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*About the Institute*

The Hunt Institute for Botanical Documentation, a research division of Carnegie Mellon University, specializes in the history of botany and all aspects of plant science and serves the international scientific community through research and documentation. To this end, the Institute acquires and maintains authoritative collections of books, plant images, manuscripts, portraits and data files, and provides publications and other modes of information service. The Institute meets the reference needs of botanists, biologists, historians, conservationists, librarians, bibliographers and the public at large, especially those concerned with any aspect of the North American flora.

Hunt Institute was dedicated in 1961 as the Rachel McMasters Miller Hunt Botanical Library, an international center for bibliographical research and service in the interests of botany and horticulture, as well as a center for the study of all aspects of the history of the plant sciences. By 1971 the Library's activities had so diversified that the name was changed to Hunt Institute for Botanical Documentation. Growth in collections and research projects led to the establishment of four programmatic departments: Archives, Art, Bibliography and the Library.

Nov 14 1962

Crosby Naval Stores Co.  
Bicayne, Miss.

Gentlemen,

A couple of months ago I engaged a colored woman named Almira W. Keys for general housework and cooking. She is the widow of Louis Keys, who she says worked for you for several years prior to his death in 1960 or 1961.

Apparently she is entitled to Social Security benefits from her husband's account, but before she can file a claim it is necessary to have her husband's Social Security number. The Social Security office in New Orleans told her she would have to write you to get his SS number, probably because Bicayne is in a different district.

Would you therefore be kind enough to write me and give this SS number. My only interest in the case is to help her to obtain the benefits that are due her.

Very truly yours,

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February 24 1961

Dr. C. C. Kossinskaja,  
Popov St. 2, Ap. 20,  
Leningrad, USSR.

Dear Dr. Kossinskaja,

A serious illness of my wife has caused the delay in writing to acknowledge the receipt of your book on desmids of the USSR. I am glad to say that she has now recovered and is slowly regaining her former strength.

Please accept my sincere thanks for this splendid gift. I know nothing of the Russian language, but I can tell that the book is handsomely produced, with excellent typography, and the illustrations are all the more valuable for being reproduced to a considerably larger scale than usual. Also you have given many new drawings of your own, and of other Russian phycologists whose names are unfamiliar to me, and whose works would be difficult to obtain in this country.

There is now in press an important paper on "Indonesian Desmids" by Scott & Prescott, which will appear in the journal *Hydrobiologia*, possibly in the next issue. I will send you a reprint of course, and I would also like to exchange reprints with some of your colleagues in the USSR, if you would be kind enough to give me their names and addresses. These reprints will be expensive, and as I must pay for them myself I wish to send them only to persons who are actively engaged in desmidiology. Other copies can be purchased from the publisher, Uitgeverij Dr. W. Junk, 13 Van Stolkweg, Den Haag, Nederland.

If you care to write to me you may use either English, French or German.

With my best regards,

Sincerely,

Absender: D. V. Kovetzkij  
Wien, Austria  
XIX, Karlspl. 75/8  
14.4.59 Vienna.

Postkarte  
Ortsverkehr

Worthily thanking  
for the interesting  
Publications!

Yours,  
D. Kovetzkij

W. Thomas Scott  
2824 Dante Street  
New Orleans 78, La.  
U.S.A. America  
Straße, Hausnummer, Gebäudeteil, Stockwerk oder Postschließfachnummer

Dr. Kurt Krieger

Berlin-Steglitz, den 12. 10. 54  
Grunewaldstr. 29

Herrn  
Arthur M. Scott  
2824 Dante Street  
New Orleans 18, LA.

Sehr geehrter Herr Scott,

ich habe meinen Brief mit einer Entschuldigung zu beginnen, denn ich hätte Ihnen schon längst schreiben müssen. Leider ist so viel dazwischengekommen, daß ich es erst heute tun kann. Auch ich möchte Ihnen für die teilnehmenden Worte, die Sie nach dem Tode meines Vaters an mich gerichtet haben, herzlich danken. Der Verlust, der uns und besonders seine kleinen Enkelkinder getroffen hat, ist unersetzlich, denn er war der beste Großvater, den sie sich wünschen konnten.

Mein Vater hatte sich auch sehr auf ein Zusammentreffen mit Ihnen in Europa gefreut und es damals sehr bedauert, daß Sie nicht kommen konnten.

Die Veröffentlichung des Teiles Cosmarium der Desmidiaceenmonographie stößt auf sehr große Schwierigkeiten. Ein fertiges Manuskript existiert noch nicht, dagegen ein wohl vollendeter Zettelkatalog mit Zeichnungen, der jedoch in der Ostzone im Hause meiner Mutter steht und infolge seines Umfangs nicht ohne weiteres nach West-Berlin gebracht werden kann. Falls ich das schaffen kann, so erhebt sich die Frage, wo es einen Spezialisten gibt, der die Monographie vollenden kann. In Deutschland ist im Augenblick meines Wissens keiner zu finden. Außerdem liegt der Verlag auch in der Ostzone und ich weiß nicht, ob er noch arbeitet. Die unglücklichen Verhältnisse erschweren hier jede Arbeit. Ich wäre Ihnen für eine Mitteilung sehr dankbar, wer nach Ihrer Meinung die Arbeit meines Vaters vollenden könnte.

Bei der Durchsicht des Nachlasses habe ich festgestellt, daß auch noch ein Kästchen mit Ihren Proben und dazugehörigen Notizen hier ist. Ob es sich dabei um die Arbeit über Peru, die Sie in dem Brief an meine Mutter vom 20. 9. erwähnten, handelt, vermag ich im Augenblick nicht zu sagen. Ich werde Ihnen das Material in Kürze zusenden. Bei dem Herausgeber der Deutschen Bot. Ges. werde ich ebenfalls nachfragen.

Meine Mutter läßt Ihnen auch herzlich für die Übersendung des Care-Pakets danken und bestellen, daß es wirklich nicht nötig gewesen wäre, da sie auch so ganz gut leben könnte.

Mit den besten Grüßen

Ihr  
sehr ergebener

K. Krieger

Hohen. Neuen Dorf,

9. 10. 54.

Lieber Herr Dr. Scudt,

als ich heute von meinem Sohn nach  
Hauise kam, fand ich Ihren lieben Brief  
vom 2. O. Sept. mit der Vergrößerung von  
meinem lieben Mannes Bild vor. Ich danke  
Flusen von Hergau für Ihre Güte & Ihr  
Verständnis. Nach dem Bilde & Aussehen  
meines Mannes können Sie wohl meinen  
Schmerz über seinen Tod verstehen. Je  
länger er nicht mehr bei uns ist mit seinem  
gütigen, alles vermittelnden Wesen, desto mehr  
vermisste ich ihn & meine ihn. Ich  
mein Sohn & seine Familie haben sehr viel  
an ihm verloren. — Ich für das angeneh-  
migte Care-Paket danke ich Flusen sehr, sehr  
herzlich. Mr. Sohn holte es am Montag, d. 11. 10.,  
ab, & in großer Dankbarkeit werde ich beim  
Auspacken der schönen Sachen an Sie danken.  
Mein Sohn schreibt Flusen auch in den nächsten  
Tagen an Sie, schreiben. Er wollte es schon lange  
tun, hat aber auch viel zu tun. Er leitet die  
Afrika-Abteilung des Völkchenvereins  
in Berlin - Dahlem, zu Hauise werden seine  
beiden kleinen Töchter ihm in Aussicht.

Nach der Arbeit über die Desmidiaceen  
in Paris werden wir uns atter Hygen. Tann

geben wir Ihnen Bescheid.

Auf meines Mannes Schreibtisch steht noch  
ein Hästchen von Füssen mit 24 Algen-  
proben aus Linnatra, Bali, Borneo & Java. Über  
sie (beachtet) bearbeitet hat, weiß ich nicht.  
Es sind allerlei Notizen dabei. Soll ich diese  
Proben zurückkochen?

Verzeihen Sie, bitte, daß ich so oft Worte durchs  
gestrichen habe. Ich bin ziemlich abgespannt  
von vielen Wunden & oft Kopfis, infolge dessen.

Ich danke Ihnen nochmals für alles, was  
Sie für mich getan haben, ich & gratuliere  
Ihnen zu Ihrer liebe Gatten herzlich.

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<sup>Friede</sup>  
ergeben e

Gestr. Krieger.

Dec 4 1954

Dr. Kurt Krieger,  
Grunewaldstr. 29,  
Berlin-Steglitz.

Dear Dr. Krieger,

I have received the package containing your father's notes and drawings of the Peruvian desmids, and wish to thank you very much for sending them. Both the notes and drawings are quite complete, and will require only a small amount of work to put them in shape for publication; in fact I have already made a rough draft of the paper.

Because of my imperfect knowledge of German, your father's handwriting in some places was quite difficult for me to read, and there are a few words here and there that I have been unable to decipher. Also there are a couple of small problems in nomenclature and synonymy that I cannot solve from my own small library, so I am going to send everything to Dr. Rolf Grönblad, who I am sure will be glad to help.

When the paper is completed I intend to send it to either *Botaniska Notiser* or *Hydrobiologia* for publication. If your father's list of correspondents is such that you could conveniently send it to me, I should be glad to order the required number of reprints and mail them, for undoubtedly he was in touch with many algaeologists like and unknown to us.

I had expected that your father would publish these Peruvian desmids together with some from Chile, on which he told me he was working. So if you happen to find a folder marked "Chile", and if his drawings and notes are as complete as those from Peru, I should be happy to undertake the publication. Of course it would be very desirable for me to have some of the Chilean material for examination, for I have never seen it, and do not know from what source he obtained it.

With my best regards,

Sincerely yours,



Nov 28 1954

Dr. Kurt Krieger,  
Berlin-Steglitz, Germany.  
Grunewaldstr. 29.

Dear Dr. Krieger,

On my return from a month's vacation, I found your letter of 12.10.54, and I thank you for your kind remarks and for the information you give.

It appears that the Cosmariium section of the Desmid-Monograph is not so far advanced as I had judged from your father's letters, so that there remains a large amount of work to complete it. And the other genera, not yet started, represent an even more formidable task, even though your father had probably assembled some of the data. To the best of my knowledge there are, in the whole world, no more than half-a-dozen specialists capable of carrying on the work. Undoubtedly GrEnblad is the one best qualified, but he has told me that he would not dare to undertake it, because his capacity for work is far too small. He suggested Messikowmer and Skuja a couple months ago, but wrote recently that Messikowmer had declined. I don't know much about Skuja; his book on Algae from Burma is very good, though I don't like his particular style of drawing. Perhaps Teiling could do it; he has an excellent knowledge of desmids, a large library of literature, and a very good iconotheque. But he is the same age as your father (and me), and might not feel able to undertake such an enormous job. GrEnblad wrote that Prof. Holmiz, who I have in Sweden, has suggested that this could be done by several specialists; this might be a solution, though perhaps not a very satisfactory one, because of the differing opinions and styles of writing and of drawing.

On this side of the Atlantic there is only one man capable, - my friend Prof. Prescott. Of course he would have to answer for himself if he were requested, but I have just spent a week with him and I cannot see how he could possibly undertake it. In addition to his full-time teaching duties at the Michigan State College, he is the founder and President of the Phycological Society with correspondents all over the world, there is his own research work which causes him to spend almost every night at the College until 10 or 11 p.m., and many Saturdays and Sundays. He has some thousands of collections from Alaska, Mexico and Ecuador to work up, to say nothing of my material from Indonesia and Australia on which I am collaborating with him. And his knowledge of German is no better than mine, which means that he can read it with the help of a dictionary, but I am sure that he could not write in your language. I am sorry to have to give you this disappointing information, but that is the way I see the situation.

I shall be glad if you will return to me the small box containing collections from Indonesia and Australia; I think there were about four of them. The Peruvian collections do not matter, but I should like to know if they were published. There is another matter of some importance that I wish you would be kind enough to investigate when you find an opportunity. About a year ago, and partly at my suggestion, Mr. Ricardo Thomsen, of Montevideo, Uruguay, sent your father a considerable number of drawings of Uruguayan desmids, and now is very anxious to get them back. (CONFIDENTIALLY, I say tell you that your father wrote that the drawings are not very good, but of course you will say nothing about that). I hope that you can find this package of drawings, and that when it becomes possible,

you will have them sent to the following address:

Mr. Ricardo Thomsen,  
In care of Mr. F. G. Müller-Melchers,  
ATLANTIDA, URUGUAY. SOUTH AMERICA.

Perhaps the package could be sent directly from East Berlin to Uruguay, without your having to transfer it to West Berlin. I hope you will be able to tell me something about these drawings soon, because Thomsen is an irritable sort of person, and is worrying very much about his beloved drawings, which he considers very valuable.

With my best regards,

Sincerely yours,

July 12/57  
Plead return

Berlin Steglitz,  
Grünewaldstr. 29.

Sehr geehrter Herr Scott, für die  
Übersendung der 3 Separata danke  
ich Ihnen, zugleich im Namen  
meines Sohnes, herzlich. Es ist für  
mich immer noch sehr schmerzhaft,  
daß mein Mann an seiner geliebten  
Algenwissenschaft nicht mehr arbei-  
ten kann, & daß er sein Hauptverdien-  
nis vollends der Kunst. Gerade  
mit Ihnen war er durch die Arbeit  
über d. Algen sehr verbunden, ebenso

mit Herrn Grönblad v. erschätze Sie  
beide sehr hoch, - In der letzten Zeit  
habe ich viel an Sie danken müssen, als  
die Zeitungen von den gr. Überschwem-  
mungen in Louisiana berichteten. Ich hoffe,  
Sie sind davon nicht betroffen worden.  
Da ich nach in ein so hohes  
Alter, der ich mir aus 15. J. zum 3.  
Male jährte in Hohen Reizen doch recht  
unglücklich war & auch in der russi-  
schen Zone manche Unannehmlich-  
keiten hatte, bin ich i. Dezember 56 gut  
meineren Sohn nach West-Pruthen, nach  
Stechlin gezogen u. Sorge nach für seine bei-  
den Pfl. u. Biedler. - Mit dem besten Wunsch an  
für Ihre Wohlfahrt an grüße ich Sie herzlich.

Herrn G. Grönblad v. Stechlin

Johann Neuenhofs.  
30. 8. 54.

Liebe geliebter, lieber Herr Scott,  
Da Sie den Wunsch äuferten,  
ein Bild v. unserem Mann  
zu besitzen, schicke ich Ihnen  
2 Aufnahmen so. hoffe, Ihnen  
damit einen kleinen Dank abzu-  
stellen für die Hilfe, die Sie uns mit  
den Paketen gewährt haben.

Herzlich grüßt Sie

Ihre  
ergebenste

G. Thierger.

Johann Neuenhofs,  
Hilberstadt. 19.

Hohen Neuendorf, 8. 8. 57<sup>5</sup>

Sehr geehrtes, lieber Herr Dr. Lott,  
gestern war ich in Steglitz in unse-  
rer Sohnes Wohnung u. las Ihnen so  
lieber, teilnehmend den Brief zu  
Tode meines geliebten Mannes. Ich  
danke Ihnen herzlich für Ihre warmes  
Mitgefühl. Es ist für mich sehr, sehr  
schwer, jetzt allein zu sein. Der Tod  
kam zu schnell u. überraschend. Seit  
einigen Wochen war er, Mann stets  
sehr müde u. frorsch. Er ging aber  
erst am 13. Juli z. Arzt. Der stellte eine  
Schwämmpfriere fest, u. ein Schlaganfall  
am 14. Juli beendete am 15. J. sein  
Leben.

Mr. Mann hatte sich so sehr gefreut,  
Sie u. Herrn Grünblad in Dresden Lorenz  
zu sehen. Er hatte sich schon im-  
mer gewünscht, Sie persönlich kennen  
zu lernen. Leider ist dieser Wunsch  
nicht erfüllt worden.  
Auch ich hatte immer den Wunsch,  
Ihnen zu danken für die schönen

Pakete, die eine große Hilfe für uns  
waren. Ich glaube, Sie, lieber Herr  
Dr. Scott, u. mein Mann hätten  
sich sehr gut verstanden. Sie scheinen  
ebenso so selbstlos u. gütig zu sein wie  
mein Mann es war. Mein Sohn läuft  
Abzüge von einem Photo meines  
Mannes machen, & dann sollen Sie  
der Erste sein, der eins erhält.

Ich hoffe, daß Ihr Fuß sich wieder  
gewöhnt hat & daß Sie wieder gut laufen  
können!

Es grüßt Sie u. Ihre liebe Gattin  
herzlich

Ihre

sehr treue

G. Krüger

Mein Sohn wird Ihnen selbst  
schreiben.



Am 15. Juli 1954 verschied mein geliebter Mann,  
unser gütiger, stets hilfsbereiter Vater, Schwiegervater,  
Großvater, Bruder und Schwager,

Schulleiter i. R.

Dr. phil. **Willi Krieger**

nach kurzer, sehr schwerer Krankheit im Alter von  
67 Jahren.

In tiefstem Schmerz

Gertrud Krieger, geb. Himburg

Dr. Kurt Krieger

Dr. Eva Krieger, geb. Keßel

Claudia und Anka

Lucie Reinicke, geb. Krieger

Otto Himburg

Hohen Neuendorf bei Berlin, den 17. Juli 1954

Die Beerdigung findet auf dem Friedhof in Hohen Neuendorf  
am Donnerstag, dem 22. Juli 1954, um 15 Uhr, statt.



Dr. W. Krieger

Hohen Neuendorf

bei Berlin

Hubertusstraße 19

Please return to AMS.

29.6.54

vielleicht können Sie die Bezeichnung  
"Cercastrum bipolare" oder "Cercastrum acidoides"  
verwenden. Lieber Herr Scott, was Grönblad dazu  
sagt das ist aber ein unglücklicher Zufall, dass Sie  
gerade jetzt hinfallen müssen, kurz vor der Reise  
nach Europa. Ich hatte mich darauf gefreut, Sie  
persönlich kennen zu lernen. Ich wünsche Ihnen ei-  
ne schnelle Besserung und völlige Ausheilung, so  
dass keine dauernden Beschwerden zurückbleiben.

Ich werde nun auch nicht zu Dr. Grönblad fahren.  
Die Beschaffung des Passes würde sich bis Mitte  
September hinzziehen, und das wird zu spät. Viel-  
leicht können wir im nächsten Jahre alles nachho-  
len. Ich fange dann am 1. April 1955 mit den Be-  
mühungen um einen Reisepass an. Es ist schrecklich,  
wie hier alles erschwert wird.

Nun zu der merkwürdigen Desmidiacee aus Suma-  
tra. Sie haben wirklich grosses Glück, gleich  
2 neue Gattungen zu finden. Die sumatranische Form  
hat den Habitus von Ichthyocercus, den Isthmus von  
Docidium und die Zellenden von Euastrum. Der Name  
"Docideuastrum" erscheint mir sprachlich zu kompli-

Sept 20 1954

Frau Gertrud Krieger,  
Hubertusstr. 19,  
Hohen Neuendorf B. Berlin.

Liebe Frau Krieger,

I received your two letters and also the photographs of your husband that you very kindly sent. These photos were a little too small for framing, so I have had some enlargements made, and one of them is enclosed herewith. The other will be framed and hung on the wall of my laboratory, with Ralfs, Nordstedt and others.

Your husband was a strikingly handsome man, of aristocratic appearance, and quite different from the mental picture that I had formed. I am truly sorry that I was not able to make personal acquaintance with him, and to tell him what an invaluable help his monograph has been not only to me but to all desmidiologists throughout the world. We should have had many other things to talk about, for I am discovering many new, strange, and beautiful desmids from distant parts of the world, which I am sure he would have been happy to discuss.

It is a great pity that he did not live to complete his life's work on the desmids, and I fear it will be a long time before anyone else can be found to undertake the enormous task. In fact there are only three or four men in the whole world who are capable of doing it, if they were willing to undertake the responsibility.

About a year ago I sent your husband four tubes of desmid material from Peru, and he wrote me on 14.4.54 "Die Arbeit über Peru gebe ich im Mai zum Druck" probably to the Deutsch. Bot. Ges. I wonder if you or your son could ascertain from the Society's editor if he received the manuscript, and if it has been or will be printed. If and when it is printed I should like to get three or four copies of the reprints, if any are available, or at least one copy of the Berichte.

Today I have ordered a CARE parcel to be sent to your son in Steglitz and it should arrive soon. I shall continue sending them occasionally, though it will not be as frequently as formerly, because since my retirement from business my income is much smaller than when I was working as Ingenieur.

With the renewed expression of my deepest sympathy in your great loss,

Sincerely yours,

July 25 1954

Dr. Kurt Krieger,  
Grunewaldstr. 29,  
Berlin-Steglitz, Germany.

Dear Dr. Krieger,

The news of your father's death came as a great shock to me, and I am sure it did to all of his other friends, even though, like myself, they may have known him only by correspondence and by his great reputation.

Please accept for yourself, and please convey to your mother and sister and your other relatives, my deepest sympathy in your bereavement.

His illness must have occurred very suddenly, for it is only about three weeks since I received his last letter, giving me his opinion on a new genus of desmids from Sumatra that I had discovered, and telling me of his hope of being able to meet me in Europe next year. Needless to say that I was looking forward with the keenest anticipation to the pleasure of meeting him in person.

It is deplorable that his life's work on the magnificent Monograph of the Desmidiaceae is unfinished. If he had been able to work on it continuously, without the interruption caused by the war and the subsequent unsettled conditions, it might have been completed by this time. As it is, the five parts which have already been published are of immense value to all desmidiologists. I have had them bound into a single volume, which is used more frequently than any other in my library.

