵⁹ The couple entertained friends and students at their small two-storey house on Soracaba Street (now renamed Ernst Marcus Street) where visitors remember that there was always a table loaded with cakes and other goodies.⁶⁰

A former student remembers that as a teacher Ernst 'frequently imitated animals to show how they acted – like taking flight, munching (how they used their teeth), swimming, etc. He had difficulties in speaking because during World War I he was hit by a bomb in the trenches and when he recovered he stuttered a bit, but in spite of it, his teaching was of the highest quality'.⁶¹ Another student remembers that Marcus, with characteristic thoroughness, had started taking Portuguese lessons before leaving Europe, so that he began to teach in Portuguese as soon as he arrived at the University (although students sometimes had difficulty understanding his strong German accent).⁶² Courses he taught over the years included Invertebrate and Vertebrate Zoology, as well as advanced courses on Embryology and Developmental Mechanisms.⁶³

The Marcus's joint scientific productivity was impressive, totaling about 220 titles, including many long papers, containing large numbers of illustrations, keys, and new taxa. According to a 1977 estimate they described 222 new species, and 22 new genera of opisthobranchs alone -- almost half of the opisthobranch species then known from the tropical Western Atlantic fauna had been described by the Marcuses.⁶⁴ The bryozoan portion of the Marcus opus (see Bibliography below) consists of 53 papers. Their taxonomic papers described more than 50 new species and 5 new genera. Other papers made major contributions to bryozoan biology and development.

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