About a year ago he wrote, in one of his letters, that the next part of the Monograph, dealing with *Cosmarium*, was nearly finished, and that he hoped to be able to publish it shortly. I hope that this can still be accomplished, though the proof-reading and checking would be an extremely difficult task for anyone else. If and when it is published, I hope you will ask the publishers to send me a copy.

I have never seen a photo of your father. If you have one that you can spare I should be very happy to receive it, in order to have it framed and hung on the wall of my study, together with those of the other masters of desmidiology like Ralfs, de Brébisson, Sorge, Nordstedt, and my friends Prescott, Teiling and Grénblad.

Sincerely yours,

Dr. W. Krieger  
Hohen Neuendorf  
bei Berlin  
Hubertusstraße 19

15.6.54.

Lieber Herr Scott,

Herzlichen Dank für Ihren freundlichen Brief und für Ihr Angebot, einen Teil der Reisekosten zu übernehmen. Ich möchte nur davon Gebrauch machen, wenn es unbedingt sein muss. Trotzdem es sehr schwierig ist, eine Ausreiseerlaubnis zu bekommen, habe ich mich in den Kampf mit den Behörden gestürzt. Wenn ich dazu die Erlaubnis bekomme, könnte ich ein tschechisches Flugzeug benutzen, das von einem ostzonalen Flugplatz bei Berlin nach Helsinki fährt, und das ich selbst bezahlen kann. Sollte das nicht der Fall sein, wird der Reiseweg komplizierter. Ich schreibe Ihnen vorher noch, ob meine Bemühungen um einen Reisepass von Erfolg gewesen sind und hoffe, dass wir uns in Helsinki sehen können.

Mit herzlichen Grüßen

Ihr

*W. Krieger*

July 12 1954

Dear Dr. Krieger,

Many thanks for your two letters, and your opinion on the new desmid from Sumatra.

My foot and lower leg have been in a plaster cast for two weeks and it must remain in place for two weeks more. But I am able to hobble around the house, and even, with a little difficulty, get downstairs to my laboratory and typewriter. But I cannot work at the microscope or typewriter for more than about 15 minutes at a time, because my foot swells and becomes painful after it has been on the floor for that length of time. Then I must elevate the leg to a horizontal position and rest it. But everything is going OK, and one of these days I shall be able to walk again.

I am enclosing a copy of Grönblad's comments on the new desmid, from which you will see that he is somewhat of the same opinion as Prescott, that the plant could be assigned to Ichthyocercus, yet he also states that its many peculiarities quite justify the creation of a new genus.

My own idea is that it would be undesirable, at the present time, to place it in Ichthyocercus, though I will admit that such a course might conceivably be desirable at some future time, if and when other forms are found that might show a connection with that genus. It seems to me that the single feature of bipolarity is enough ground for a new genus, even without the other curious characteristics. I have now been able to obtain a basal view of a semicell, which shows that the cell is not quite circular in cross-section; the measurements of the basal inflation in this specimen were 21 x 23  $\mu$ . The opening in the isthmus is 10 x 12  $\mu$ , much smaller than would be expected from the front view of the whole cell, in which the width of the isthmus is concealed by the intermeshing teeth. I am enclosing three photos of additional specimens. The one of a 'lower' semicell was focussed to bring out the remains of the partly disintegrated chloroplast with the pyrenoids, and shows that my first impression that there are 5 (or 6?) pyrenoids in an axial line is correct. In the other two photos of entire cells, the black spots inside the cell have no significance, because in these two cells the chloroplast was completely disintegrated.

By this time I hope you have received the slide that I sent, and you will see some other interesting desmids. There is a filamentous form that I take to be a new species of Hyalotheca (H. inflata sp. nov.?), and there is a Bambusina that has some curious features; but all the specimens of this Bambusina are in poor condition, and I have not yet been able to ascertain its structure, which seems to show an outer 'skin' separated from the true cell-wall.

Since your travel permit will require three months to obtain, I should like to suggest that next year you start your application about March 1st instead of April 1st, so as to allow more leeway. I can always adjust my schedule to suit your and Grönblad's convenience. I hope that nothing will occur to interfere with our meeting in 1955.

With my best regards, sincerely yours,

June 14 1954

Dear Dr. Krieger,

By an almost unbelievable stroke of luck I have discovered another new desmid that will require, I think, the erection of another new genus, because it possesses a combination of characters that prevent its assignment to any existing genus.

But even more incredible is the fact that this new desmid, though vastly different from the Brazilian Scottia mira, also has the strange characteristic of unlike semicells, which fact by itself requires a new genus.

The new plant comes from Sumatra, its habitat being a swamp at Menggala, which is about 100 km due north of the port of Teloekbetung, on the extreme south coast of Sumatra, and the collection was made by Mr. N. Sachlan, of Bogor, Java, who has sent me many valuable gatherings from various islands of the Indonesian group.

Unfortunately the plant is extremely rare, and I have only a minute quantity of material, so that after three weeks I have been able to turn up only 5 whole cells and 2 empty semicells, one "upper" and one "lower". All of them are alike, with only the usual very small variations in size and curvature, proving that no teratology is involved. I am sending you a single specimen on a slide, which is merely one of my temporary water mounts sealed with vaseline. On the slide is a paper label bearing a dot that indicates the approximate position of the specimen inside the red lacquer ring. If you will center this dot in the field of the microscope, and then move the slide in an east-west direction, the plant should appear on this horizontal line, very close to the lacquer ring. Also I am enclosing several drawings of the few specimens that I have observed. Drawings and slides with specimens have also been sent to Grönblad and Prescott, and I am enclosing herewith a copy of a letter from Prescott giving his views. I hope that you will be kind enough to give me your opinion, and in due course I shall let you know what Grönblad thinks of it.

You will note that Prescott thinks it might be assigned to Ichthyocercus, and indeed the thought of this genus came to my mind at my first sight of the plant, for there is an obvious suggestion of Ichthyocercus in the overall picture. But after consideration of the several conflicting characteristics I came to the conclusion that it could not be assigned to that genus. I reasoned somewhat as follows: If we neglect temporarily the structure of the poles, and consider only the body with its basal teeth, it seems that it might be placed in Docidium, though greatly different from any existing species. But the two different types of polar structure can each be matched in Euastrum, and the pair of "mucus Pores" just below the apices are definitely a Euastrum character. Also the basal teeth are quite similar to those of E. asperum, though in asperum the teeth do not intermesh. The intermeshing is somewhat like that of E. gnathophorum, though those are rounded, not pointed. I therefore suggested the name "Docideuastrum" for a new genus, which Prescott seemingly does not like, and he suggests "Dipolaris" (which should be "Bipolaris") if a new genus is decided upon.

The chloroplast structure is not determinable, for as you will note, the chloroplasts of all the desmids on the slide are so deteriorated as to be unrecognizable. One of my drawings, the first, indicates 5 pyrenoids spaced

~~axis~~ along the longitudinal axis. This is not certain, and specimens seen later seem to indicate that there might be a number of scattered pyrenoids similar to those in the larger species of Pleurotaenium. I do not know the reason for the peculiar appearance of the chloroplasts, and my best guess is that it may have been caused by the use of too much formalin. It occurs in a good many of the collections that I receive from abroad, and I should like to know if you have encountered it and if you know the cause. From the strong smell of the material I should judge that much more than the usual 5% formalin has been used, and though I have cautioned my correspondents about the matter, they still continue to do it.

I am looking forward with a great deal of interest to your comments on this new plant, and I hope to have some good news from you very soon.

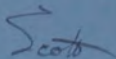
With my best regards,

Sincerely yours,

19.5.54

Lieber Herr Scott,

Ihre beiden freundlichen Briefe habe ich erhalten. Zunächst Ihre Europa-Reise. Es würde mich sehr freuen, wenn wir uns persönlich kennen lernen würden. Leider ist das nicht ganz leicht. Wenn ich in West-Berlin wohnen würde, beständen gar keine Schwierigkeiten. Ich kann von meinem Fenster in Hohen-Neuendorf die Grenze sehen; dazwischen liegt aber eine Pass- und Zollkontrolle. Als Amerikaner bekommen Sie nur mit grosser Mühe einen Einreisepass, und dann ist der Aufenthalt in der Sowjet-Zone nicht ganz ungefährlich, wie Sie wohl aus der Zeitung erfahren haben. Hier verschwinden Menschen spurlos. Ich möchte Sie diesen Gefahren nicht aussetzen, so gern ich Sie bei mir sehen würde. Ich hätte Platz in meinem Hause; wir könnten meine umfangreiche Bibliothek, meine Abbildungskartothek und meine Materialsammlung ansehen und am Mikroskop desmidiologische Fragen besprechen. Mein Englisch ist nicht sehr gut. Ich muss zwar jeden Tag englische Literatur lesen, habe aber viele Vokabeln vergessen, und die Unterhaltung zwischen uns beiden würde keinen Geschwindigkeitsrekord darstellen; aber mit einiger Nachsicht von Ihrer Seite würde es gehen. Ich besitze ein Buch: "Polish up your English", das würde ich vorher studieren. Wenn wir uns in West-Berlin treffen wollen, würde ich um Ihre Wünsche für den Aufenthalt bitten. Ich habe auch daran gedacht, dass wir uns bei Grönblad in Karis sehen könnten. Aber es ist hier in der Sowjet-Zone sehr schwer, einen Auslandspass zu bekommen, und die Reise würde wahrscheinlich auch meine finanziellen Kräfte übersteigen. Sonst wäre das für mich die schönste Lösung. Dann könnte ich auch Grönblad, der mich mehrmals eingeladen hat, nach 18 Jahren wieder einmal sehen. Aber es wird sich wohl nicht machen lassen, schon weil es hier in der Sowjetzone gefährlich ist, sein Haus so lange ohne Aufsicht zu lassen; man muss hier immer auf Ueberraschungen gefasst sein. Schreiben Sie mir bitte, für welchen Reiseweg Sie sich entschieden haben; wenn ich Ihnen irgendwie helfen kann, will ich es gern tun.

Please return to 



Was die Zeichnungen von Thomsen betrifft, so habe ich natürlich an ihn geschrieben, allerdings nicht so zeitig, wie er es wohl erwartet hat; denn ich habe das Paket erst spät bekommen. Der Ueberbringer konnte es nicht persönlich abgeben, da er ja die Grenze zwischen West-Berlin und der Sowjet-Zone nicht überschreiten durfte. Er musste das Paket der Post übergeben, und dabei trat durch die Zollbehörde, die sich von dem Inhalt überzeugte, eine erhebliche Verzögerung ein. Inzwischen wird Thomsen wohl den Brief bekommen haben. Ich habe offen, wenn auch vorsichtig, die Schwächen seiner Zeichnungen dargestellt und ihn gebeten, vielleicht doch noch Material zur Kontrolle zu schicken.

Vielen Dank für die beiden *Micrasterias*-Zeichnungen.

In der Hoffnung, dass es sich doch möglich machen lässt, dass wir uns im Sommer sehen, grüsst Sie herzlich

Ihr

*W. Krieger*

May 24 1954

Dear Dr. Krieger,

I think your suggestion that you might be able to meet Grönblad and me in Karis is a most excellent one; such a meeting would be a delightful one for all three of us, and also profitable from a deamidological viewpoint.

So I hope you will do your utmost to obtain the Auslandspass, and perhaps this may not be so difficult, because Finland is within the Soviet sphere of influence. I do not know exactly to what you refer in the danger of leaving your house unsecured for, whether robbery or something else. Would it be possible to arrange for someone to stay in your house while you are away?

I can understand that the cost of the trip may be greater than you feel able to afford, so, in all friendliness, I offer to pay part of your travel expense, or all of it if you will permit. Now please do not take offense at this; it is meant very sincerely, and after all, the cost of your trip would not be very much more than my expense in going to Berlin. I hope you will accept the offer, and if you do you will have to estimate the cost and tell me how I can send the money to you.

According to my present plans, I shall arrive in Karis on August 1st, and spans 10 to 14 days with Grönblad, perhaps a few more days if it seems necessary, for we have a lot to discuss regarding my USA collections, to say nothing of the Brazilian ones which are not completely studied yet. You would find much of interest in both of these lots, and I hope that we might have the benefit of your advice concerning many puzzling problems.

I am glad to know that you have written Mr. Thomsen, but I have another letter from Mr. Müller-Melchers, dated May 11th, in which he says that Thomsen had not then heard from you, and also that some papers that you sent last year never arrived. He requests that you write by registered mail. Apparently the post office service in South America is not so reliable as ours or the European, for I have noticed that many of the letters that I receive from Brazil and Uruguay are sent registered, though they contain nothing valuable.

Müller-Melchers has now given me permission to send you the algal samples that he sent me, of which there are about a dozen, and there are four more on the way. When these arrive I shall prepare some of my small vials and forward them to you. They will no doubt be helpful in identifying Thomsen's drawings, and there are some few novelties in them.

Awaiting eagerly your reply, I am,

Sincerely yours,

Dr. W. Krieger

Hohen Neuendorf

Hubertusstraße 19

14.4.54.

Lieber Herr Scott,

Zunächst hat mich das Osterpaket sehr erfreut. Sie

haben sicher gelesen, dass die Viererkonferenz hier  
in Berlin ergebnislos verlaufen ist, und dass alles  
so bleibt, wie es war. So bedeutet das Care-Paket  
für mich eine wesentliche Erleichterung meiner Le-  
benshaltung.

Dann sind die Sonderdrucke über <sup>Südaus</sup>Südamerikanische  
Desmidiaceen<sup>en</sup> eingetroffen. Vielen Dank auch für die  
doppelten Abbildungen für meine Kartothek. Es ist  
manches Interessante dabei, und es ergibt sich ein  
anderes Bild als bei Playfair, von dessen Polymor-  
phismus ich gar nicht überzeugt bin.

Ich habe inzwischen den 2. Band des elektronen-  
mikroskopischen Diatomeen-Atlases fertiggestellt.  
Leider sind dabei die Desmidiaceen etwas zu kurz ge-  
kommen; doch werde ich mich jetzt mit doppeltem Ei-  
fer an die Arbeit machen. Thomsen hat mir übrigens  
seine Zeichnungen geschickt. Es ist leider nicht  
viel Brauchbares dabei; doch kommt vielleicht mehr

heraus, als es bei der ersten Durchsicht scheint.

Die Arbeit über Peru habe ich im Mai zum Druck gegeben.

Es sind noch einige Arten bei nochmaliger, genauer Durchsicht von P3 dazu gekommen; es ist wenig Neues dabei.

Mit vielem Dank und herzlichen Ostergrüssen

Ihr

W. Krieger

für mich eine wesentliche Erleichterung meiner Lebenshaltung.

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fer an die Arbeit machen. Thomsen hat mir übrigens

viel Brauchbares dabei; doch kommt vielleicht mehr

May 5 1954

Dear Dr. Krieger,

I was much disturbed today on receiving a letter from Mr. F. C. Müller-Melchers, saying that Mr. Ricardo Thomsen is very angry because he has not received from you an acknowledgement of the drawings that he sent you.

When you wrote me a few weeks ago that you had received the desmid drawings, I mentioned this in a letter to M.-M., and asked him for permission to send you the algal samples, though I did not, of course, repeat what you had written about only a few of the drawings being usable. Naturally I thought you had acknowledged them to Thomsen, or I should not have mentioned the subject at all.

M.-M. has requested me to ask that you write Thomsen immediately if you have not already done so. I hope you will comply, though I should not like to have your job of breaking the bad news about the drawings, which he evidently thinks are very valuable.

Enclosed are sketches of two rare varieties of *Micrasterias Torreyi* that I have found recently. They agree very well with the illustrations in Tafel 134 of your monograph.

Sincerely yours,

May 1 1954

Dr. W. Krieger,  
Hohen Neuendorf b. Berlin.

Dear Dr. Krieger,

Thanks for your airmail letter of April 14th. I am glad to hear that you have received Thomsen's drawings of Uruguayan desmids, but regret that you find not many of them are usable. Somehow I had an idea that this might be the case. During the last couple of years Müller-Welchers has sent me a dozen samples containing desmids, all collected in the neighbourhood of Atlantida, which is about 50 km east of Montevideo. I have done nothing with them, except to look them over, because I had to promise him that I would not publish any Uruguayan desmids so long as Thomsen's drawings were not published. Since you are now going to work up these drawings, I have asked Müller-Welchers for permission to send these collections to you, and if he permits this, as I think he will, they may be of considerable help to you in identifying Thomsen's drawings. The material is not too rich, and many of the desmids are well-known species, but there are some unusual ones, and perhaps some novelties, as is always the case with collections from a territory that has not previously been explored for algae. I shall advise you further after hearing from him.

I have given up the idea of going to Paris for the Botanical Congress, but my wife and I are going to England in July to visit my sisters, and then I shall go alone to Sweden to visit Teiling for a few days, and then to Finland to see Grönblad for a week or more, to discuss with him the work on which we are collaborating. On my way back to England the plane stops in Hamburg, and I have thought of going to Berlin to visit you for one day, if that would be agreeable to you. I should like very much to have the pleasure of making your personal acquaintance, and to see your laboratory and library, and to observe your methods of working. But there are some questions I must ask:

1. Do you speak English? I am sorry that I cannot speak German, nor understand it when spoken, though I can read it with the help of a dictionary.
2. Is it permissible for me to visit you in the Eastern Zone, and would it be desirable from your point of view? Of course I do not wish to do anything that might cause inconvenience of any kind.
3. If it would be undesirable for me to see you in Hohen Neuendorf, could we meet in West Berlin, perhaps at your son's house?
4. The time of my proposed visit to you would be about August 10th, as nearly as I can determine at present.

With my best regards and good wishes,  
Yours sincerely,



Hohen 19.12.53  
Weindorf

Lieber Herr Scott,  
zunächst herzlichsten Dank für  
das Weihnachts-Lare-Paket; es  
ist wohlbehalten eingetroffen.  
und wird mich in diesen  
kalten Tagen an eine Gegend  
erinnern, in der Palmen  
wachsen.

Ich habe ebenfalls eine Ein-  
ladung nach Paris bekommen,  
werde aber wohl nicht hin-  
fahren, da die Reisekosten  
meine Finanzkraft übersteigen.  
Ich wünsche Ihnen frohe  
Weihnachten und weitere  
Freunde an den Desmidiaceen.  
Herzliche Grüße  
von W. Krüger

Dr. W. Krieger  
Hohen Nauendorf  
bei Berlin  
Hubertusstraße 19

29.5.53

Lieber Herr Scott,

besten Dank für Ihren freundlichen Brief. An Grönblad habe ich sofort geschrieben; ich hatte schon ein sehr schlechtes Gewissen.

Die beiden Proben aus dem Victoria-See werde ich in einem Päckchen schicken. Gerade aus Afrika habe ich auch nicht sehr viel Material. Ich erwarte etwas aus dem zentralen Congo-Gebiet. Sollten gute Proben ~~aus~~ mit interessanten Desmidiaceen dabei sein, schicke ich Ihnen sofort etwas davon.

Wenn Sie freundlicher Weise sonst etwas schicken wollen, benutzen Sie bitte die Adresse meines Sohnes in West-Berlin: Dr. Kurt Krieger, Berlin-Steglitz, Grunewaldstr.29. Diese Vorsichtsmaßnahme ist nötig. Ueberhaupt muss man hier in der Ostzone in Briefen mit Kritik an Wirtschaft und Politik recht vorsichtig sein, wenn man keine Unannehmlichkeiten haben will. Sie werden die Situation hier auch aus Ihren Zeitungen erfahren haben. Ich schreibe diesen Brief aus West-Berlin. Sie haben drüben solche Sorgen nicht.

Mit herzlichen Grüßen

Ihr

W. Krieger



Nov 30 1953

Dear Dr. Krieger,

Nun ist alles wieder OK, and it is a great relief to me, I can assure you. That I should have misunderstood your phraseology is easily understandable, for my German is rusty from long disuse. But I was quite surprised when Grönblad, with his much better knowledge of German, was uncertain of your exact meaning. So the matter is closed now, and G. will proceed to write up the desmid for publication at as early a date as possible. Many thanks for your prompt reply.

Yes, your sketch of the probably structure of the pores in the Borneo Pleurotaenium agrees rather <sup>well</sup> with Grönblad's, differing only in the details of the pore-canal on the inner side of the wall. My experiment with crushed cells, which shows an apparent extrusion of a mucus-plug (Gallertfüllung), tends to confirm Grönblad's idea, and if the mucus-plug has spherical surfaces on the inner and outer surfaces of the wall, it would act as a lens to refract the light and cause the changes from light to dark, and vice versa, with change of focus. I must confess, however, that it is beyond my ability to see such minute details, even with my best lenses (apochromats). G. is going to lend me a copy of Lütkenmüller's work on the wall-structure of desmids, and perhaps I may have more success after I have studied his staining methods.

I am glad that you have found enough desmids in the material from Peru to make it worth while to publish them. Please do not forget to give credit to Dr. Felix Woytkowski, of Lima, Peru, as the collector. And when the paper is published I should like to have half-a-dozen copies if you can spare them. One of them I shall send to Woytkowski, if I can ascertain his present address; perhaps the mention of his name may stir him to further collecting activity.

Mr. Müller-Melchers' address is, simply:

ATLANTIDA, R. O. DEL URUGUAY, SOUTH AMERICA. (No street address).

If you get permission from Mr. Thomsen to work up his desmid drawings, I can send you a few collections from Uruguay that were sent to me by Müller-Melchers. They are not especially rich, and most of the desmids are well-known, but there are a few that perhaps may be new.

The 8th International Botanical Congress will take place in Paris next July, and I have just read a report that there will be a special section on phycology. There is a very small possibility that I might be able to attend the Congress. Are you planning to be present?

Sincerely yours,

Oct 24 1953

Dear Dr. Krieger,

Many thanks for your prompt response regarding the strange new Brazilian desmid. It is gratifying to know that you, and Grönblad, and Prescott all agree with my suggestion that it be placed in a new genus. I am enclosing copies of Grönblad's and Prescott's letters, so that you may be acquainted with their views, as I have sent copies of your letter to both of them.

Both you and Grönblad seem to base your opinions solely on morphological grounds, while Prescott sees an important significance in the physiological processes which cause the differentiation of the two semicells. I am an engineer, and don't know enough about biology to discuss the question intelligently, but it seems to me that the difference between the two semicells must originate at the time of division of the chromosomes, and that this division must proceed in a different manner than it does in other desmids. Prescott writes that he saw a 'couple' (a pair?) of specimens in the process of cell-division; I have not seen this, though I have seen probably 30 or more specimens, all of them identical except for minor variations in size and spination of the processes. Both Prescott and Grönblad mention the obvious desirability of getting living material, and of course I shall ask Dr. Sioli to try to obtain some when he has an opportunity of visiting the habitat again, which may not be for some years, since it is perhaps 500 miles from Belem where he is stationed, and the only method of travel is by boat on the Amazon River and its tributaries. So I think the chance of getting living material to the United States is very small indeed.

I am still experimenting with the *Chaetoceros* from Borneo 270, but have not been able to get any visual evidence as to the structure of the pores. I know that some work has been done on the wall structure of desmids with the electron microscope, and I have one of Lhotsky's papers, on *Closterium moniliferum*. It seems to me that the boundaries of the pores must contain or consist of curved surfaces, which act as lenses causing refraction of the light, and thus bring about the change from light to dark, and vice versa, with changing focus. Your sketch does not show any curved surfaces which could act in this way, and my sketch was simply a theoretical construction that I thought might account for the change from light to dark, and at the same time give the spurious appearance of projecting granules in the oblique view.

I do not have access to a microtome, so I thought that I could crush and break some of the cells and in this way get a better view of the broken edge of the wall. I placed a small amount of material on a slide under a cover-glass, and rubbed the cover-glass backward and forward under a heavy pressure. To my surprise few of the semicells were broken; those that did break were twisted apart, and the broken edge was ragged and seemed to show a fibrous structure, so that I could not get a good view of the pores. The semicells that did not break were flattened completely, as evidenced by the fact that it required only 5 to 6 microns of movement of the fine adjustment to focus from the uppermost to the undermost surface. Since this figure must be divided by the refractive index of water, 1.33 (? or of cellulose 1.53-1.57) to get the true thickness, it shows that the upper and lower walls were in contact, because the wall thickness is about 2 microns. Even under this very severe deformation the wall did not break, but a new phenomenon appeared. At each of the pores on the margin of the flattened semicell, there appeared a small projection of rectangular shape, whose width was about equal to the diameter of the pores, and whose height was about one-third of the wall thickness. The only explanation that occurs to me is that this projection may be a plug of hardened mucous material that

had been extruded from the pore by the heavy pressure and great deformation of the wall. The seemingly rectangular shape of this projection would tend to indicate that your sketch showing a hole with straight sides may approximate the true shape of the pore; though I think that in a soft material like cellulose or pectin the circular edge of the hole could not be as sharp as you have indicated. There is a possibility that in the natural (unflattened) condition of the cell, such mucous plugs might protrude slightly above the surface, and would thus perhaps cause the spurious effect of granules, and at the same time act as lenses to refract the light. Below I am giving a sketch showing my conception of such a condition.

Recently I have received a new lot of samples from the neighbourhood of Darwin, North Australia. One of them contains a giant Pleurotaenium with similar pore markings to those on the Borneo plant, but it is not the same species, because the margins are undulate for the entire length, and the apical granules (8 to 11 in number) are elongated into short blunt spines or teeth, projecting vertically from the apex, and these spines attain a length of 13 microns. Most of the specimens are empty semicells, with a length of semicell from 500 to 902 microns!!! Thus if the two semicells of a single plant were of the same length, the whole cell might attain a length of 1800 microns. But a curious feature is the presence of a large number of dwarf semicells, apparently fully developed, but only 75 to 100 microns long, and I have seen examples in which a semicell of 600 to 700 microns was joined to a semicell only 75 microns long. I shall send you some of this material, and some other samples, shortly.

With my best regards and good wishes,  
Sincerely yours,


Nov 1 1953

Dear Dr. Krieger,

In your letter of Oct 8th you wrote: "Ich habe in dem brasilianischen Material den fraglichen Organismus öfter gefunden, und zwar immer in derselben Ausbildung". When I read this I was quite dismayed, because I understood it to mean that you had previously found the new desmid in other material that you had received from a different source. But after considering the matter for some time, I came to the conclusion that I had misunderstood your sentence, because of my imperfect knowledge of German, and that you had seen the desmid for the first time in the material that I sent you.

When I sent a photocopy of your letter to Grönblad I called his attention to this sentence, and told him of my feeling when I first read it. Here is what he writes in reply: "I can quite imagine that 'your heart sank into your boots' when you read Krieger's letter. I had the same sensation when I had my first glance at K's letter. It is true, K's words are a little confusing, 'in dem brasilianischen Material..... öfter gefunden'. The word 'öfter' makes the sentence very dubious and ambiguous. I am not sure what he means to say. I have also consulted my sister who has been a German teacher, and she also says that K's words can be interpreted in the one way or the other. There remains only to ask K. about the matter. I believe that K. has told me that he has had some Brazilian material to his disposition. It would be a very unpleasant coincidence from your point of view. But do write to Krieger and ask him. We will hope that everything is OK".

So I beg that you will write me as quickly as possible, and tell me what is the true situation.

I also asked G. what he thought of the markings on the Pleurotaenium from Borneo, and this is his answer: "I have now tried to find out the structure of the cell-wall of your Pleurotaenium sp. from Borneo 270. Sketches are enclosed so that you may get an idea of what I have seen - or what I think I have seen. It is very difficult to see the structure quite clearly. (I think microtome prepares would be useful - if made by a skilled microtome. I have no such possibilities). Anyway, at first I thought that every pore was surrounded by a small circular wall, (being situated on the top of a small gemula):  This was, however, not correct. As you say, when the

cell-wall is seen in optical section, there are no granules on the outer surface - but perhaps a very slight elevation consisting of the darker stained material (probably = Lütkenmüller's "Porenorgan"). This darker material goes through the whole outer layer of the cell-wall (in other words: fills up a pit in the outer layer). What there may be in the inner layer is very obscure (I think there is a very thin canal going through it (= Porenkanal) and ending on the inner surface of the cell-wall in a small pin's head, which also appears in a darker colour (when stained). ((see my sketch "c")). I do not believe in Krieger's idea. - It is the darker stained "pore-organ" in the outer layer that in the oblique view on the sloping side of the cylindrical cell appears as a "granule" - very deceiving indeed! If you use staining - very simple - methylviolet and after washing with potassium acetate - I think you will be able to see more details. Of course, I am not sure that my idea is correct in all details. (Perhaps my Brazilian Pleurotaenium fig. 200 is like this, but I have not yet tried to inquire into that question!

I am enclosing G's sketch, and ask that you please return it to me. I have not yet told him about my experiment in crushing the cells.



Sincerely yours,


Alfred Scott

11.11.53

Lieber Herr Scott,

gleich an den Anfang des Briefes will ich setzen: "Everything is OK", wie Grönblad es hoffte. Es ist ein Jammer, dass es so viele Sprachen gibt, und dass ein Missverständnis so leicht möglich ist. Ich hatte mich in dem betreffenden Brief für die Zusendung der Proben bedankt, und es konnte nach deutscher Schreibweise also nur Ihr Brasilien-Material gemeint sein; sonst hätte ich geschrieben "in meinem Brasilien-Material". Nur in Ihrer Probe habe ich "öfter", das heisst "einige Male" oder "einige Exemplare" den neuen Desmidiaceen-Bürger gesehen, der es zu einem Kopf- und Fusspol gebracht hat. Es ist sehr schwer, in einer andern Sprache zu denken, und es gibt wohl nur wenige Menschen, die das Können. Ich hoffe, dass ich Ihnen nicht wieder solch einen Nervenchock versetzen werde. Ich habe den merkwürdigen Organismus niemals vorher gesehen und beglückwünsche Sie nochmal zu der neuen Entdeckung und hoffe, dass nun alles OK ist.

Es freut mich, dass Grönblad etwa zu derselben Erklärung der Membranskulptur des Pleurotaenium Borneo 270 gekommen ist. Meine Deutung  und Grönblads  unterscheiden sich ja nur in der Ausbildung des unteren Porenkanals. Grönblads Ansicht ist wahrscheinlicher. Ich hatte nur die Gallertfüllung weggelassen. Ich schicke an Grönblad einen Durchschlag dieses Briefes.

In dem Peru-Material habe ich ca. 60 Formen gefunden und hoffe, recht bald daraus eine kleine *serbisch*  Mitteilung machen zu können.

Thomson hat mit noch nicht geschrieben; ich werde selbst mit ihm in Verbindung treten; seine Adresse habe ich. Ich wäre Ihnen dankbar, wenn Sie mir im nächsten Brief die Adresse von Mr. Müller-Melchers mitteilen würden; ich möchte ihm einige Sonderdrucke schicken.

Mit herzlichen Grüßen

Ihr

*W. Krieger*

2.9.53.

Lieber Herr Scott,

in diesen Tagen ist das Päckchen mit den Proben wohlbehalten in meine Hände gelangt. Ich bin Ihnen sehr dankbar dafür; sie enthalten, soweit ich sie schon durchgesehen habe, für mich sehr viel Neues und Interessantes. Da Sie mir freundlicherweise die Bearbeitung der Peru-Proben gestattet haben, bin ich gleich an die Bearbeitung gegangen. Die Probe 3 (Laguna Villa, 15 km südlich von Lima), enthält doch eine ganze Anzahl von Formen,

die ich alle gezeichnet habe. Es sind:	Closterium	13
	Pleurotaenium	4
	Micrasterias	2
	Euastrum	3
	Cosmarium	14
	Staurastrum	3
	Desmidium	1
		<u>40</u>

Wenn Sie mir die von Ihnen schon angefertigten Zeichnungen schicken würden, wäre ich Ihnen dankbar.

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Die Membransulptur von dem Pleurotaenium aus Borneo 270 ist nicht ganz leicht zu deuten. Ich habe es mit Färbung und Oelimmersion versucht und schlage Ihnen die in der unten beigegebenen Skizze gezeichnete Deutung vor. Der obere zylindrische Teil <sup>deceives</sup> täuscht in Seitenansicht <sup>oblique</sup> (schrag) kleine Warzen vor. Der Wechsel des Randes von hell nach dunkel <sup>appears</sup> tritt auch sonst bei Tubusbewegung auf, wenn man Poren betrachtet. Ich bitte aber, meinen <sup>proposal</sup> <sup>to check</sup> Vorschlag nachzuprüfen; vielleicht kommen Sie doch zu einer anderen Ansicht. Uebrigens scheinen mir bei der Art Endwarzen vorhanden zu sein, so dass wohl die Unterbringung bei Pl. trabecula zweifelhaft erscheint.

Mit freundlichen Grüßen

Ihr

W. Krieger

Sept 16 1953

Dr. W. Krieger,  
Hubertusstr. 19,  
Hohen Neuendorf b. Berlin.

Dear Dr. Krieger,

Enclosed are my original drawings of the few desmids that I sketched from one of the Peruvian collections. I did not make any attempt at a thorough examination, because at that time I was expecting to receive additional material, but this hope has now apparently vanished, along with the collector and the money that I was foolish enough to advance him. I have retained photocopies of these drawings in case you wish to refer to them.

As regards your sketch showing a possible construction of the "marking" on the Pleurotaenium in Borneo 270, I think that perhaps you may have been influenced by the fact that you have demonstrated a similar structure in diatom shells. While I do not exclude the possibility that your idea may be correct, I think that if the "marking" actually were constructed in this fashion, it would be easily and quickly recognizable as a pit, as the "markings" on some of the large Euastra like E. Wollei are instantly identifiable as pits and not granules. I do not see anything in your construction that would cause the false impression of a granule projecting above the surface.

My own idea is shown on the attached sketch, showing a very slight convex projection above the external surface, overlying a rather deep pit on the internal surface. I think this would cause, in oblique view, an impression of a granule projecting above the surface, and I think I can see on the margin in an optical section, slight elevations that would correspond with those shown in my sketch. Such hollow granules occur in several species of Cosmarium, as C. striolatum, but the projections are much more pronounced. I should like to know what you think of this idea, which I believe, would also account for the change from a dark to a light annulus as the focus is changed, by refraction of the light.

Also enclosed is a photocopy of two sketches of a TRULY REMARKABLE desmid that I have just found in a collection from Brazil, one of a number that I have just received from that country. If this plant is new, as I hope it is, I think it is worthy of a new genus. The general construction, of course, is that of a Staurostrum, but the remarkable feature is that the two semicells are different. The lower one does not have the corona of hollow conical lobules that appears on the upper semicell, and the processes are curved in the wrong direction. This is not an abnormality, because all of the dozen specimens that I have seen are built in the same fashion, differing only in size and in minor variations of the spination on the margins of the processes. I know of no other desmid in which anything like this occurs, and it is far beyond my power to even suggest an explanation. It would be highly interesting to see the process of division, and especially two joined cells after division, but so far I have not seen any examples. The amount of material that I have is very small, but I shall manage to send a little to you, and to Grönblad, and to Prescott. I shall also include two other extremely rich collections from Brazil and North Australia.

My reason for suggesting a new genus for this plant is the differing semicells, an absolutely unique feature as far as I know. It seems to me that this reason is just as valid as the generic distinction between Docidium and Pleurotaenium,

or between *Arthrodesmus* and *Xanthidium* which intergrade, or between *Phymatodocis* and *Desmidium*; to say nothing of the controversial genera like *Spinoclosterium*, *Spinocosmarium*, *Euastridium*, *Triplastrum*, etc.

The desmid is rather rare, but you can undoubtedly find one or more specimens. After you have seen the actual plant and compared it with my drawing, I should be greatly obliged if you would give me your opinion, and perhaps communicate with Grönblad about it. The Lago da Boca do Igarape Mente is on the Rio Tarapiuns, which is a tributary of the lower Rio Tapajos, which in turn flows into the Amazon above the town of Santarem. The latter town, as you will remember, is where many of Grönblad's Brazilian desmids came from, and the rich collection mentioned above has many of the long-radiate *Staurastrum* described in his paper, including the strange *St. arthrodesmiforme*. I have many other curiosities and rarities, including *Gymnozyga armata* and *Spondyl. desmidiiforme*, and a new pygmy species of *Micrasterias*, smaller than anything yet described, and of entirely different shape. These you will see later.

With my best regards,

Sincerely yours,

P.S. I had a letter from Mr. F. C. Müller-Melchers, Atlantida, Uruguay, saying that his friend, Mr. Ricardo Thomsen, had promised to write to you concerning his drawings of Uruguayan desmids. Müller-Melchers, who is a diatomist, says that the drawings are beautiful, some of them coloured, but there is no material available to substantiate them. Please let me know if you hear from Thomsen. I hope that you and he can come to some satisfactory arrangement by which you can work them up and publish them.



7. Mai 1953

Lieber Herr Scott,

es sind, glaube ich, einige Monate vergangen, in denen wir nichts voneinander gehört haben. Ein für uns in der Sowjet-Zone schwerer Winter liegt hinter uns; im Sommer ist alles viel leichter; doch Sie haben mit Sorgen, die das Klima mit sich bringt, wohl kaum etwas zu tun.

Ich schrieb Ihnen, dass ich Aussicht hätte, aus Afrika einige Proben zu erhalten. Mein Sohn war ein Jahr lang auf einer Forschungsreise in Nigeria (Westafrika) und ist kürzlich zurückgekehrt. Er hat mit auch 25 Proben mitgebracht. Da er sich aber nur in Nord-Nigeria in einem reinen Steppengebiet aufgehalten hat, konnte er nur aus stark eutrophierten kleinen Wasserstellen sammeln. Desmidiaceen sind da selten und leider meist Bewohner auch unserer eutrophierten Teiche, wie *Closterium moniliferum* und *Ehrenbergii*, *Cosmarium granatum* u.s.w. Dann habe ich einige Proben aus Ostafrika (Victoria-See-Plankton), die reichlicher Desmidiaceen enthalten. Wenn Sie davon haben wollen, schicke ich Ihnen gern etwas.

Sie schrieben mir, dass Sie ein für die Sowjet-Zone zugelassenes Care-Paket abgeschickt hätten. Es ist leider nichts angekommen; wie ich hörte, sind solche Pakete von der Ostbehörde beschlagnahmt worden. Die frühere Regelung ist dann doch wohl besser; wir sind hier an der Grenze an solche Schwierigkeiten gewöhnt.

Ich hoffe, in diesem Sommer mit der Bearbeitung der Rabenhorst-Desmidiaceen weiterzukommen; der Winter hat die Arbeit sehr erschwert.

Mit freundlichen Grüßen

Ihr

Dr. W. Krieger  
Hohen Neuendorf  
bei Berlin  
Hubertusstraße 19

20. 8. 53.

Lieber Herr Scott,

herzlichen Dank für das Care- Paket; es ist auf dem Umwege über meinen Sohn wohlbehalten in meine Hände gelangt. Die Proben mit Desmidiaceen sind noch nicht angekommen; ich erwarte sie in nächster Zeit und freue mich schon darauf; denn sie stammen zum Teil aus Gebieten, aus denen ich noch kein Material besitze. Die geographisch bedingten Unterschiede sind doch manchmal recht gross, jedenfalls viel grösser, als man noch vor einigen Jahrzehnten annahm.

Mit herzlichen Grüssen und bestem Dank

Ihr

*W. Krieger*

July 13 1953

Dr. Kurt Krieger,  
Grünwaldstr. 29.  
Berlin-Steglitz.

Dear Dr. Krieger,

I am glad to know that the CARE package arrived safely, and that the contents will be of some help to your father.

Because of the present unrest in the Soviet Zone, I have today sent to your address a small box containing 24 vials of desmid-bearing material from various distant parts of the world, and ask that you turn it over to your father when you receive it.

Sincerely yours,

July 13 1953

Dear Dr. Krieger,

The two tubes of algae from Lake Victoria that you were kind enough to send me arrived a few days ago, and I found them very interesting, even though they are not especially rich in desmids. The most remarkable feature, to me, is the abundance of *Pediastrum*, principally *P. clathratum* in three different forms, and several other species. I have never seen *Pediastrum* so plentiful.

The desmids, also, are a rather curious assortment; a dozen species of *Staurostrum*, two of *Cosmarium*, one of *Glosterium*, and I saw a single individual of *Art. rodesmus*. Apparently the samples were taken with a plankton net, judging from the number of Crustacea and filamentous diatoms, and the long-rayed *Staurostra*. I have found that squeezings from aquatic plants such as *Utricularia*, *Myriophyllum*, etc., give much larger quantities of material, and a much wider assortment of desmids than the plankton net, so I seldom bother with it.

There are only a few of the desmids that I can identify, but I noted one that is quite interesting, namely *St. leptocladum* without the apical spines; this is the first time I have seen it without spines, though the spined form is of common occurrence in my collections. West & West, also G. M. Smith, doubted the existence of the spineless form, and accordingly rejected Wille's var. *cornutum*. See remarks by G.M. Smith, in his Wisconsin Phytoplankton, pp 102-103.

Digitized by Herbarium of the University of Chile  
Yesterday I wrote to Mr. J. C. Müller-Melchers, in Uruguay, telling him of your offer to work up Thomsen's desmids, and asking him to try to persuade Thomsen to send his drawings to you. I think I wrote you in one of my former letters that Thomsen is 75 years old, and at times rather "difficult" according to M-M. I do not wish to have any part in this work, and in fact I could not undertake it, because I have several years ahead of me, in my collaboration with Grönblad on my USA material, and with Prescott on Sachlan's Indonesian collections.

I am today sending to your son's address a small box containing 24 vials of desmid material, and have asked him to turn them over to you after he has looked at them. Enclosed is a list of the samples and their habitats. I think you will find all of them very interesting, especially those from Java and Borneo, which contain some extremely rare species.

I have done nothing with the four collections from Peru, except to make a few sketches, because I expected to get more of them from the collector. But I have heard nothing from him for two years, and I am afraid that I have lost the money that I was foolish to pay him in advance so that he might buy equipment for an expedition into the little-known region of southeastern Peru. The four collections are hardly worth writing up by themselves, so if you would like to include them with your own material from Chile I shall gladly give you permission to do so, and to publish them. If you will undertake this I will send you the drawings that I have already made, some of which appear to be novelties.

With my kind regards and best wishes,  
Sincerely,

List of algal collections sent to Dr. W. Krieger, July 12 1953

PANAMA. These are the best of a dozen collections that I made in Panama, November 1951.

- No. 3. Pond No. 3 with tropical waterlilies (*Nymphaea* sp.) at the Experimental Gardens, Summit, Canal Zone.
- No. 4. Pond No. 4, similar to above, and same locality.
- No. 5. Pond No. 5, similar to above, and same locality.
- No. 9. Backwater of Chagres River, at Madden Dam, Canal Zone.

in 1951

PERU. These 4 collections were made for me/by Dr. Felix Woytkowski, a professional collector, who specializes in entomological specimens. The 4 vials are all that I have received so far. There is a faint chance that I may get more in the future.

- No. 1 & 2. Pond in the Botanical Garden, Lima, Peru.
- No. 3. Laguna Villa, 15 km south of Lima.
- No. 4. Roadside ditch at Pampa del Sacramento, on the road to Pucallpa on the Ucayali River, Department of Loreto. About 800 km from Lima.

Arnhem Land, North Australia. Collected by Ray Specht, Botanist of the Government Expedition to Arnhem Land, June-November 1948. These five samples were all that I received, but in them I found 251 desmids, and Prescott found about 80 other algae exclusive of diatoms. Our paper describing these algae is now in the Editor's hands, and it should be published by the Australian Government about the end of this year.

- A-30. Bickerton Island, Gulf of Carpentaria. pH 6.5
- A-80. Marsh at Yirkalla, on the mainland. pH 7.0
- A-108. Pool in dried-up stream bed at Oenpelli. pH 6.5
- A-109. Lagoon at Oenpelli. pH 7.6
- A-111. Similar lagoon at Oenpelli. pH 7.0-7.5

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JAPAN. Collected by Minoru Hirano, and now being written up by him in a series of papers. (Note: "ike" means pond or marsh).

- No. 11. Ozegahara moor. 1938. Sphagnum bog, about 1420 m. above sea-level.
- No. 27. Kotsutsumi-nishi-ike. Marsh in Aichi prefecture, about 20 km. east of Nagaya.
- Nos. 34, 35, 36. Fuse-ike. Marsh at east side of Lake Biwa, about 40 km from Kyoto
- No. 37. Mizoroga-ike. Dystrophic pond in northern part of Kyoto City. Collected from sphagnum bog in floating island in the centre of the pond. Contains *Closterium cuspidatum* Bail. (= *Spinoclosterium curvatum* Bern.).

JAVA. Collected by Mr. M. Sachlan, of Bogor (Buitenzorg).

- No. M. Tembaga swamp, near Djakarta (Batavia). *Streptonema trilobatum* Wall.

BORNEO. Collected by Dr. K. F. Vaas, Head of the Laboratory for Inland Fisheries, Bogor.

- No. X. From a lake in East Borneo, 1941. *Micrasterias lux* Josh. (Fa.)
- No. 38. Lake Semedo, West Borneo, 1949. *M. cymatophora* fa. *maxima* Scott & Presc.
- No. 270. Lake Empangau, W. Borneo, 1949. *M. anomala*, two different forms.
- Muara Muntai. Swamp along the River Bangau (Bangau?) south of the village of Muara Muntai, 1952. East Borneo. *M. Torreyi* var. *Doveri* (Bisw.) Krieg.

These gatherings from Borneo and Java, with others from Sumatra and Bali, are now being worked up by Prescott and myself.

June 2 1953

Dr. W. Krieger,  
Hubertusstr. 19.  
Hohen Neuendorf B. Berlin.

Dear Dr. Krieger,

I am very glad that you have given me your son's address, and I am writing to him today.

It will please me very much to receive samples of your material from Lake Victoria, and also some of the stuff from the Central Congo region. However, it would appear, from the writings of Prof. van Eye, that the Congo region is, generally, unfavorable for desmids. Nevertheless, he has described some unusual species that I should be glad to see.

Today I received from Prof. F. E. Fritsch, a number of reprints of the papers that he published, with Florence Rich, on the freshwater algae of South Africa. These are a welcome addition to my small library.

With my best regards,

Sincerely yours,

May 17 1953

Dear Dr. Krieger,

Just a few days before the arrival of your letter of May 7th, the New York office of GARE sent me a cheque in refund of the money which I had sent them for the food parcel that I had ordered to be sent to you three months ago. Accompanying the cheque was a letter explaining that for several months GARE has had increasing difficulties in effecting delivery of their food parcels in the eastern zone of Germany, and that they are obliged to discontinue this service until conditions change.

I am very sorry, therefore, that you did not receive this parcel, but I can continue to send the other kind of parcels that you have received before. However, I do not wish to order them unless you tell me that it will be all right to do so. Please therefore, write me again by return mail, and tell me if it is OK to send them.

Our friend Grönblad wrote me recently that he had not heard from you for a long time, and is anxious about your health. Please write him soon and tell him how you are getting along (wie geht's bei Ihnen) and what you are doing.

From a desmidiologist's point of view, it is a pity that in so many parts of the world the soil conditions are such that all the surface waters are eutrophic. I found this to be the case in the neighbourhood of Havana, Cuba; near Guatemala City; most of the localities that I visited in Panama; and near Medellin, Colombia. Also similar conditions prevail in many parts of the United States; on a trip from New Orleans to Ohio (1200 km) a few years ago, I did not make a single collection, because the waters were so obviously unsuitable for desmids.

The collections that your son made in Nigeria would not be of any interest to me, but I should be delighted to have some samples of the *Victoria-See* plankton, and also any other African material that you have in your large collection. In the Indonesian material that I am now working on, there are certain desmids that also occur in Africa, such as *X. sansibarense* Hier., and also a highly interesting series of dichotypical forms combining semicells of *St. Wildemanii* and *St. subtrifurcatus* var. *major*, proving that these two really belong to the same species. Other authors have called attention to the similarity between them, for instance Fritsch & Rich 1937. Recently I sent Grönblad sketches of several of these dichotypical forms.

A new book was published here recently; *Algae of Illinois*, by Tiffany & Britton. The greater part of the work is devoted to filamentous algae (Oedogoniales, etc.), in which Tiffany has specialized. The comparatively small section on desmids, presumably written by Britton, contains nothing new, merely a recital of the various well-known species that have been found in Illinois. The illustrations of desmids are copied from other authors, even from Wolle (!), and some of them are quite inaccurate. The book is quite useless to a desmidiologist.

With my best regards and good wishes,

Sincerely yours,

11. November 1952

Lieber Herr Kollege,

Ihren schönen Sonderdruck über *Micrasterias* und den Brief vom 25. 10. 52 habe ich erhalten. Die Gattung *Micrasterias* erreicht ja in Ihrem Untersuchungsgebiet eine sehr grosse Formenmannigfaltigkeit. Herzlichen Dank für die Uebersendung.

Im letzten Jahre hatte ich Gelegenheit, am Elektronenmikroskop zu arbeiten, eine sehr reizvolle und interessante Beschäftigung. Man erkennt die Diatomeen kaum wieder; soviel Einzelheiten erscheinen bei der Vergrößerung bis zu 100 000 mal. Ich hoffe, auch Desmidiaceen untersuchen zu können.

Ich habe jetzt etwas mehr Zeit für die Desmidiaceen und hoffe, das *Cosmarium*-Manuskript endlich fertigstellen zu können.

Mit der Pension ist ein kleines Missverständnis entstanden. Ich verändere meine Wohnung nicht, sondern bin wegen Erreichung der Altersgrenze in den Ruhestand getreten ( bei uns sagt man Pension, weil man dann kein Gehalt, sondern nur eine Pension erhält). Das hat den Vorteil, dass nun für die wissenschaftliche Arbeit mehr Zeit übrig ist, weil der Dienst fortfällt, aber den Nachteil, dass die Pension nur einen Bruchteil des Gehaltes beträgt..

Hoffentlich haben Sie in diesem Sommer wieder Desmidiaceen sammeln können in dem schönen Lande, in dem Ihnen zu wohnen vergönnt ist. Hier ist der Winter schon wieder eingezogen mit seinem kalten, unfreundlichen, vegetationsfeindlichen Wetter.

Es grüsst herzlich Ihr

W. Krieger



2824 Dante St.  
New Orleans 18, La.  
Feb 7 1953

Dear Dr. Krieger,

I am sorry that you have had so much trouble with the food parcels. I wrote to the main office of CARE, in New York about this, and they replied that their "Standard" food parcel, containing coffee, chocolate, etc., cannot be delivered in East Berlin. They have two other parcels, designated as "East German Food", and "East German Meat", which can be delivered in East Berlin, by registered post. These do not contain such a nice assortment as the "Standard" parcel, and they have no coffee. I am sending you one of these, so that you will not have the trouble that you have experienced formerly.

At Christmas my wife and I spent a 2 weeks vacation travelling through Florida, going as far as Key West, which we had not visited previously. I made a number of collections from localities where I have not collected before. Some of them were quite rich in desmids, but examination after we returned home revealed nothing that is not contained in my former gatherings. This has also been my experience on several trips to Florida during the last couple of years, so it appears that I have now obtained practically all of the desmids that occur even in that extremely rich region. Our mutual friend, Dr. Grönblad, apparently is having a good deal of difficulty in trying to fit the American desmids into existing categories, many of which were founded on European forms. Even in the small genus *Arthrodesmus* there are many puzzling and intergrading forms which he has tried to separate into groups and assigned names to them. He has returned all of my *Arthrodesmus* drawings with his notes and proposed determinations, and has asked for my comments on them, and in several cases for additional information. This I am attempting to obtain, but it is a curious fact that when you want to find a certain desmid in a collection in which it is known to exist there is frequently great difficulty in finding it. There is a little *Arthrodesmus*, only 10 microns long, probably a new variety of *A. bifidus*, on which I spent about 12 hours of search (at various times) before I could turn up another example.

Recently I have had some correspondence with Herr. F. C. Müller-Melchers of Estacion Atlántida, near Montevideo, Uruguay, who has been kind enough to send me some material from that region. He is principally interested in marine plankton diatoms, but he is a close friend of a Senor Ricardo Thomsen, who, it appears, has a large collection of drawings of Uruguayan desmids. Thomsen is 75 years old, and has never published his drawings, perhaps because (as in my case) he is unable to identify them properly. I asked Müller-Melchers to urge upon Thomsen the desirability of sending his drawings to some authority who could work them up and publish them, so that they would not be lost in the event of his death, and recently he replied that Thomsen had thought of sending them to you. I have agreed not to publish any desmids in the new material, because I have no desire to intrude upon Thomsen's territory, but if you should undertake the work I could perhaps send you drawings of some interesting forms that I have seen.

In your last letter you wrote that you had received some desmid material from Africa. I have never seen any African desmids, and if you could spare a small amount I should be very glad if you would send me some. This would not be for publication, of course; merely for my own enjoyment and instruction. In exchange I could send you some samples from North Australia, Japan, Indonesia, Panama or Uruguay.

With my best regards and good wishes,  
Sincerely yours,

Oct 25 1952

Dear Dr. Krieger,

three

Please accept my best thanks for the reprints of your ~~two~~ papers on the shell-structure of diatoms, written in collaboration with Dr. Helmcke.

As you probably know, I have very little knowledge of the diatoms, but I have always been interested in the details of their structure as illustrated by authors who have investigated it. Also it happens that I possess some test-slides of diatoms, including Pleurosigma angulatum, Surirella gemma, and Grammatophora subtilissima, which I use occasionally for testing the optical alignment of my microscope after it has been changed, and also for testing my knowledge of the adjustment of the instrument. Although my microscope is one of the best (and most expensive) that is made in this country, with apochromatic objectives, compensating oculars, and achromatic condenser, I have been able to resolve only the first two of these test-objects, and in the case of Surirella gemma I can do it only with oblique light. The third one, Gr. subtilissima, I have never been able to resolve.

So it was with very great interest that I read your account of the fine structure of Surirella gemma, and the beautifully executed drawings of the reconstruction by Kurt Bogen. The minute details which the electron-microscope has revealed are indeed astounding, almost unbelievable, and they cause the reader to speculate on what can be the purpose of such intricate details as the quadruple pores and sieve-plates of Cyclotella compta. I hope that before long somebody will be able to give at least a tentative explanation of some of these details.

Enclosed is a page torn from the current of Collier's magazine, a popular publication, with a short account of a method of adding color to electron-microscope photographs, for the purpose of revealing differences in thickness of the objects. Perhaps this may be of interest to you and Dr. Helmcke, and if so you could probably obtain more details from Prof. George W. Cochran.

Recently I sent you a reprint of a paper on Micrasterias by Prescott and myself, containing some new records for North America. For instance, M. foliacea var. ornata, M. mahabulashwarensis var. ampullacea, and var. surculifera, the latter being a confirmation of Borge's record from Brazil.

I hope that ~~your~~ the new Lieferung of your monograph, dealing with Cosmarium, is now in the hands of the printers, and that we shall be privileged to see it, perhaps next year.

In your last letter you wrote that you were going to move to a pension this month, so I hope you will let me know your new address. Also please tell me if it will be convenient for you to receive, at the pension, the CARE packages which I have been sending, and which I shall be glad to continue sending.

With my best regards,

Sincerely yours,

8.10.53.

Lieber Herr Scott,

besten Dank für den letzten Brief und die 3 interessanten Desmidiaceen-Proben. Ich habe in dem brasilianischen Material den fraglichen Organismus öfter gefunden, und zwar immer in derselben Ausbildung. Die Scheitelansicht erinnert ja lebhaft an manche Staurastren; aber die Vorderansicht weicht doch erheblich ab. Gelegentlich gibt es bei Staurastrum Formen, bei denen die Fortsätze in den beiden Halbzellen nach verschiedenen Richtungen zeigen, und auch bei manchen Micrasterias-Arten sind die Arme aufwärts gebogen. Die Scheitel sind jedoch so verschieden ausgebildet, und der Habitus ist so abweichend, dass ich auch glaube, man könnte eine neue Gattung rechtfertigen.

Was das Pleurotaenium aus Borneo 270 an belangt, so bitte ich zu berücksichtigen, dass neuerdings auch für Desmidiaceen elektronenoptisch Poren festgestellt worden sind. Irgendwelche Poren müssen ja wohl auch für den Flüssigkeits- und Gasaustausch vorhanden sein. Bei Einstellung auf den Zellrand kann ich keine wesentliche Erhöhungen feststellen, sondern nur eingesenkte dunkle Flecke von rechteckiger Form. Ich gebe gern zu, dass der Eindruck, als ob Warzen vorhanden sind, zunächst da ist, glaube aber doch, dass es sich um Vertiefungen handelt, etwa so, wie ich sie im vorigen Briefe skizziert habe. Mikrotomschnitte würden ja wohl die Entscheidung bringen. Der Wechsel in der Helligkeit der Ringe ist auch bei den Poren anderer Arten vorhanden, die ich darauf untersucht habe. Was sagt Grönblad dazu?

Gestern habe ich wieder mit allergrösster Freude Ihr Care-Paket empfangen, das wieder die Unzulänglichkeit der Verpflegung in der Sowjetzone für den Winter vergessen lässt. Herzlichen Dank dafür.

Mit herzlichen Grüßen Ihr

*W. Krieger*

Dr. W. Krieger  
Hohen Neuendorf bei Berlin  
Hubertusstr. 19

Hohen Neuendorf, den 8.9.52

Lieber Herr Scott,

herzlichen Dank für die Uebersendung des Care-Paketes. Ich werde in Kürze etwas mehr Zeit für die Desmidiaceen haben, weil ich zum 1. Oktober in Pension gehe und meine Amtsgeschäfte mich dann nicht mehr stören. Im Sommer habe ich noch am Elektronenmikroskop gearbeitet; ich sende Ihnen 3 kleinere Arbeiten; eine grössere ist in Vorbereitung. Hoffentlich haben Sie den Sommer gut verlebt und konnten ein wenig an die Algen denken. Bei Ihnen ist das Klima wohl jetzt besser als im Hochsommer; ~~hier~~ hält der Herbst schon seinen Einzug.

Mit herzlichen Grüßen

Ihr

*W. Krieger*

Dr. W. Krüger  
Hohen Neuendorf  
bei Berlin  
Hubertusstraße 19

June 6/9/52

Lieber Kollege,

darf ich mich wieder einmahl für das willkommene Care-Paket bedanken. Meine Frau und ich sind immer wieder erfreut und überrascht über Ihre freundliche Fürsorge. Wie Sie wohl in der Zeitung gelesen haben, hat sich die Lage hier an der Zonengrenze nach West-Berlin neuerdings verschärft. Man soll nun einmal nicht zu der Ruhe kommen, die für die wissenschaftliche Arbeit nun doch so unumgänglich nötig ist. Ich hoffe aber auf eine bessere Zukunft. Mit der nächsten Post schicke ich Ihnen einige kleine Elektronenarbeiten und hoffe, dass Sie einige Freude an den Abbildungen haben.

Mit herzlichen Grüßen

Ihr

W. Krüger

Dr. W. Krieger  
Hohen Neuendorf  
bei Berlin  
Hubertstraße 19

2.3.52

Lieber Herr Kollege,

ganz unerwarteterweise ist wieder ein Paket eingetroffen, das mich für einige Wochen mit kostbaren Dingen versorgt hat; ich danke Ihnen herzlichst dafür. Der Winter ist bei uns manchmal recht reich an Schnee, aber im ganzen doch recht mild gewesen. Ich hoffe, dass der Sommer die Fertigstellung meines Cosmarium-Manuskripts bringt. Es gab immer wieder etwas nachzutragen; aber einmal muss man doch den Schlussstrich ziehen. In nächster Zeit kann ich Ihnen wieder einige kleine Arbeiten über elektronenmikroskopische Untersuchungen an Diatomeen schicken.

Mit herzlichen Grüßen

Ihr

*W. Krieger*

Dr. W. Krieger  
Hohen Neuendorf bei Berlin  
Hubertusstr.19

25. November 1951

Lieber Herr Kollege,

es freut mich, dass die 5 Rabenhorst-Lieferungen gut angekommen sind. Im Buchhandel sind sie nicht mehr alle erhältlich; ich hatte noch einige Sonderdrucke und habe die fehlenden Hefte aus diesem Vorrat ergänzt. Hoffentlich erhält sie Mr. Sachlan in Java. Manche javanische Desmidiaceen-Proben sind sehr reichhaltig und immer interessant.

An Mr. Conger habe ich die beiden Arbeiten über elektronenmikroskopische Untersuchungen an Diatomeen abgeschickt.

Das Care-Paket ist ebenfalls wohlbehalten in meine Hände gelangt, was manchmal nicht ganz leicht ist, da ich damit die Zonengrenze passieren muss. Ich bin Ihnen dafür zu grossem Dank verpflichtet.

Mit herzlichen Grüssen

Ihr

W. Krieger

20. 9. 51

Lieber Herr Scott,

Ihren Wunsch kann ich  
erfüllen. Ich habe auch  
die vergriffenen Lieferungen  
besorgt und schicke mit  
der gleichen Post ein Paket,  
das die Lieferungen 1-5  
enthält, also alles, was  
bisher erschienen ist.

Freundliche Grüße

Ihr

W. Krieger



October 30 1951

Dr. W. Krieger,  
Hubertusstr. 19.  
Hohen Neuendorf b. Berlin.

Dear Dr. Krieger,

The parcel of books arrived safely about a week ago, and I desire to thank you very sincerely for sending them, and for the special efforts that you made to get them for me.

I have sent these books, as a gift, to Mr. M. Sachlan, of Bogor, Java, who has been very kind in sending me collections of desmids from Indonesia, containing many of the plants that you described in your Sunda paper, and also many others not shown there. Sachlan tells me that he is going to send me 20 more samples from Sumatra, which I have no doubt will be just as interesting.

About a month ago I was in Washington, D.C., and while there I made the acquaintance of Mr. Paul Conger, who is Custodian of Diatoms at the Smithsonian Institution, a branch of the United States National Museum, and also one of the best diatomists in this country. I drew for him, from memory, a sketch of an unusual diatom that I had found in material from South Australia, and he identified it from Schmidt's Atlas as Stauroneis Fulmen Brtwl., a very rare species which was not included in the very large collection of the Smithsonian Institute. So I have sent him some of the material from which he can prepare permanent slides of this diatom.

Mr. Conger does not possess your recent paper, Feinbau von Diatomeenschalen, die Gattung Achnanthes, so if you can spare a copy I wish you would be kind enough to send him one, and also a copy of the first paper on Cocconeis placentula. His address is:

Mr. Paul Conger,  
Arts & Industries Building,  
Smithsonian Institution,  
Washington, D.C. USA.

With renew thanks, and my best wishes,  
Sincerely yours,

24.7.51

Lieber Kollege,

eben habe ich an Herrn Dr. Hughes einen Brief abgeschickt. Ich glaube auch, dass die Zeichnung von *Cosmarium panamense* var. *Smithii* etwas zu schematisch ist; aber zu einer Varietät reichen die Unterschiede vom Typus vielleicht aus. Es hängt ja bei der Beurteilung einer Art, die man selbst nicht gesehen hat, so viel von der Zeichentechnik ab. Vielleicht haben Deflandre, 1926, aus Venezuela und Borge 1899, aus Kuba dieselbe Art vor sich gehabt; sie nannten sie *Cosmarium logiense*. Da die Zellen aber stärker gerundet sind und der Sinus anders ist, habe ich diese Formen als Varietät zu *Cosmarium Johnsonii* gerechnet.

*Cosmarium Eloiseanum* var. *scrobiculatum* hat in seiner Mittelfeld-Skulptur viel Ähnlichkeit mit *Xanthidium acanthophorum* var. *Raciborskii* Gutwinski 1902 aus Java.

Ich habe mit Interesse von Ihrer grossen Fahrt nach Florida gelesen; es sind für uns in Europa sehr grosse Entfernungen, die dabei zurückzulegen sind.

Ich erhielt in diesen Tagen Nachricht durch den Verlag, was von den Rabenhorst-Desmidiaceen noch lieferbar ist. Lieferung 1 und 2 sind vergriffen; aber die Lieferungen 3, 4 und 5 sind noch vorhanden. Die Adresse des Verlages ist: Akademische Verlagsgesellschaft, Leipzig, X C 1, Sternwartenstr. 8; oder soll ich mich selbst mit dem Verlag in Verbindung setzen?

Ich habe jetzt vom Verlag die Zusicherung bekommen, dass die Desmidiaceen im nächsten Jahre weitergedruckt werden; ich werde das Manuskript von *Cosmarium* also in diesem Winter abschliessen.

Mit der gleichen Post sende ich Ihnen einen Sonderdruck, allerdings nicht über Desmidiaceen.

Ich wünsche Ihnen weiterhin viel Freude an den Desmidiaceen und bin mit freundlichen Grüßen Ihr

W. Krieger

Dr. W. Krieger  
Hohen Neuendorf  
bei Berlin  
Hubertusstraße 19

14.8.51.

Mein lieber Kollege,

zu meiner grössten Ueberraschung hat mich wieder eins Ihrer freundlichen Pakete erreicht. Herzlichen Dank dafür. Bei dem geringen Wert der Ostmark und infolgedessen hohen Preis für alles Lebensnotwendige in der sowjetischen Zone ist die Sendung auch 6 Jahre nach der Beendigung des Krieges immer noch sehr willkommen.

Ich brauche augenblicklich viel Kraft zu dem Riesenmanuskript von Cosmarium. Bei der ungeheuren Formenfülle bleibt doch manches ungelöst; aber es ist ja wohl nötig, einmal alles zusammenzufassen, um überhaupt noch eine Bestimmung zu ermöglichen.

Wie weit sind Sie übrigens mit der Bearbeitung des Australien-Materials, das sicher viel Interessantes ergeben wird?

Ich danke also nochmals für alle Genüsse, die Sie mir durch das Paket vermittelt haben und bin mit freundlichen Grüßen

Ihr

W. Krieger

Aug 29 1951

Dear Dr. Krieger,

I have your two letters of July 24th and Aug 14th, for which I thank you. It pleases me to know that the CARE packages are of some help to you, and that perhaps they may perhaps be some small encouragement in your enormous work. I am still sending similar parcels to my two sisters in England.

It is disappointing to learn that only Lieferungen 3, 4, and 5, of your Desmidiaceen Europas are available at the publishers. I possess a duplicate copy of Lief. 5, but I wish to obtain Lieferungen 3 and 4. It seems to me that there will be a better chance of getting them if you will order them from the publishers, and have them sent to you in Hohen Neuendorf, and then you send them to me, perhaps mailing them from the Western Zone of Berlin. There seems to be a very great difficulty in getting anything sent from the Eastern Zone to this country. I am enclosing a \$10 bill, which should be sufficient to cover the cost, and I thank you very much, in advance, for your assistance.

Here are some notes on *Cosmarium panamense*, *C. Johnsonii*, and *C. scrobiculosum*, which may be of some value to you.

*C. Johnsonii* is known to me only from the original description and illustration by West & West 1897. I do not recall seeing it mentioned in any other American work, and it is apparently little known even in this country. Its wall, according to the description, is granulate only, and thus it differs considerably from *C. panamense* and *C. scrobiculosum*, though its size and proportions are quite similar.

*C. scrobiculosum* has the wall decorated with scrobiculations only, according to Borge's description, 1903. Borge's figure is rather poor, but the granulate margins of the three views in his fig. 12, Taf. 2 would seem to be to indicate granules rather than scrobiculations. In several of the collections that I sent you, there are plenty of specimens of a *Cosmarium* that I had assumed (perhaps incorrectly) to be *C. scrobiculosum*. These have the wall decorated with both granules and pits. The large pits are very conspicuous, and usually the granules can easily be seen, especially at the margin, but in some specimens the granules are not very prominent and might be overlooked by an inexperienced observer, though it is difficult to believe that such an authority as Borge would overlook them. Since we must be guided by Borge's description, my plants from Louisiana, Mississippi and Florida cannot belong to *C. scrobiculosum*, and would have to be assigned to *C. panamense*.

*C. panamense* Presc. and var. *Smithii* Hughes, have the wall decorated with both granules and pits, very similar to the plants in my collections La. 68, Mis. 33, etc. In Prescott's original paper, 1936, Pl. LKV, figs. 12, 13, 14, it seems to me that the Scheitelansicht in Fig. 14 is drawn considerably too narrow. If you measure the ratio Width/Thickness from his front and side views, you get the figures  $32/23 = 1.39$ . If you measure the same ratio from his vertical view you get the ratio  $24.5/14.5 = 1.69$ . One of these must be wrong, and I think it is the vertical view. In my specimens this ratio varies considerably, from 1.10, to 1.35 and 1.45, but never as high as 1.69.

I think that many of Borge's collections are deposited in the Reichsmuseum in Stockholm. Perhaps it would be possible to borrow the collections Nos. 50 and 51 from Paraguay, and ascertain if the plants have both granules and pits.

I am glad to say that one of the papers by Prescott & Scott on Australian desmids is completed, and will be published by the Royal Society of South Australia sometime next year.

I have just finished the last of 21 plates illustrating about 240 different desmids from Arnhem Land in North Australia, but only about half of them have been determined by Prof. Prescott. This paper will be published in the official record of the expedition, by the Australian Government, but not until about 1953 or 1954.

With my best regards,

Sincerely yours,

P.S. I have just received the reprint of your paper on the wall-structure of diatoms. Though I know little about this family, I like to learn more about how the siliceous wall is constructed. It is an extremely complicated structure, which would never have been resolved without the electron-microscope. I suppose you have seen recent photos of *Pleurosigma angulatum*, showing that the "punctae" are really holes with a bar across them. The old diatomists used to argue whether the "white dot focus" or the "black dot focus" was the correct one. I wonder what they would say now.

Dr. W. Krieger  
Hohen Neuendorf bei Berlin  
Hubertusstr.19

20.3.51

Lieber Kollege,

durch eine Nachricht von Dr. Grönblad erfuhr ich, dass Sie meinen letzten Brief anscheinend nicht bekommen haben. Ich habe ihn in einen Briefkasten der Sowjetzone gesteckt, und vielleicht ist er nicht befördert worden. Man muss immer noch damit rechnen. Ich schicke diesen Brief von West-Berlin mit Flugpost, damit Sie ihn sicher erhalten.

Sollte der letzte Brief also nicht in Ihre Hände gelangt sein, so darf ich Ihnen noch einmal meinen herzlichsten Dank für das Care-Paket aussprechen, das mir sehr geholfen hat. Hier ist es seit einigen Tagen endlich Frühling geworden, und man hat wieder mehr Freude an der Arbeit. Ich kann wegen der Kohlenknappheit im Winter nur ein Zimmer heizen und muss bei jeder Einsichtnahme in die Literatur in mein kaltes Arbeitszimmer wandern, was den Eifer stark herabsetzt. Ich glaube, Sie haben in Ihrem Klima diese Sorgen nicht.

Dr. Grönblad schrieb mir, dass er Duplikate Ihrer Algenproben bereit hätte. Ich freue mich darauf und danke Ihnen dafür. Es wird für Dr. Grönblad eine harte Arbeit werden, da sehr viel Neues zu beschreiben ist. In den Proben, die Sie mir damals schickten, habe ich viel Interessantes gefunden. Ich hoffe, dass Sie wieder ganz gesund sind und bin mit herzlichen Grüßen

Ihr

*W. Krieger*

Dr. W. Krieger  
Hohen Neuendorf bei Berlin  
Hubertusstr.19

31.1.51

Lieber Herr Kollege,

in diesen Tagen ist wieder einmal ein Care-Paket eingetroffen; herzlichen Dank für die willkommene Sendung.

Aus Ihrem letzten Brief habe ich ersehen, dass Sie erheblich erkrankt sind. Ich hoffe, dass Sie inzwischen hergestellt sind und sich wieder ohne Schmerzen an den Annehmlichkeiten des Lebens erfreuen können. Vielleicht lässt sich die geplante Reise in das Eldorado der Desmidiaceen doch noch ausführen.

Sie werden inzwischen wohl Nachricht bekommen haben, dass Ihre Sonderdrucke angekommen ~~ist~~ sind; mir sind sie jedenfalls bestätigt worden.

Hier ist vorläufig noch harter Winter, der ein Sammeln von Desmidiaceen unmöglich macht; ich bin aber durch den fettigen Inhalt Ihres freundlichen Paketes gegen die Wirkungen der niedrigen Temperatur gesichert.

Mit herzlichen Grüßen

Ihr

W. Krieger

April 1 1951

Dear Dr. Krieger,

I think that our friend Dr. Grönblad has misunderstood a remark that I made in my last letter to him. I asked if he had heard from you concerning the curious new *Euastrum* in my collection Florida 122, and apparently he construed this to mean that I had not heard from you.

I received your letter of Jan 31st and also your airmail letter of March 20th, and am glad to know that the CARE parcel arrived safely.

In this warm climate we are not, as a rule, troubled with cold weather. But this winter has been an exceptionally cold one, the coldest, in fact, since 1918. Early in February the thermometer went down to 20°F (-9°C) on two successive days, which killed most of our tropical plants such as clematis, poinsettias, bananas, and many of our beautiful palm-trees.

There is no shortage of fuel here, but the room in which I do my microscopical work is not so well heated as the rest of my house, and since I was confined to bed for two weeks with bronchitis, I did not want to risk a more serious illness by working in a cold room. So my microscopical work has suffered in consequence.

Fortunately it is getting somewhat warmer now, and at Easter my wife and I drove to Tampa, Fla., partly as a pleasure trip and partly as a collecting expedition. I got a number of nice desmid collections, but so far I have found very little that appears to be different from my former collections. It seems that I have now found a very large majority of all the desmids that grow in the south-eastern part of the United States, because the results of my last few trips have each revealed only one of two novelties, so that it hardly pays to make these long and expensive expeditions. On the last trip to Tampa, for instance, I drove about 1600 miles (2500 km.) in five days. Of course, some new species and varieties will be discovered there in the future, but the search will have to be done by persons who live closer to the region than I do, and who can explore more intensively than I can on these hurried trips. At present I do not know of any desmidiologists in Florida, but two authors have published preliminary lists of algae from northern Florida, and I am trying to interest them in exploring more thoroughly for desmids.

Dr. Elwyn O. Hughes has sent me a sample containing specimens of his *Cosmarium Eloiseanum* var. *scrobiculatum*, var. nov., which I am going to send to you. Also he has requested me to forward to you the enclosed sketches, showing details of the ornamentation of *C. cosmetum* W. & W., and *C. panemense* Prescott var. *Smithii*, var. nov. The latter is, I believe, the same plant that I have mentioned in my letters to you, as *C. scrobiculosum*, and which occurs in my collections La. 68, Miss. 53, etc. Dr. Hughes' drawing is very well executed, but I think he has idealized it too much, and made the pits too rectangular. They do not appear that way to me, at least in the many specimens that I have seen.

Some months ago I asked the Firms E. J. Brill, Leiden, Holland, to get for me the first five parts of your monograph *Desmidiaceae Europae*, but they seem to be unable to obtain it. Would it be possible for you to order them from the publishers in Leipzig and ask them to send the books to me? I wish to send them to a person in Bogor (Batzenorg) Java, who has been kind enough to send me a number of desmid collections. Of course I shall be glad to pay the cost, whatever it may be.

With my best regards, sincerely yours,



6. 1. 51

Lieber Kollege,

herzlichen Dank für Ihre freundlichen Briefe vom 2. und 14. Dezember.  
Inzwischen habe ich Ihre Sonderdrucke über *Staurastrum ophiura* an die  
folgenden 4 Herren abgeschickt, von denen Sie die Adressen zu haben  
wünschten:

- |   |   |
|---|---|
| 1) Dr. Kopetzki-Rechtperg<br>Medizinalrat<br>Oesterreich<br>Wien XIX<br>Hardtgasse 35 | 2) Hannes Broer<br>Hauptschuldirektor<br>Oesterreich<br>Steiermark<br>Schladming 190    |
| 3) Franz Eckert<br>Deutschland<br>Ingolstadt II<br>Münchener Str. 83                  | 4) Kurt Förster<br>Ingenieur<br>Deutschland<br>Uetersen i. Holstein<br>Auf dem Flidd 17 |

Ich habe ihnen auch Ihre Adresse mitgeteilt.

Ich will versuchen, von Frau Prof. Woloszynska die Arbeit über fos-  
sile Desmidiaceen zu bekommen. Es ist schade, dass die Arbeit polnisch  
geschrieben ist. Ich beherrsche diese Sprache auch nicht und muss mir  
das Wichtigste übersetzen lassen.

Dr. E. O. Hughes hat mir einen Sonderdruck seiner Untersuchung über  
"The fresh-water algae of the Maritime Provinces" geschickt; ich habe  
ihm einige von meinen Arbeiten übersandt.

Ich danke Ihnen für die freundlichen Neujahrswünsche und hoffe,  
dass das neue Jahr nicht allzu viel Komplikationen bringt, so dass wir  
ruhig arbeiten können.

Mit herzlichen Grüßen

Ihr

*W. Krieger*

Jan 6 1951

Dr. W. Krieger,  
Hubertusstr. 19,  
Hohen Neuendorf b. Berlin.

Dear Dr. Krieger,

The two parcels of books and papers arrived just before Christmas, all in good shape. Please accept my best thanks for sending them; they will be of great assistance to me, and will help to fill out my small library.

I usually take my vacation between Christmas and New Year, and had hoped to make another trip to Florida and collect some more desmids. But instead I was confined to bed (and two days in the hospital), with a severe attack of biliary colic, caused by a gall-bladder infection. Now I am on a "no-fat" diet; no butter, fats, nor oils; no fried food nor gravies; no pork, ham nor bacon; no alcohol (!!!) and few cigarettes. I have had these attacks before, so I know that I shall have to stay on this diet for a few months until the infection disappears.

Lately I have done no collecting, nor much examination of material, because I have been busy working on three manuscripts for publication. I don't like this work, and shall be glad when I can get back to my microscope.

With my best regards,

Yours sincerely,

Dec 14 1950

Dear Dr. Krieger,

I couple of weeks ago I gave you the address of Prof. Jadwiga Wołoszynska as Krakow, Poland, without any street address. By a curious coincidence I have just received my first communication from her, and her full address is:

Prof. Jadwiga Wołoszynska,  
CRACOVIE.  
ul. Krapnicza 16, parter,  
Institut Botanique,  
BOLOGNE.

This is exactly the way she wrote it herself on the envelope.

The paper she sent me is entitled "O wstznicach kopslnych z Roztok kolo Jasla I". De Desmidiaceis fossilibus quae in Roztoki ad Jaslo inventae sunt. I. Rozprawy Wydziału Matematyczno-Przyrodniczego. Tom 74, Dział B 1949, Nr.3, 8-56, 35 Tabl.

It seems to be a very good paper, but it is written in Polish, of which I know nothing whatever. There is a very short resume in English.

There are 299 photomicrographs of fossil desmids, which are quite the best I have seen, since she has been able to demonstrate not only the ornament of the cell-wall, but even the pore-systems in some cases. I wish I knew the method she used to accomplish such excellent results.

I have asked Dr. Elwyn O. Hughes to send you a copy of a new paper, Fresh-water Algae of the Maritime Provinces. Proc. Nova Scotian Inst. Sci. XXII, Part 2, 1947-48, 1-63, 4 Pl. Published January 1950. His address is

Dept. of Plant Sciences,  
University of Oklahoma,  
Norman, Okla.

With my best wishes for Christmas and the New Year,

Sincerely yours,

Dec 2 1950

Dear Dr. Krieger,

Will you please send copies of my *Staurostrum Ophiura* paper to Kopetzky-Rechtberg, Broecker, Förster and Eckert. The other two you may keep as duplicates. I have the addresses of all the others, and have already sent reprints to them, though very few have acknowledged their receipt.

Here are the addresses that you asked for:

Dr. N. N. Voronochin, Karpovka 19, Kvart.48, Leningrad, S.S.S.R.  
Dr. Jadwiga Woloszynska, Krakow, Poland. (No street address).  
Dr. Konrad von Weihe, Bot. Garten, Marcusallee 60, Bremen, Germany.

I have sent copies of the last two of my papers to these three, but have had no acknowledgement. Von Weihe is a member of the Phycological Soc. of America, but I do not know if he is specially interested in desmids.

If you will give me the complete address of Kopetzky-Rechtberg, Broecker, Förster and Eckert, I will add them to my mailing list, so that in future I can send them copies of my reprints direct, without troubling you.

Just now I am writing up the final draft of a paper on *Microsterias* by Prescott and myself, containing a number of new varieties, and one new species. I hope it can be published next year.

With my best regards,

Sincerely yours,

Dr. W. Krieger  
Hohen Neuendorf bei Berlin  
Hubertusstr.19

13. November 1950

Lieber Freund,

vor einigen Tagen habe ich Ihren Sonderdruck über *Staurastrum ophiura* und die für mich sehr nützliche Mitgliederliste der "American Microscopical Society" erhalten. Herzlichen Dank dafür. Gestern sind auch die 6 Exemplare Ihrer Arbeit angekommen. Ich habe in meiner Adressen-Kartothek die ~~folgenden~~ Anschriften der folgenden europäischen Algologen, die sich mit Desmidiaceen beschäftigen:

Tschechoslowakei: Růžička, Lhotský, Roubal, Rosa

Oesterreich: Kopetzky-Rechtperg, Broeër,

Deutschland: Förster, Eckert

Holland: Heymans

Belgien: Van Meel, Van Oye

Frankreich: Bourrelly, Wurz

Portugal: Sampaio, d'Alte

Dänemark: Nygaard

Schweden: Teiling, Thunmark

Finnland: Grönblad, Cedercrëutz

Grossbritannien: Lund, Lind, Pearsall, Fritsch

Schweiz: Huber-Pestalozzi, Messikommer.

Schreiben Sie mir bitte, an wen ich die 6 Exemplare schicken soll. Mit Osteuropa (ausgenommen die Tschechoslowakei) habe ich leider noch keine rechte Verbindung anknüpfen können. Ich bitte daher um die Adressen von Woronichin und Frau Prof. Woloszynska, mit denen ich früher ebenfalls in Briefwechsel stand. Auch für die Adresse von Konrad v. Weihe aus Bremen, den ich noch nicht kenne, wäre ich Ihnen dankbar.

Wenn Sie Dr. Grönblad Ihr Material zur Verfügung gestellt haben, so ist es dort in guten Händen; denn er ist ein gewissenhafter, kenntnisreicher und kritischer Desmidiaceenforscher. Ich werde ihm schreiben und ihn auf die Zeichnungen des merkwürdigen *Eustrum* aufmerksam machen. Ich bin gern mit ihm zusammen gewesen. Leider konnte ich ihn nach dem Kriege noch nicht wieder besuchen; die nötigen Pässe sind in der Sowjetzone, in der ich ja wohne, kaum zu bekommen. Für Material aus Australien, Japan und Borneo wäre ich Ihnen natürlich sehr dankbar.

Mit herzlichen Grüssen

Ihr

W. Krieger

Dr. W. Krieger  
Hohen Neuendorf bei Berlin  
Hubertusstr. 19

5. November 1950

Lieber Freund von jenseits des Atlantik,

mit grosser Freude und herzlichem Dank habe ich Ihr kostbares Paket erhalten. Ich kann es natürlich sehr gut gebrauchen, da die Ernährung in der Sowjetzone immer noch recht primitiv ist. Ich möchte Sie aber doch bitten, meinewegen keine allzu grossen finanziellen Belastungen auf sich zu nehmen; das könnte ich nicht verantworten.

Haben Sie übrigens meinen Brief mit der Liste der Sonderdrucke bekommen, die ich doppelt besitze. Die Arbeit über das bei uns sehr seltene *Staurastrum ophiura* habe ich ebenfalls erhalten. Brunel hat mir übrigens seine Arbeit über *Pleurotaenium spinulosum* und Whitford über "Fresh-Water Algae from Mississippi" geschickt. Das Interesse für Algen ist bei Ihnen drüben überraschend gross; während wir uns hier in Deutschland immer noch nicht recht vom Kriege haben erholen können. Es geht aber auch hier bergauf.

Mit herzlichen Grüssen

Ihr

*W. Krieger*

Dr. W. Krieger  
Hohen Neuendorf b. Berlin  
Hubertusstr.19

10. September 1950.

Lieber Kollege,

zunächst muss ich Ihnen einen dreifachen Dank aussprechen: Erstens für das Paket mit den für uns hier unerreichbaren Dingen für den Haushalt, zweitens für den freundlichen Brief und die Zygotenzeichnungen, drittens für die so sorgfältig und liebevoll verpackten herrlichen Desmidiaceenproben. Alles das hat Ihnen sicherlich grosse Mühe verursacht.

Die Proben gehören zu den besten, die ich besitze, und das sind doch 6-7000 Gläser. Einige habe ich gleich angesehen und vieles für mich Neue gefunden. Die meisten Formen weichen von den europäischen irgendwie ab, auch wenn es sich um dieselben Arten handelt. Es ist übrigens alles wohlbehalten angekommen.

Probe 122 habe ich gründlich angesehen und dabei auch eine Reihe von Zygoten gefunden. Ich lege eine Zeichnung der Zygote von Euastrum intermedium var. longicolle bei. Falls Sie sie noch nicht selber gefunden haben, können Sie ja den Fund in Ihre Veröffentlichung aufnehmen. Ich freue mich auf die Durchsicht der Proben; ich werde natürlich nichts ohne Ihre Erlaubnis veröffentlichen.

Das rätselhafte Euastrum habe ich dabei in einigen Exemplaren gefunden, ohne viel weiter als Sie gekommen zu sein. Es sieht so aus, als wenn die S-förmigen Figuren wenigstens in einem Teil ihres Verlaufes Membranporen darstellen. Ich werde die Form noch weiter studieren.

Mit der gleichen Post sende ich Ihnen eine kleine Arbeit über Desmidiaceen aus den Gebirgen SO-Brasiliens; es war die erste Möglichkeit nach dem Kriege, etwas zu veröffentlichen.

Als Gegengabe für Ihre freundlichen Sendungen möchte ich auch etwas für Sie tun. Ich besitze eine Anzahl von Duplikaten von Algenarbeiten. Ich lege ein Verzeichnis bei. Wenn Sie etwas davon haben wollen, streichen Sie bitte die betreffenden Arbeiten an und senden mir die Liste zurück. Ich werde Ihnen dann die Sonderdrucke schicken.

Ich freue mich schon auf Ihre Arbeit über Nord-Australien; in diesem Gebiet ist nur sehr wenig gesammelt worden.

Mit herzlichen Grüssen

Ihr W. K r i e g e r.

*W. Krieger*

Oct 18th 1950

Dr. W. Krieger,  
Hubertusstr. 19,  
Hohen Neuendorf b. Berlin.

Dear Dr. Krieger,

It is indeed very gratifying to receive such a cordial letter of thanks and appreciation from one of the world's foremost authorities on desmids. Your adjectives, "sorgfältig und liebevoll", accurately express my feelings when I am preparing these samples for shipment. I have sent similar boxes to many parts of the world, England, France, Portugal, Sweden, Finland, Czechoslovakia, Austria, Java and Japan, and have not heard of any of the bottles being broken. By contrast, in a lot of 22 vials which I received three weeks ago from Buitenzorg, 9 were broken and the contents lost, because of unskillful packing.

Thanks for your drawing of the zygospore of *E. intermedium* var. *longicolle*. This is quite interesting as a confirmation of a drawing by R. K. Salisbury which I copied in Prescott & Scott 1945, Pl. 6, Fig. 9. I have not seen this zygospore myself, though the desmid is not uncommon in my gatherings.

I am glad also to have the reprint of your paper on Desmids from S.E. Brazil. There are quite a number of interesting forms, most of which are strange to me, but there is no telling when I shall run across some of them in Florida, where I have found several desmids that also occur in Brazil.

Last week I sent you a reprint, and six extra copies, of a small paper on new varieties of *Saurostrum* Ophiura. Will you be kind enough to distribute the copies to any desmidologists in Germany, Austria, USSR., etc. I have sent reprints to Konrad von Weihe in Bremen, Woloszynska in Krakow, and Voronochin in Leningrad. These are the only addresses I have in those countries. I can send more copies if necessary.

It is very good of you to offer to send me some of the duplicate papers that you possess. Accordingly I have stricken out, in red pencil, those which I would most like to have, and as you will note, most of these deal with tropical and subtropical countries. There are many more papers in your list that I do not have, but they deal mostly with European desmids, and other workers will have better use for them than I would have.

Perhaps our mutual friend, Rolf Grönblad, has told you that he is going to work up and publish the remainder of my desmids from southern U.S.A. The reason for terminating my collaboration with Prof. Prescott is that he is so extremely busy with many other matters that it is very seldom that he can devote any time to my material. For instance, it has taken him three years to identify and write the descriptions for two papers, on *Microsterias* and *Eustrum*, that I have in preparation at the present time, and at that rate it might have taken him 10 to 15 years to complete all the other genera. I do not expect to live that long! So last winter I went to New York to see him, at the AAAS convention, and had a frank talk with him, telling him that Grönblad had offered, two or three years ago, to write up any tropical or subtropical material that I might care to send him. Prescott agreed to the ending of our collaboration (of course he could do nothing else), and I believe and hope that our personal friendship will continue. In fact, early this year he planned to visit New Orleans and stay at our house, but something went wrong with his plans and he was unable to come here.



So I have just finished sending to Grönbled all of my original drawings, about 3000 of them, and am now in the process of making up duplicates of all my collections numbering about 500, to send to him. By this time he should have received about 200 of them, and the remainder will follow in the next few weeks. From the richness of the few collections that I sent you, you will see that friend Grönbled is going to have quite a job on his hands. Perhaps you and he will have occasion to consult each other about some of the puzzling forms. In fact, when you have completed your study of the retselhafte *Mastrum* in Fla. 122 I wish you would tell him what you think of it. Please mention that it is shown in my drawings Nos. 1677, 1678 and 1679, which are among my *Cosmarium* drawings, since I was doubtful whether it should be assigned to *Cosmarium* or *Mastrum*.

In the material from Buitenzorg, mentioned above, there are collections from Java, Bali and Borneo. In one those from Borneo the strange *Microstoria* ceratophora Josh. has turned up again, very remarkably. It is exactly the same as specimens from North Australia. There are many other beautiful desmids, such as *M. spiculata* var. *lacerata* Turn., *M. anomala* Turn. and a possible new variety, *M. lux* Josh. without the sub-apical spines, *Streptonema trilobatum* Well., *Xanthidium subtrilobatum* and var. *inornatum* Skuja, *X. acanthophorum* Nordst., *Pl. ovatum* and a smooth variety near var. *inermis* Koeb. Also a number of others that I can identify from your "Sunda" paper, including your own *St. xanthium*.

If there is any information I can give you concerning my drawings or material, please do not hesitate to write me. When I get more time I shall send you some more samples, including some from Australia and Japan, and Borneo.

Sincerely yours,

July 30 1950

Dear Dr. Krieger,

I am very glad that you asked for samples from my desmid collections, and it gives me great pleasure to think that I may perhaps be of some assistance to you. Accordingly I am sending, by the same mail, a box containing 35 vials, most of which have been selected for their content of North American Cosmaria. In these you will find a great many of the species that are peculiar to this continent, but there are some which do not occur in my collections and which I have never seen, for instance *C. belteum*, *fevum*, *Mloiseanum*, etc. Perhaps Prescott has these in his collections, and if he has I am sure he would be glad to send them to you.

Some of the species are extremely rare, only one or two specimens having been seen. These I have indicated in the list by the symbol xxxrrr..., and since it may not be possible for you to find specimens without a very long search, I am sending copies of my original camera lucida sketches, which you may use for publication if you wish. Also I am sending sketches of some zygospores of various Cosmaria, which you may publish also.

The enclosed list shows the names of some of the Cosmaria in the various collections. Of course there are many more, and many other desmids. My knowledge of the genus Cosmarium is very poor, because of the very large number of species, many of which seem to differ only by very small amounts, and because of the lack of a comprehensive treatment of the genus. For this reason your next Lieferung will be of very great assistance to me and to many others.

I want to call your special attention to a very curious Cosmarium (*Basstrum* in the vial marked Fla. 122, which I believe to be a new species). I have made several thousand drawings of desmids, and I think this is one of the most difficult. I have made several attempts to draw it, but am not satisfied with the results. The cell is asymmetric about all three planes, making it very difficult to balance for true views, and even to tell when it is exactly balanced, while the markings (deep grooves and pits) are so peculiar that I do not know just how to represent them, especially in the side view. I should be glad if you would give me your opinion on this plant, and I should like very much to see a copy of your drawing of it. The plant is somewhat rare in the gathering, but I think you will be able to find one or more empty cells or semicells. I am enclosing a copy of the best of my drawings.

In addition to the collections containing Cosmaria, I have added several for their general interest, and if you are not familiar with American desmids I think you will be surprised at the richness of some of these gatherings, especially from Florida. I have made drawings of practically every desmid in them, but a large number are still unidentified, waiting until Prescott can get time to work on them. I know that there are several new species, and many new varieties.

Practically the whole peninsula of Florida is underlain by limestone, and many of the lakes in central Florida are fed by springs from this formation, which makes the water unfavorable for desmids. On the other hand, in many districts the surface soil is sandy and acid, the topography flat and the drainage poor, so that there is a large amount of surface water in the form of roadside ditches, ponds, small lakes, marshes and swamps. These are the places where I get my best collections almost all of which are squeezings from aquatic plants such as *Myriophyllum*, *Ceratophyllum*, *Utricularia*, occasionally *Chara* and *Nitella*, and several mosses whose names I do not know. The southern tip of Florida is truly tropical in climate, and many tropical plants and fruits are grown there, for instance, coconuts, avocados, guavas, mangoes, etc. The remainder of the state is subtropical. I think you will notice a distinctly tropical character to the desmids in my gatherings.

In your last letter you mentioned that you hoped to send me a Sonderdruck. That is not necessary, but if you have an opportunity to obtain reprints of any desmid papers published from 1939 to the present, in Germany, Austria, Poland, the S.S.S.R., etc., I should be very glad to get them. I am specially interested in tropical desmids, but my collection of literature on tropical regions is rather scanty. I have several papers on Australia, but very little on the East Indies, India, Ceylon, and practically nothing on Africa. I have most of the literature on South America, and the Brazilian papers are quite valuable to me, since I have found a number of desmids that were originally described from Brazil. I do not possess the two papers by R. Kalkwitz, 1933 and 1934.

I think I told you in one of my letters that I was working on some material from Arnhem Land in North Australia. I have now finished my examination, and am drawing the plates for a joint paper by Prescott and myself. There are many highly unusual desmids, such as *Microsterias ceratophora* Jash., the first record since the original discovery in the 1880's. You excluded this plant, but it is a perfectly normal desmid, though radically different from any other known species of *Microsterias*. *Triploceras australianum* (Borge) Krieg. proves to be a *Pleurotenium*, since the apex is smoothly rounded and ringed with a circle of stout spines, analogous to those of *Pl. Keyei*. There is no trace of the apical processes characteristic of *Triploceras*. Also I have found *Euastrum diplostaurum* Skuja, which is on the borderline between *Euastrum* and *Cosmarium*, *E. praenorsum*, *E. asperum*, and the unnamed *Euastrum* figured by Borge in *Aust. Süssw.-Chlorophyceen*, Taf.4, fig.63.

With my best regards and good wishes for the progress of your work,

Sincerely yours,

List of samples sent to Dr. W. Krieger, July 30 1950.

Louisiana.

- La. 61 C. pachydermum Lund., Fa. c.  
C. quadrilobum P. & S., rrrrr...
- La. 77 C. sublobatiforme P. & S. rrr
- La. 85 Pl. spinulosum (Wolle) Brunel c.
- La. 64 C. denticulatum fa. Borgei Irene-Marie r.
- La. 68 C. ocellatum var. incresatum W. & W. r.  
C. scrobiculosum rr
- La. 58 C. refringens Taylor ccc.
- La. 35 C. dentatum var. minor, var. nov. (unpublished) c.

Mississippi.

- Miss. 94 C. novae-terrae Taylor ccc, with zygospores rrr. Dr. Taylor kindly sent me a small quantity of material from the original Newfoundland collection, in which I managed to find just two specimens which were filled with dense chloroplast, so that I could not make out all the details. However, in both cases the arrangement of the pits was in fairly regular and complete hexagons, not irregular as his original description states. The Mississippi plants, which also occur in several Florida collections, are identical with the Newfoundland ones.
- C. sublobatiforme P. & S. rrrrr...
- C. refringens Taylor, small form c.
- C. pseudotaxichondrum var. Foggii Tayl. r.

- Miss. 96 C. ovale, or C. denticulatum ? rr.  
C. pseudopyramidatum fa. tuberculatum P. & S. c.  
C. taxichondrum var. M. Johnsonii W. & W. rr.  
Phy. Nordstedtiana Wolle r.

- Miss. 53 C. triplicatum Wolle r.  
C. scrobiculosum r.

Florida.

- Fla. 19 C. zonatum var. javanicum fa. latum fa. nov. (unpublished) r.  
C. cosmetum W. & W. rr c.  
C. varioletum r.
- Fla. 21 C. zonatum var. javanicum fa. latum fa. nov.  
C. contractum var. zonatum var. nov. ? (unpublished)  
C. cosmetum W. & W. ccc.
- Fla. 193 C. porrectum var. sletum var. nov. ? (unpublished) c.  
Many other Cosmaria.
- Fla. 74. Many Cosmaria.  
Cosmoecidium pusillum c.
- Fla. 122 C. cosmetum, large form with very prominent marginal granules.  
Cosmarium sp. nov. ? See sketch marked Fla. 122.
- Fla. 90 Cosmarium sp. See sketch marked Fla. 90.
- Fla. 123 C. ovale var. subglabrum W. & W. rr.
- Fla. 78 C. varioletum var. cataractarum Reib. r.

- Fla. 76 *C. Gonychonema* Eschb. rrr.  
*C. monospermum* var. nov.? r.  
*C. dentatum* Wolle, with more and larger teeth than usual.
- Fla. 93 *C. quadrifarium* c.  
*C. legoense* Nordst. fa.? r.  
*C. refringens* Taylor, small form c.  
*C. Hammeri* var. *homolodermum*? c.
- Fla. 121, 121a *C. dentatum* Wolle var. *ornatum* var. nov. (unpublished). Empty semicell is necessary to see the surface ornament, which consists of elongated and meandering depressions in the central part of face.
- Fla. 129 *C. dentatum* Wolle fa. *glabrum* fa. nov. (unpublished) c.  
*C. marginatum* var. *pyramidatum* var. nov. (unpublished) c.
- Fla. 179 *C. commissurale* var. *crassum*? Very thick. r.  
*C. ovale* var. *subglabrum* rrr.
- Fla. 85 *C. arthrodesmiforme* var. *crassum*, var. nov. (unpublished)
- Fla. 77 *C. dentatum* Wolle fa. *spinosum* fa. nov. (unpublished)

The following were added because of their richness, and unusual species in genera other than *Cosmarium*.

Miss. 75

Fla. 27

Fla. 109

Fla. 110

Fla. 196

Fla. 209. This contains 11 species and 2 varieties of *Microsterias*, as follows:

*M. fimbriata* var. *spinosa*

*radiosa*

*laticeps*

*abrupta*

*depauperata* var. *Kitchellii*

*truncata* var. *quadrate*

*Torreyi*

*pinnatifida*

*radiata* var. *simplex* Wolle (I think this is a good variety)

*radiata* var. *glata* var. nov. F. & S. (unpublished)

*radiata* var. *parallela* var. nov. F. & S. (unpublished)

*muricata*. All specimens of this plant, in many collections, have either a single or double supraisthmal granule, as shown in Taylor's figure from Newfoundland.

*mahabuleshwariensis* var. *ringens* fa. *glabra* fa. nov. (unpub)

This form has no granules on the central swelling.

Fla. 239. *M. rotata* var. *jeponica* Fujisawa. The first report outside of Japan. c.

Fla. 175. *M. mahabuleshwariensis* var. *ampulleacea* (Mak.) Nordst. c.

Fla. 160. *M. mahabuleshwariensis* var. *sarculifera* Lagerh. r.

Fla. 139. *Enostrium* informae fa. *oculatum* fa. nov. (Unpublished)

*Xanthidium*, sp. nov.

*St. Ophiura* var. *coronatum* var. nov. (Will be published in September)

*St. sretiscoa* var. *truncatum* Ireneae-Marie.

Fla. 91. *E. informae* xxx fa. *oculatum* fa. nov.

*Spondylisium pulchrum* with zygospore rrrrr... Note that the fully ripe zygospore is scrobiculate, not smooth as previous figures.

*St. novae-caesariensis* Wolle

*E. pectinatum* var. nov. (unpublished)

Dr. W. Krieger  
Hohen Neuendorf bei Berlin  
Sowjetische Zone  
Hubertusstr.19

20. 6. 50

Sehr geehrter Herr Kollege,

vor einigen Tagen ist Ihr schönes Paket unversehrt angekommen;  
herzlichen Dank dafür. Ich hoffe, Ihnen in nächster Zeit einen Sonder-  
druck senden zu können. Könnten Sie mir wohl einige repräsentative  
Proben aus Ihrem Untersuchungsgebiet schicken, damit ich für die Bear-  
beitung der Gattung *Cosmarium* einige Originale liefern kann, und zwar  
von den Arten, die in Europa nicht vorkommen. Hoffentlich mache ich Ihnen  
damit keine grosse Mühe.

Mit freundlichen Grüssen

Ihr

*W. Krieger*

Dr. W. Krieger  
Hohen Neuendorf bei Berlin  
Hubertusstr.19

1.3.50.

Lieber Kollege,

besten Dank für Ihren langen und freundlichen Brief. Ich kann Ihre Freude an den schönen Formen der Desmidiaceen wohl verstehen. Sie haben das Glück, in einer Gegend zu wohnen, die reich an Desmidiaceen ist. In der näheren Umgebung von Berlin gibt es nur noch ganz wenige und weit verbreitete Vertreter dieser Algengruppe. Erst in einer Entfernung von etwa 50 Kilometern beginnen sie häufiger zu werden; doch sind gute Fundorte auch da selten. In den letzten Jahren konnte ich infolge der Unsicherheit in den Wäldern nach dem Kriege und wegen der katastrophalen Verkehrsverhältnisse keine Sammelexkursionen unternehmen.

Ihre Arbeiten (Mississippi 1942, Micrasterias 1943, Euastrum 1945, Spinocosmarium 1949) besitze ich; Prscott hat mir die fehlenden freundlicher Weise geschickt.

Ich arbeite an der Fortsetzung der Desmidiaceen im Rabenhorst, und zwar an der Gattung Cosmarium. Es ist eine langwierige Arbeit bei der grossen Zahl der Arten, der systematischen Unsicherheit und der immer mehr wachsenden Literatur. Bisher bestand bei uns in Deutschland keine Möglichkeit der Drucklegung; aber es scheint jetzt, als ob eine Besserung in dieser Beziehung eintritt. An Prscott habe ich die 5. Lieferung geschickt. Es freut mich, dass Sie einigen Nutzen bei der Bestimmung der Desmidiaceen von meiner Monographie hatten.

Die Tafel mit den schönen Zeichnungen von Micrasterias ist ebenfalls angekommen. Es gibt wenig Arbeiten mit guten Abbildungen, und das ist doch die Vorbedingung für eine einwandfreie Bestimmung.

Ich freue mich auf das Erscheinen Ihrer Arbeiten über Desmidiaceen aus zum Teil noch unbekanntem Gebieten; über Nordaustralien und Neuguinea wissen wir noch sehr wenig. Gibt es übrigens in Australien einen Algologen, der sich für Desmidiaceen interessiert? Für eine Adresse wäre ich sehr dankbar. Ich werde Grönblad bitten, mir etwas Material von Pleurotaenium spinulosum zu schicken; ich habe bei meiner Bearbeitung nicht so recht an eine Bestachelung geglaubt.

Was die Care-Sendung anbelangt, so war ich dafür sehr dankbar; wie sind hier in der Sowjet-Zone noch nicht so weit wie Grönblad in Finnland; leider ist die Versorgung mit Lebensmitteln noch einförmig und oft unzureichend.

Mit freundlichen Grüssen

Ihr

W. Krieger

Parish of St. Anne

Annaheim, Sask.

Canada

July 4, 1957

Dear Mr. Scott,

Thank you for the copies of your latest contributions to the knowledge of Desmids. That new Indonesian *Ichtyodontum* is rather interesting because of its dichotypical specimens. But I was particularly pleased to receive the results of your combined efforts with the late Dr. Krieger. I especially liked your idea of leaving his part in the work in the original German. This may be rather hard on those who are not too familiar with the German language, but points out the part each of the co-authors contributed to the work and paper.

For the next year and a half I won't be able to do any work on the algae, because my congregation plans on building a new church next year. Fortunately, a graduate student at the University of Saskatchewan is working for his doctorate in phycology and thus Dr. Rawson has a man right at hand to whom to turn over his collections for identification. I had the student (who is married and has two children) with me during the Christmas holidays to help him with identifications and procedures.

With best wishes for continued success in your work,

Sincerely,

*Paul Kerehne*



6 October 1957

Dear Doris Scott,

I just received your card this morn-  
g relating the arrival of your paper  
on the *Uromyces* and *Puccinia*. So I did not  
send my letter to Prof. van Uye, last  
2 Oct. 56. Prof. van Uye is now very  
occupied, his colleagues, pupils and friends  
are preparing a ~~manifestation~~ *manifestation* for his  
retreat as professor.

I hope to publish this year about  
100 papers. Naturally you will receive  
them as soon as reprints are at my  
disposal.

With my best greetings

Sincerely yours

R. S. Gentry

Nom et adresse de l'expéditeur | Naam en adres van de afzender

KUEFFERATH, Hubert  
Bruxelles, N°20 Rue Joseph II.

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23, Rue de l'Hôpital  
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WORLD FAIR  
BRUSSELS 1958

PUBLIBEL OS

Monsieur  
Dr. Arthur M. SCOTT  
2824 Dante Street  
NEW ORLEANS 18, La.  
U. S. Am.

Sept 26 1956

Prof. Hubert Kufferath,  
20, rue Joseph II,  
Bruxelles, Belgium.

Dear Prof. Kufferath,

On July 20 1956 I sent to Prof. dr. P. van Oye, at the Universite de Ghent, the manuscript of a paper by the late Dr. W. Krieger and myself, entitled "Einige Desmidiaceen aus Peru", also a tube with the original drawings for five plates of illustrations. He did not acknowledge their receipt, so I wrote to him again, by airmail, on Sept 12, asking him to let me know by airmail if he had received them.

I have had no reply to the second letter either, so I am afraid that he may be ill and unable to answer. Have you had any recent news about him? If not, you probably know someone in the Dept. of Botany at the Universite de Ghent who could tell you. Would you be kind enough to enquire, and write me a few lines by airmail? If Prof. van Oye cannot handle the paper for publication in Hydrobiologia, I should like to have it and the drawings returned, so that I can make other arrangements.

With my best regards,

Yours sincerely,

Exp.  
H. KUFFERATH  
No. 60 in Jost  
Trommel - Programm

Par Avion

Carte Postale



7925  
Monsieur Arthur M SCOTT  
2824 Dante Street  
New Orleans 18

Postage Due 09  
AMF Washington, D.C.

(La) U.S. Amer.

23 febr. 1956

Dear H. M. Scott,

The twelve samples of timber with  
Scimitra were well received and in good  
condition the 20 feet. I will be  
very interested to see them.

For the samples of Africa, I have to  
ask permission to send them to the  
Institut Royal d'histoire naturelle of Belgium,  
after publication of the paper in prepara-  
tion concerning the algae of A. & F.

When other publications, actually  
completed, will be published, I will  
be happy to send them to you.

With my best regards

Yours sincerely

A. Briffault

Jan 27 1956

Dr. H. Kufferath,  
20, rue Joseph II,  
Bruxelles, Belgium.

Dear Dr. Kufferath,

A few days ago I mailed you a box containing 12 tubes of desmid material from the following places:

- Brazil No. 20. Rio Arapiuns oberhalb der Ponta Icuri. Einfluss von Tapajoes-wasser. Oberflachen-phytoplankton, pH 5.6. Leg. Dr. Harald Sioli 27/11/52.
- Brazil No. 32. Vigia. Aus Mulden in überschwemmten Campo. Brauneswasser, pH 4.3. Leg. Prof. Dr. Paul Ledoux. (The town of Vigia is near the mouth of the Amazon, about 75 km NNW of the city of Belem).
- Sumatra No. 109. Air Klekar (a small stream) near Palembang, South Sumatra. Leg. M. Sachlan, August 1951.
- Java "P". Swamp Tembaga, near Djakarta. Leg. M. Sachlan, 1941.
- Borneo No. 270. Lake Empangau, West Borneo. Leg. Dr. K. F. Vaas, June 1949.
- North Australia, K-104. Freshwater pond near Oodipidi, about 240 km east of Darwin. Leg. Roger C. Gregson, April 29 1954.
- Florida No. 27. Dead Lake, 1 mile north of Wewahitchka, Gulf County. Leg. A.M. Scott Sept 7 1946.
- Florida No. 76. Ditch 6 miles south of Punta Gorda, Charlotte County. AMS. Oct 18 1947
- Florida No. 91. Ditch 17 m. north of Okechobee, Okechobee County. AMS. Oct 21 1947.
- Florida No. 109. Pond 5 miles south of Masaryk, Hernando County. AMS. Dec 25 1947.
- Florida 182. Lily pond, 2 miles south of Groveland, Lake County. AMS. July 5 1948
- Florida 209. Pond 7 miles west of Umatilla, Lake County. AMS. July 3 1949.

I am sure you will enjoy looking at the strange and beautiful desmids in these samples. Many of them can be found described in the works of Krieger, Borge, Nordstedt, West & West, Turner, Schmidle, and others, but also there are many desmids that are new to science, and these I am working up in collaboration with Prof. Prescott and with Dr. Grönblad, and I shall gladly send you reprints of the papers when they are published.

I shall be very happy to receive some samples of African algae from your friend, and to see your paper describing them.

With my best regards,

Sincerely yours,

Brunels 13<sup>th</sup> Decem<sup>r</sup> 1955  
N<sup>o</sup> 60 Rue Joseph I.

Dear Mr. A. H. Scott,

I received only your letter of 1<sup>st</sup> December last with your figures, but  
for I found precisely Microsterias mabubi ~~clathrata~~ warrensi in an  
African sample collected near Port-Gentil (French African continent).  
I also found extreme arms divergent. The species and two varieties  
are known from Africa (in Transvaal, Mozambique to Belgian Congo, Madagascar).  
Thanks for the address of Dr. R. Grinblat. I wrote him and send him some  
reprints. I wait his answer.

The literature on the bibliography of works on African fresh water  
algae is not yet published. I hope it will <sup>soon</sup> be in Revue Algologique.  
The manuscript is now in London quite complete. I know from friends  
of Paris that the French scientifics will work the algal flora of the  
Niger, region exceptionally rich in Desmidi, remarkable and new.  
The collection of samples that I studied are the property  
of our Institut Royal d'histoire naturelle de Belgique. If you  
wish to receive some of them, I will ask to my friend, A. Capart  
collector of those samples to send to you some rich collections where  
Desmidi are often found. I hope the publication, where they will  
be described, will be published next year. I hope that you will publish also  
the species you found and figure from South Africa, S.E. OSA, Brazil  
and Indonesia and would be glad to receive some samples for my  
enjoyment before my Eternal Reward, for I am 74 years old. I re-  
ceived from Prof. Prescott, last browsing some publications more, what is  
a great scientific pleasure for me.

Sincerely yours

*A. Grinblat*

PAR AVION  
PER VLIETGUIT

AEROGRAMME

AEROGRAM

UNE BELLE CHAÎNE  
REHAUSSÉE  
VOTRE CLASSE  
EN ROUTE  
MAAKT  
ELEGANT

Monsieur le Docteur A.M. SCOTT  
2824 Dante Street  
New Orleans 18 (La)  
U.S. Am

Digitized by Hunt Institute for Botanical Documentation

**REMARQUE IMPORTANTE**

En cas d'insertion soit de feuillets écrits, soit d'un objet quelconque susceptible d'alourdir le poids de cette lettre, celle-ci sera transmise par la voie ordinaire.

**BELANGRIJKE OPMERKING**

In geval van insluiting, 't zij van geschreven bladen of om 't even welk voorwerp, van aard om het gewicht van deze brief te verhogen, zal deze over de gewone weg worden verzonden.

EXPÉDITEUR (Nom et adresse) :

AFZENDER (Naam en adres) :

KUFFERATH, H.

N° 20 rue Joseph II

Bruxelles

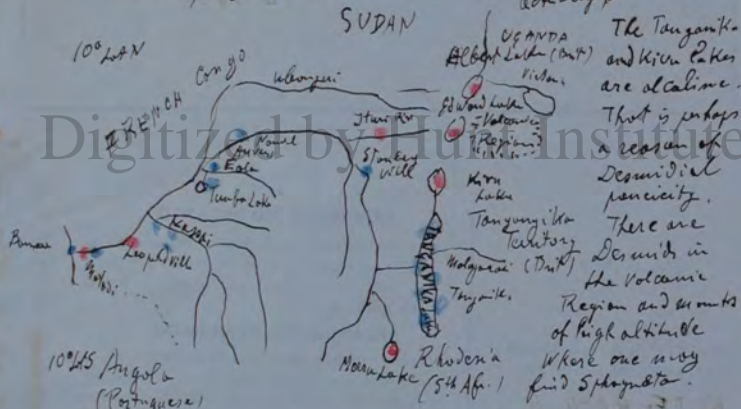
Belgium



Brussels 11<sup>th</sup> November 1955

Dear Doctor A. M. Scott,

I duly received your card of 28 Oct. I note your remark that the Belgian Congo seems to be quite poor in Desmidiids. The first reason is that the number of samples collected is very small, and further that only some localities on regions were visited. Briefly the sketched chart will give you an idea of the sampling. ● Now known - ● Sampling time but not actually published.



The Congo is as great as the US Am territory between New Orleans and St. Louis in latitude and Oklahoma and Louisiana in longitude - So you may imagine how poorly our Congo was until now algologically prospected. This is not the same for phanerogams and zoology.

Some works published in France indicate that the region between Dakar and French Congo is rich in Desmidiids

and precisely your Sudan collection will be of great interest. I have listed for my personal use all the Desmidiids of Africa under the region of 15-20° lat N (excluding Sahara and North Africa) to the S. Africa (Cape Colony). I noted also the authors and localities of regions. On the contrary of the Belgian Congo (as now studied) the number of Desmidiids is very great and varied - You will see in one <sup>next</sup> fascicule of the Revue Alg. Logique (of Paris) a list of algological works published of the Sweet Water Algae of Whole Africa, work by A. J. Bruck, Russ Prot, P. A. Süss and myself, so will you have a complete indication on Africa fresh water Algae, with authors names and indication of publication (Journals, Books, official legislation).

I have now in preparation lists of Algae from Madagascar (Belg. Congo), some samples of the River Congo, some very interesting grounds near Pointe à Pitre (French A.O.F.) - and finally samples from lakes Kivu, Edward and Albert. As soon as my works, if I do not receive my Eternal Reward, will be published I will have the pleasure to send them.

Many thanks for your separates, I will receive and read with interest.

With my best greetings  
Sincerely yours

*H. Buffereau*

May I have the actual address of Dr. G. G. G. I wrote to him but without success. Perhaps his permanent address is changed! Thanks.

Dec 1 1955

Dr. H. Kufferath,  
20 rue Joseph II,  
Bruxelles, Belgium.

Dear Dr. Kufferath,

Many thanks for your interesting letter of Nov. 11th, and for the trouble you went to in drawing the sketch map of the Belgian Congo region. I knew of course that this is a large country, but perhaps I did not realize quite how big. Also I am aware that not many collections have been described from the Congo, so my impression of a scarcity of desmids was not entirely justified. It is quite possible that the localities visited may not have been favourable for desmids; I am acquainted with large areas in the USA where it would be a waste of time to look for them, and I do not refer to arid regions. Also it is probable that the collectors were not desmid specialists and did not know how to recognize favourable habitats, which would make a big difference.

It will be very interesting to see the list of literature on African FW Algae. I received the last issue of the Revue Algologique a week ago, and had hoped that it would contain this list, but it is not there, so I suppose it may appear in the next number. Also I am looking forward with pleasure to receiving your future publications.

Dr. Rolf Grönblad's address is, Centralgatan 86, Karis, Finland. He is not a very good correspondent, but if you mention my name I am sure he will write you and send you his publications.

I think I should tell you that I am not a Dr., just plain Mr. In fact I am a retired civil engineer, 68 years old, and have been collecting and studying desmids for the last 18 years. I wish now that I had started 25 years sooner. It is rather remarkable that I should have taken up desmids as a hobby, for I have had no training in botany nor any of the biological sciences. I was attracted to them by their strange and beautiful shapes, and when I found that nothing was known of the desmids of Louisiana or Mississippi I thought I might do some good for science, as well as amusing myself, by recording my finds. Eventually I got in touch with Prof. Prescott and we have been working together ever since. About six years ago I wrote to Dr. Grönblad, and now he and I are working on certain material from Brazil and the Sudan.

Now I wish to make a proposal to you. If you have any good desmid material from any part of Africa, including French AOF, which contain unusual, rare or new species, I should be very happy to exchange some collections with you. I can offer in return material from southeastern USA, from Brazil, from Indonesia, and from North Australia. Many of these collections are extremely rich, with many new and little-known species. It is understood, of course, that such exchanges would not be for purposes of publication, simply for your and my enjoyment and edification. I have found that an examination of an actual desmid frequently gives a much better, and sometimes quite different, idea of its appearance and structure than looking at illustrations, which in the case of the older authors were sometimes not well drawn.

I await with much pleasure your reply, and send you my best greetings.  
Sincerely yours,

Nom  
et adresse de l'expéditeur  
N° de l'expéditeur  
Nom  
et adresse de  
l' destinataire  
N° de l' destinataire

M. KUFFERATH, H.  
Rue Joseph II  
Bonnels  
Belgium.

CARTE POSTALE

CHARBON-FAITES VOS  
PROVISIONS EN ÉTÉ  
KOLEN-KOOPT UW  
VOORRAAD IN DE ZOMER

POSTKALEKT



Please to the  
Postmaster to send this  
card to the new address  
if it is changed Thanks.

Monsieur le D<sup>r</sup> A.M. Scott  
2824 Dante St.  
New Orleans 18 (La)  
U S Amer.

14<sup>th</sup> July 1908

Dear Doctor and Colleague,

I am intended to send to you  
some reports of Algological interest.

Please give me your actual address

for the sending of my papers.

Exchanges are wished.

With my best compliments

Sincerely yours

H. K. Plummer

CHARBON-EMILEZAOE

UNXET

Oct 2 1955

Dr. H. Kufferath,  
20, rue Joseph II,  
Brussels, Belgium.

Dear Dr. Kufferath,

My wife and I have been in Europe for the last five months, so that I only received your postcard of July 14th upon our return a few days ago. We stayed in Brussels for one day, and it would have given me much pleasure to call on you if I had known your address.

I shall be very happy to receive separates of your papers on freshwater algae, and particularly those dealing with desmids, which are the only group of which I can claim to have a fairly good knowledge. My special interest is in tropical and sub-tropical desmids, so that your 1932 paper on desmids from the Belgian Congo would be valuable to me, and any others that you may have published since then.

Under separate cover I am sending you reprints of some papers on desmids in which I have collaborated with Dr. G. W. Prescott, and one by Grönblad & Kallio describing the new genus Amscottia mira from Brazil. I am sorry that my supply of earlier papers is exhausted, but you have probably seen them, or if not I think you can still obtain copies from Dr. Prescott.

While I was in Europe I spent a week with Lektor Einar Teiling in Sweden, and three weeks with Dr. Rolf Grönblad in Finland. Grönblad and I are collaborating in the study of about 500 collections that I have made in southeastern USA during the last 18 years. Also we have just completed the study of a very remarkable collection from the Sudan that contains more than 200 different desmids, of which almost one-third are new to science.

Prescott and I also have some more papers in preparation, and when they are published I shall be very glad to send you the separates.

With my best regards,

Sincerely yours,

Mch 16 1955

Dear Dr. Kallio,

Last year Mr. M. Sachlan, of Bogor, Java, sent me an algal collection from a swamp at Menggala, in South Sumatra, which, in addition to many other curious tropical desmids contained some specimens of a new genus that possesses the same strange peculiarity as *Amscottia*, i.e., differing semicells. Perhaps you already know of it through Grönblad, to whom I sent drawings, photos, and a small quantity of the material. For your own use I am sending copies of these drawings and photos.

As you will see, the plant shows a general resemblance to *Ichthyocercus*, but it also combines basal teeth which suggest *Docidium* or certain species of *Euastrum* (*E. gnathophorum*), and also has two conspicuous mucus pores just below the apices, also reminiscent of *Euastrum*. In addition the whole cell has an unusual curvature, the 'upper' semicell being more or less straight and the 'lower' one decidedly curved. The most curious feature is the construction of the apices, the 'upper' apex somewhat elevated and with a shallow depression in the center and with the angles slightly turned downward, and an extremely fine hair-like spine at each angle also curved downward. The 'lower' apex is shaped like a fishtail, with a deeper incision in the center and erect spines each with a similar hair-like spine at the angles. Krieger, Grönblad, and Prescott all agreed last year that this combination of characteristics is sufficient to justify a new genus, though G. and P. seem to have a suspicion that it ought to be placed in *Ichthyocercus*.

Specimens are very rare in the collection. The first 14 that I saw, and also 10 seen by Sachlan, were all alike, with different poles and the same curvature of the cell. Then, by pure chance, I found a single specimen with the same asymmetrical curvature but with ~~poles~~ both poles alike, of the type shown on the 'upper' semicell in my drawing. Then it became obvious that there ought to exist another form with both poles of the type shown on the 'lower' semicell in my drawing, and immediately I set to work looking for it. After a very long and tiresome search I finally managed to find one specimen of the second kind. So then there was the problem of describing a new genus with two species (or one species and a variety), but only a single specimen of each kind, while there were on record 24 dichotypical specimens with differing semicells. In the hope of getting more material in which specimens might be more plentiful, I asked Sachlan if it would be possible for him to revisit Menggala, which is not too long a journey, and he answered (last autumn) that he thought he could do so during the present month (March). I requested him to get a dozen or more collections from different spots in the swamp, and to make squeezings from as many aquatic plants as he could find, such as *Hydrilla*, *Gabomba*, *Utricularia*, *Myriophyllum*, etc., since it is possible that one of them might be more favorable for this desmid. Also I asked him to try to send some living material to you, so that you might cultivate it, and try to establish clones of the various forms, which might throw some light on the problem. He told me that he had written you, and that you had sent him reprints of some of your papers, so that he may try his hand at growing desmids. Since he has the laboratory facilities of the Inland Fisheries Department, he may be able to succeed.

Last month I happened to see in our local newspaper a short item telling of severe floods in south Sumatra, which may perhaps interfere with Sachlan's plans, but if you receive a shipment from him you will know the particular desmid that I am interested in. On this Indonesian material of Sachlan's I am collaborating with Prof. G. W. Prescott, and eventually the plant will be written up by us.

If you are successful in culturing it, we should be happy if you would contribute some notes or a separate paper on it, as you did with Grönblad on *Amscottia*.

About May 1st my wife and I are going to England, and during the last week in June I shall go alone to Finland to spend about three weeks with Grönblad to confer with him on the many taxonomical questions involved in the numerous new species that we have to write up. While I am there of course I hope to visit you to make your acquaintance in person, and to see by what sleight of hand you accomplish the marvellous things you have done with *Micrasterias*.

With my best regards,

Yours sincerely,

Parish of St. Anne

Annahheim, Sask.

Canada March 14, 1955

Dear Mr. Scott,

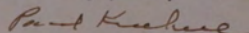
Thanks for the articles by Grönblad and Kallio, and congratulations on having a new genus named in your honor. The existence of this asymmetrical desmidis quite a discovery. It would be interesting to see what might happen could Kallio, for instance, get some living material of this species to conduct his "ploidy ation" experiments with it. I rather enjoyed ~~the~~ his contribution.

Winter up here in the Canadian West has been rather mild with little snow and roads were generally open for automobile travel. Yesterday, however, we had a province-wide day-long blizzard that closed most roads and will keep the snow-plows busy for several days.

Dr. Rawson (University of Saskatchewan) has his study of the Great Slave Lake submitted for printing. I contributed the information on the plankton algae and shall send you a copy as soon as available.

With best wishes for continued success in your investigations, I remain,

Sincerely yours,



Paul Kuehne



TURUN YLIOPISTON  
KASVITIETEELLINEN LAITOS

—  
INSTITUTIO BOTANICA  
UNIVERSITATIS TURKUENSIS

February, 26, 1915

Mr. Arthur M. Scott  
2824 Dante Street  
New Orleans 18. La.

Dear Mr. Scott:

When you have sent me some living *Demis* in last year I've promised to send you artificially produced diploids of these species.

I have at present diploid forms only from two species: *N. Torreyi* and *N. fimbriata* forms. The species *N. rot.*, *N. crenato*, *N. depauperata* have thrived well but there are some difficulties in their diploidization. The *N. foliosa* strain is dead.

I have sent you the diploid forms as well as the haploid strains of the same species.

To the "*N. fimbriata* f.c." undetermined?<sup>2</sup> I should be very grateful if

You would give it a name, because the species  
is an excellent objects of study.

I should be very interested to know,  
whether the tubes with the algae have arrived  
unbroken.

Yours very truly

David Hall

Mei 7 1955

Dr. Paavo Kallio,  
Turku, Finland.

Dear Dr. Kallio,

The five tubes arrived safely, though the corners of the cardboard box were split open in some cases. The glass tubes are much better and stronger than the very thin test-tubes that you sent last time, and they contain quite enough material.

I am glad to know that you have succeeded in cultivating some of the desmids that I sent, and that you have even been able to produce diploid strains in two cases. It is a pity that I do not know enough about cytology to understand their exact significance. After looking at the specimens I sent them to Dr. Starr, and have just this morning received a note from him saying that you had already sent him the same strains. I have promised to get some desmids from him, so that he may try to isolate sexual strains.

I do not know whether the M. fimbriata is the specific form or var. spinosa. The only difference is that the variety has minute spines along the sinus and isthmus, and along the deeper incisions of the lateral lobes. These tiny spines are difficult to see in living specimens because of the chloroplast and the usual mucus coating, but they are easily observed in empty cells, which you no doubt see in your cultures. You can find good illustrations of both the species and the variety in Prescott & Scott 1942 (1943), Pl. 4, Figs. 3-5, also in G.M. Smith 1924, Pl. 61, Fig. 2, and Pl. 62, Fig. 1, as M. apiculata var. fimbriata fa. spinosa, the latter two illustrations having been copied in Krieger, 1939, Taf. 123, Fig. 5, and Taf. 124, Figs. 1, 4.

The Pleurotaenium is Pl. constrictum (Bail.) Wood. When Grönblad first saw this in my collections and drawings he thought it ought to be assigned to Pl. coroniferum (Borge) Krieg., but it is a purely North American plant and I don't think he is too familiar with it. A couple of years ago I gave him the reasons for considering it quite distinct, but I don't know whether I succeeded in convincing him. At any rate the name constrictum has precedence because it was created in 1848, while coroniferum dates only from 1903.

When the weather gets a little warmer I will get some more living material for you and also for Dr. Starr. About the end of June or early in July I hope to spend a few weeks in Finland with Grönblad, and at that time I expect to have the pleasure of calling on you.

With kind regards,

Sincerely yours,

TURUN YLIOPISTON  
KASVITIETEELLINEN LAITOS

—  
INSTITUTIO BOTANICA  
UNIVERSITATIS TURKUENSIS

Mr Arthur M. Scott  
2824 Dante St  
New Orleans 18, La.

May 28 1954

Dear Mr Scott,

Thank You ever so much for the kind letter of the 24<sup>th</sup> of March and for the algae You sent me. I have received them in good condition. I am so sorry that I have not answered before, but I have really not been able to do it.

What beautiful species they are! All of the species except of *Micrasterias foliacea* - I have found 9 of them - have already divided in the culture tubes. It will be a great pleasure to have them in my cultures and to experiment with them. As soon as I have succeeded in making diploid forms of them - that, I hope, will be some time next autumn - I shall send the forms to You.

I have today sent You some *Micrasterias* forms and I hope, that You will get them in good condition. They are species, which I have experimented with.

Last time I sent You in the same tube both haploid and diploid forms of "*Micrasterias thomasiana* var. *rotata*". They can ~~always~~ be distinguished easily from each other ( cf. Kallio 1951 figs. 66-69 p.56). The origin and properties of the pygmy strain of *Micrasterias rotata* var. *evoluta* have been described in the leaflet enclosed.

With my best regards, Yours sincerely

*Jean Lallio*

June 7 1954

Dr. Paavo Kallio,  
University of Turku,  
Turku Finland.

Dear Dr. Kallio,

I have your letter of May 28th, with the enclosed leaflet on Monophagetic Studies on *M. rotata* var. *evoluta*, for which please accept my thanks.

It is nice to know that my samples reached you safely, and that you found and were able to place in cultivation all of the *Micrasterias* species except *M. foliacea*. Next autumn, when the weather becomes cooler, I shall try to find other species of *Micrasterias*, including *M. foliacea*, and sent them to you, and after you have gone further with your experiments I hope you will send me some of these Louisiana species for examination.

I am sorry to say that all five of your tubes were broken, and all the water gone. There is no apparent explanation for this, since the box was in good condition, and had not been opened, for one of the labels extended over the joint between the top and side. The paper wrappings of the individual tubes seemed to be exactly as you had wrapped them, and with the padding I should have thought the packing was quite sufficient to prevent damage. A curious feature was that practically all of the glass fragments were inside the tubes. Very few were in the paper wrappings. This would seem to indicate an implosion, perhaps caused (or at least helped) by the lowered air pressure in the tube from the heat used in sealing it.

I attempted to find some of the specimens on the paper wrappers, but could do this in only one case (Tube #4), where there was a visible green deposit, and from this I was able to wash off some of the tri-radiate cells. But nearly all of the cells were more or less collapsed and distorted from the drying and from the rather rough treatment I had to use to get them off the paper.

When you send me more samples, I should like to suggest that you use tubes with paraffined corks. These would be just as satisfactory for my purpose, for I can do nothing more than keep the specimens alive for as long as they can exist in the available amount of nutrient solution. I cannot cultivate them; I have not enough knowledge or skill. Perhaps Grönblad has told you that I am going to visit him this summer, and of course I shall hope to have the opportunity of seeing you at Turku, and then I can learn something of the practical details of desmid culture.

With kind regards,

Yours sincerely,

Parish of St. Anne

Annahem, Sask.

Canada

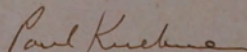
February 20, 1954

Dear Mr. Scott,

Thanks for your latest paper on Some South Australian Desmids. I am only sorry that I am still unable to reciprocate. But Dr. Rawson, Head of the Biology Dept. of the University of Saskatchewan is at present preparing a paper on the Great Slave Lake, for which I did all the algological research and identification. Shall send you a copy when available.

With best wishes,

Sincerely,



Paul Kuehne

Mch 25 1954

Dr. Paavo Kallio,  
Dept. of Botany, University of Turku,  
Turku, Finland.

Dear Dr. Kallio,

I wish to thank you most heartily for your kindness in sending the samples of your *Micrasterias* cultures. Unfortunately two of the tubes were broken; one smashed completely, and the other had the fused tip broken off. But happily the remaining tubes were Nos. 1 and 2, so that I have had the great pleasure of examining your triradiate strain of *M. Thomasiana*, which I regard as a notable feat in cultivation, as well as an extraordinary phenomenon. I do not know enough about cytology or genetics to appreciate properly the haploid and diploid cells in the other tube, but perhaps I shall learn something about these subjects after studying your papers more thoroughly.

I hope you will not mind my saying that I think the breakage of the tubes was caused by the weakness of the cardboard box in which they were packed. I have received many shipments of algal material from various parts of the world, and in nearly every case where cardboard boxes were used, there was some breakage. Consequently I use nothing but wooden boxes for my shipments; I make the boxes myself.

I delayed replying to your letter of Feb. 27 until I could find an opportunity of collecting some material for you. The surface waters immediately around New Orleans are not suitable for desmids, and only the common and ~~uninteresting~~ uninteresting species are found here. So to get good desmids I have to drive around Lake Pontchartrain to the northern shore, where the soil is acid and the surface waters soft. The day before yesterday my wife and I visited this neighbourhood for the purpose of getting some nice *Micrasterias* for you; I thought it would be easy, but the results were not as good as I hoped. One of my favourite ponds could not be reached because of a muddy road, in fact my car got stuck in a mudhole about 10 miles from nowhere, and it took 1½ hours of hard work to extricate it. But in some other habitats I made a dozen collections, of which I discarded all but three after examining them and finding that they contained no *Micrasterias*.

Yesterday I send you some of the material from these three collections, and on a separate sheet I am giving some data regarding the habitats and a partial list of some of the desmids that they contain. Note that these are offhand determinations, made at a low magnification (70x) and they may not be correct as to varieties. Sample No. 3 has 8 species of *Micrasterias*, a nice list, but unfortunately the number of individuals is quite small, and you will probably not be able to find all of them. However, all of them are strictly American species or varieties, and you have probably not seen them before.

I hope that the tubes reach you safely, and that the desmids are in good condition. All of them apparently were healthy, with the exception of *Pleurotaenium constrictum*, in which some cells showed the black patches caused by Kopetzky-Rechtberg's "Zersetzungskörperchen", indicating that they were becoming unhealthy; but K-R says that such cells can be restored to good condition by placing in a more favourable medium. There were a lot of living animals, protozoa, rotifers, worms, and crustacea, showing that conditions were fairly good.

Your fused glass tubes are probably necessary for our sterile cultures, but I don't like them because the glass is made so thin that it must be quite fragile. Natural waters contain bacteria, moulds and fungi, so I should think that for shipping natural material paraffined corks or screw-capped tubes would be just as good, and considerably stronger. What is your opinion? I am somewhat clumsy at glass-working, and I had a small struggle with these three tubes.

I shall get more *Micrasterias* for you, but first I should like to know in what condition the tubes, and the material in them, reaches you. Please tell me if the quantity of material in each tube is enough, or too little, or too much, and I should be glad of any other suggestions that you can make. Also please let me know which species of *Micrasterias* you find, and which of them you can place in culture successfully. There is no way in which I can get any Arctic species for you, for I have no correspondents in northern regions, but there are plenty of tropical and sub-tropical species in Florida. Whether I can bring them back alive from Florida is questionable because of our hot climate. It is a 3-day trip from central or southern Florida to New Orleans. On such trips we have to eat lunch at a roadside restaurant, and leave the car in the full blaze of the sun with all doors and windows closed and locked to prevent theft. When we re-enter the car the temperature inside it is literally unbearable; I have not measured the temperature but I am sure it must be at least 120° F. (50° C.), which you will agree is not good for either algae or the microfauna. And even our normal daily temperatures are over 90° F. (35° C.) continuously from May to October. Yesterday (in March!) the thermometer reached 80°.

It is a pity, but at present I see no possibility of getting living *Scottia*, or even any more dead ones. Grönblad has no doubt told you that my Brazilian correspondent has left the Amazon region, and is now living and working in Belo Horizonte, not far from Rio de Janeiro. Dr. Sioli wrote me that he does not expect to have another opportunity of visiting the Amazon River, though he will continue to collect desmids in his present locality, which he says is not very favorable since the waters are much harder than in the Amazon region. But I shall watch for an opportunity, and perhaps next year, of someone else wanting to visit the remote spot where the *Scottia* grow. I sent Grönblad a map of the region which shows that it will not be an easy place to reach.

Would you be kind enough to ask Prof. Harry Waris to send me copies of his papers? I should also like to know the name of the manufacturer of Sequestrene, which I think must be of American make. I have been unable to find it or any information concerning it in this city. A few days ago I read about the use of EDTA and its sodium and calcium salts as de-contaminants for radioactivity. Do you use the acid itself, or one of its salts?

I shall await with great interest the result of my first shipment of living algae over such a long distance; of course I know that it will require some time for you to see what you can do with them.

With my best regards,

Sincerely yours,

P.S. I have just had the pleasure of seeing the coloured photos that Miss Croasdale took last summer, and among them I was glad to see your picture. I hope to meet you in person in a few months, probably in August, if you are going to be in Turkey at that time.

3



Algal samples sent to Dr. Paavo Kallio, March 24 1954.

- No. 1. Roadside ditch, 7 miles north of Bonfouca, St. Tammany Parish, Louisiana, at sharp corner in road to village of St. Tammany. pH 6.8. Squeezings from Myriophyllum.

*Micrasterias* Sol var. *extensa* Presc. & Scott. rrr.  
" *truncata* var. *convexa* Presc. & Scott. rrr.  
*Cosmarium sublobatiforme* Presc. & Scott. rrr. (An extremely rare desmid).

- No. 2. Borrowpit #1 at Florenville overpass, St. Tammany Parish, Louisiana. pH 6.5. Strippings from a scanty growth of a grass-like aquatic plant.

*Micrasterias* *depauperata* var. *Kitchellii*. rr.  
" *muricata*. rrr.  
" *radiata* var. *gracillima* fa. *brevis* Presc. & Scott. rrr.  
*Euastrum ventricosum* var. c.  
" *Wollei* var. *cuspidatum*. c.  
*Triploceras gracile*. r.  
*Xanthidium armatum* var. *fissum* (or *cervicorne?*). r.

- No. 3. Borrowpit #2 at Florenville overpass. pH 6.6. Strippings from similar plant.

*Micrasterias* *depauperata* var. *Kitchellii*. c.  
" *muricata*. r.  
" *radiata* var. *gracillima* fa. *brevis*. rrr.  
" *foliacea*. rrr. Only 2 cells seen.  
" *fimbriata* fa. rrr.  
" *pinnatifida* fa. rrr.  
" *Torreyi*, rrr. A form similar to my Fig. 6, Pl. III, 1952.  
" *Johnsonii*, rrr. Only 2 specimens seen.  
*Euastrum Wollei* var. *pearlingtonense* Presc. & Scott. rrr.  
" *ventricosum* var. rrr.  
*Triploceras gracile*. c.  
" *verticillatum* rrr. Taylor's form with triradiate apical processes.  
*Pleurotaenium constrictum*, c.  
*Xanthidium armatum* var. *fissum* (or *cervicorne?*) rr.  
*Staurastrum Cerastes*. c.  
" *brasiliense* var. *Lundellii*. rrr.  
*Pleurotaenium spinulosum* (Wolle) Brunel. A single example was seen of this very rare plant, making the third time I have found it in 16 years.

The symbols indicating relative frequency of occurrence refer to these collections only. All desmids are much more rare than in an average "good" collection.

The two borrow-pits are large shallow excavations, perhaps 6 feet (2 metres) deep maximum, from which earth was removed to be used in building up a road embankment. All the topsoil was removed, and the pits go down into the subsoil, which apparently is not favourable for aquatic macrophytes, since very few have established themselves in the 10 or 12 years since the pits were dug. The water is slightly milky-looking and opaque, probably from suspended clay particles, so that the bottom can be seen at only a few places where the water is less than 2 feet deep. I know that there are plenty of desmids in these ponds, and I should probably have obtained better results with a plankton net, but my only net (which I have not used for many years) is torn and unusable.

TURUN YLIOPISTON  
KASVITIETEELLINEN LAITOS

INSTITUTIO BOTANICA  
UNIVERSITATIS TURKUENSIS  
February 27, 1954

Dr. Arthur M. Scott  
2824 Dante St.  
New Orleans 18, La.  
U. S. A.

Dear Dr. Scott:

I thank you very much for your kind letter and for the reprints, which I read with the greatest interest. Really, it is a pity that I have not known earlier of these papers.

The drawings you sent me, evidently represent an analogical case with that one shown in figures 103 and 104 in my paper of 1951. There are two isthmuses in both of them as shown in fig. 103; such cases may lead to plasmatic mutations.

I have had the chance to see your drawings and photographs as well as specimens of the new genus Scottia. That was quite something, my congratulations! I am sure the person, who is lucky to get this alga first in cultivation, will be able to bring many new evidences in the field of the study of the polarity and plasma structure.

I am quite positive the cells will well stand the transportation from South America. They can be sent either in the same water where they were grown (so has e. g. Dr. Hannah Croasdale sent me Micrasterias truncata in a closed (melted) test tube, and I have kept the tubes unopened about six weeks, and still the cells were in best possible condition). Or they can be infed in the nutrition solution, which should contain sequestrene. In such a solution the wrong pH does not have any too dangerous effect. But, the tubes must not be long in darkness, nor in too high temperature. (The maximum being about 22°C).

Here I am sending you four test tubes containing Micrasterias. In the tubes numbered 1 there are three radiate cells of M. thomasiana, and in these numbered 2 are some haploid and diploid cells of M. thom. var. notata. If the tubes are kept in a north window, where the temperature does not get over 22°C, they will still grow for some weeks. When you are going to study them, it is best to poore the whole content in a watch glass under the microscope.

I should be very grateful if you could send me some American Micrasterias species, because I assume there must be many physiologically different ecotypes of different M. species, which I should like to take in cultivation. Both Arctic and tropical forms would be of particular interest, but, of course, all the others too. Do you think there could be any possibilities to get the Scottia? I should be most happy and grateful to get also that species in my cultures.

Very truly yours

Paavo Kallio

Vienna, March 26, 1951.

Dear Sirs,

I thank you very much for your very interesting papers on desmidiaceae and I should like to send you some of my own studies on this matter, which I am enclosing with the regret that of several of my studies /most of which are cited in the referendum enclosed/ no separate prints are available at this moment and that the copies enclosed are not quite new.

You will find that in general my research work on desmidiaceae was made with a view on cytology.  
/from the point of view of cytology/

Yours faithfully

Digitized by Hunt Institute for Botanical Documentation

*Dr. Mediz. Rat  
Dr. Oscar Kopecký*

*Wien  
XIX. B. Fardig. 35/8  
Oesterreich*



Feb 7 1954

Dr. Paavo Kallio,  
Turun Yliopisto,  
Turku, Finland.

Dear Dr. Kallio,

Please accept my sincere thanks for the reprints of your three papers. These are extremely interesting to me for two reasons; first because *Micrasterias* is my favourite genus of desmids; and second because yours are the first papers that I have seen where complete details of the experimental procedures are given, and also full and explicit explanations of the way the abnormal cells develop and the reasons for the teratological forms.

Perhaps Dr. Grönblad has told you that I am an engineer, not a biologist. Consequently I have only rudimentary ideas of plant physiology and cytology, so that much of your discussion is 'over my head'; nevertheless I shall derive a lot of benefit from your papers after I have studied them more carefully. Your guesses is establishing a permanent clone of 3-radiate *Micrasterias*, and even a 4-radiate form, is astonishing; but I am even more surprised at the delicacy of the manipulations in which you selected individual cells at a given stage of division, orienting them in certain positions for centrifuging, and then returning them in good condition to the culture solution. This seems almost incredible to me, and it is no wonder that some of the cells were damaged in the process.

I am enclosing a sketch of a very remarkable abnormality in *M. pinnatifida*, that I found a few years ago in one of my collections. In the teratological semicell the lateral lobes on both sides were doubled, and also the lateral lobule on one side of the polar lobe. But the strangest thing was that this semicell possessed two isthmuses, from each of which a normal semicell had developed. I am only sorry that I can give no more information about this case, but you are welcome to use the drawing if you wish.

I have sent you reprints of some of the desmid papers that I have written in collaboration with Prof. G. W. Prescott. In one of them you will see quite a number of *Micrasterias* species, most of which are peculiar to North and South America. In addition I have some very rare *Micrasterias* from Borneo, Java, and Sumatra. If you would like to see any of them I should be delighted to send you some of the preserved material.

Perhaps you have heard from Grönblad that my Brazilian friend, who made the collection in which I found the strange asymmetrical desmid, has taken a new position and is now living in Belo Horizonte. Just two days ago I received a letter from Dr. Sioli in which he wrote that he never expected to visit the Amazon River again, and that therefore it would not be possible for him to get any living material. I shall write to another botanist at the Instituto Agronomico do Norte in Belem, and ask him to try to get another collection if he ever visits this out-of-the-way spot, but it seems to me that the difficulties of getting living specimens to you are insuperable.

With renewed thanks, and my best regards,  
Sincerely,

April 19 1951

Dr. Oskar Kopetzky,  
Hardtgasse 35/8,  
Wien XIX, Austria.

Dear Dr. Kopetzky,

Please accept my sincere thanks for the reprints of your papers on inclusion bodies in the Desmidiaceae, which doubtless were sent at the request of our mutual friend Dr. W. Krieger.

My own interest in these plants is solely that of a collector and delimitator, and I know very little about their cytology because I am engineer and not a biologist. But like everyone else who has studied them, I have been very curious about the various kinds of moving particles, the gypsum crystals in *Closterium* and *Pleurotenium*, and the "Gellertkörperchen" which develop when the plants are in an unhealthy condition. It is true that several authors discuss these problems briefly, but I have not hitherto seen anything like such a complete investigation and discussion as you have made.

On many occasions I have tried to "cultivate" desmids, or at least to keep them alive, but after a few months nearly all the species die out, leaving only a few of the hardiest species. It seems to me that when the Gellertkörperchen once appear in a desmid, it inevitably dies, but it is quite possible, as you say, that when the environmental conditions improve in a natural habitat, the plants may regain their health, just as I am now recovering from an attack of cholecystitis (inflammation of the gall-bladder).

A few weeks ago there was a short article in the American magazine "Science", describing a very similar phenomenon in the hair-cells of the leaves of a plant affected by tobacco mosaic virus. The description and photograph of the extremely small moving particles, and their rotation of polarized light, corresponded very well with that of the Gellertkörperchen. Of course, there may be many organic substances that would show a similar effect.

Sincerely yours,

Parish of St. Anne

Annaheim, Sask.  
Canada

October 15, 1952

Dear Mr. Scott,

Thanks for the copy of your latest publication. The illustrations are as beautiful as ever. I am only sorry that I still have nothing to send in return; but I am living in hopes.

As you see from the above I have changed my address. Once I am settled and fully acquainted with my new work I expect to find more leisure time than in the past four years and can continue the study of Great Slave Lake and Lake Athabaska, not to mention little Lake Amethyst in the Rockies, from which I have a few samples and about which Dr. Rawson, Dean of Biology, University of Saskatchewan, recently gave a paper. He ~~has~~ is very anxious to have the specimens determined so that he can include them in his paper for publication.

Are you acquainted with the Society of Amateur Microscopists? If so, please send me the address to which I must apply for membership, and also the annual fee.

Winter is not far away around here:- today we had our first snow. But, of course, everybody hopes that it will disappear again for another couple weeks. Some of our farmers are not yet finished with their harvest.

With best wishes,

Sincerely,

*Paul Kuehne*  
(Rev.) Paul Kuehne

Nov. 15 1952

Rev. Paul Kuehne,  
Parish of St. Anne,  
Annaheim, Sask.

Dear Mr. Kuehne,

It is nice to hear from you again, and to know that you have not lost your interest in algae. I hope that the part of Saskatchewan where you are now located is more favorable for desmids than Humbolt was, where the surface waters were hard and unsuitable. The names of the lakes you mention, Great Slave Lake, Lake Athabasca, and Lake Amethyst, sound intriguing, and are probably virgin habitats for an algologist.

I was a charter member of the American Society of Amateur Microscopists when it was founded in 1939 by Dr. Julian D. Corrington, but I am afraid that it must be defunct because I have heard nothing from the Society for several years. Unfortunately this seems to be the fate of many microscopical societies, which depend largely upon the enthusiasm and energy of one man, their founder. In the early stages this man can handle all the multifarious duties, but eventually it gets too much for him and unless equally enthusiastic assistance can be obtained the society deteriorates and frequently peters out. If you want further information I suggest that you write to Dr. Julian D. Corrington, 1306 Madrid St., Coral Gables 34, Fla., who was the President, or to Herman W. Fowler, 2729 Connecticut Ave., Pittsburgh 16, Pa., who was the Secretary.

No doubt you are acquainted with the English magazine "The Microscope" which combines amateur microscopy and entomology. There is also a very good German one, "Mikrokosmos", which I have not received since 1942 when it apparently suspended publication during the war, but I have recently heard that it is appearing again. It was published by the Francksche Verlagshandlung, Stuttgart, and I am trying to find out if this address is still correct.

Prof. Prescott and I have three more papers in course of publication, two of which ought to appear by the end of this year. The third I have just sent off to Australia where it will be published (I hope) next year. This is a good-sized paper with 22 plates of desmids and 6 of other algae, collected in 1948 by the Australian Expedition to Arnhem Land in the Northern Territory of Australia. It represents about two years work, and was my first acquaintance with really tropical desmids. There are a number of novelties, and several rediscoveries of species that had not been seen since their original description half a century ago.

With my best regards,

Sincerely yours,