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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.

OBERLIN COLLEGE
OBERLIN, OHIO

DEPARTMENT OF GEOLOGY AND GEOGRAPHY

November 15, 1961

Dr. Alfred Traverse
1428 Adkins
Houston 24, Texas

Dear Al,

The enclosed list ~~are~~ gives additions to the one you sent me. I would like to have reprints sent to all of them. If you need addresses, just return the list with a check mark after the name you need. Will you please send six copies to Dr. William E. Benson, Program Director, Earth Sciences Division, National Science Foundation, Washington 25, D. C.? This number of reprints is asked for from all grantees.

The work is progressing on SAP. Still quantities of Artemisia.

As ever,

Kathryn

Kathryn H. Clisby

KHC/ap

OBERLIN COLLEGE
OBERLIN, OHIO

DEPARTMENT OF GEOLOGY AND GEOGRAPHY

October 4, 1961

Dr. Alfred Traverse
Shell Development Company
3737 Bellaire Blvd.
Houston 5, Texas

Dear Al,

Thanks for the "mud" paper. You forgot to enclose the partial list, so I can not suggest names until I hear from you.

The Pacific Congress meetings in Hawaii were enlightening as were the field trips on four of the islands, however, it was nice to be missed at Purdue.

You did a good job on the paper. Some day let us write a story about Artemisia. That pollen is my most important indicator and creator of many interpretive problems.

As ever,

Kathryn

Kathryn H. Clisby

May 26, 1960

Mrs. Kathryn Clisby
Department of Geology and Geography
Oberlin College
Oberlin, Ohio

Dear Kathryn:

I got your recent letter and the interesting, energetic proposal for the National Science Foundation. The trip to the Soviet Union sounds especially good.

Regarding our little paper: I have secured permission to start clearance procedures. So--just a wee bit more patience and we will have the thing in print. It will be submitted to Micropaleontology.

We are going on vacation this weekend and will be back by mid-June. I expect the paper to be ready for submission by that time.

Very truly yours,

AT

Alfred Traverse

AT:mpd

Shell Development Company
Exploration and Production Research Division

F.C.: Cliby

SD 32 (1/54)—Printed in U.S.A.

REFERENCE

SHELL DEVELOPMENT COMPANY

DATE 13 May

TO ~~Dr. Higgs~~ Dr Traverse

FROM A. Traverse

SUBJECT Letter from K. Cliby and attached proposal

Don:

Mrs. C. has written that she plans to publish the drilling mud contaminant story — see encircled item — with or without me.

What should I do now? Since she really discovered this independently, we can't prevent her publishing the fact itself. The basic data, of course, are all from our mark, and I'd like to see us get credit.

Perhaps to go ahead with the proposed joint note would be best idea?

AT

NATIONAL SCIENCE FOUNDATION

Division of Earth Sciences

ITEM 1.

Oberlin College, Oberlin, Ohio

ITEM 2.

Request of KATHRYN H. CLISBY for a three-year continuance of NSF-G-6290 in the field of Climatic Research, being carried on in association with FRED FOREMAN, Oberlin College.

ITEM 3.

Project to be designated as:

PLEISTOCENE-PLIOCENE STRATIGRAPHY
San Augustin Plains, New Mexico (SAP)

ITEM 4.

The purpose of the investigation is to carry to completion a paleo-climatic record of the Pleistocene which would furnish a master profile for the semi-arid Southwest and, from a 2000' core now at hand, to extend this record through and beyond the Plio-Pleistocene transition. In the History of Investigation will be found an explanation of the site, material and information already obtained.

We propose to extend the detailed analysis of the upper 650' of our core through the remaining 1400'; to explore further the meaning of important indicator pollen, notably Artemisia, which is now being found in early Pleistocene material in other parts of the world as well as in our samples and in pluvial lakes on the Texas High Plains; to utilize new techniques, notably the ultrasonic generator, in exploring layers in which pollen has been absent or very scarce following strong chemical treatment; to analyze a new 50' core that will be used in obtaining additional C_{14} dates; and to obtain corrections for exotic pollen and spores found as contaminants in drilling mud.

It should be pointed out that the material we propose to study is of unique importance and has been secured with great expense and trouble. To interrupt our work at this stage would sacrifice an unusual and important source of information.

During the summer of 1961, I would like to attend the International Pollen Conference in Germany, INQUA meetings in Poland, and spend six weeks in Russia studying with the Pleistocene palynologists and visiting semi-arid areas showing pollen diagrams similar to our core.

History of Investigation. Analyses of cores from ancient Lake San Augustin have been done in detail only for the upper 650' but spot analyses on the deeper sections give evidence, although tentative, that the core reaches through the Pleistocene and extends into the Pliocene. Radiocarbon dates in the uppermost 31' suggest that the clay silt zones accumulated at the rate of about 1' per thousand years. It has not been possible as yet to estimate the rate of deposition in the sand and coarse clastic zones.

Pollen dominants from the bottom of the analyzed sections of the core to the top (omitting the very recent desiccation) indicate vegetational changes which reflect a long-range climatic trend from a relatively moist temperate climate, to a cool(?) semi-arid one, gradually changing to cold moist.

The vegetational pattern does not fit current theories of glacial climate, unless one attributes the gradual trend from warming to cooling to extensive regional uplift during much of the Pleistocene and/or Pliocene, or to reflections of the rather uniform continental glacial maxima by climatic changes of significantly different intensities in New Mexico. Insofar as we now understand the history of the Pleistocene, it is most unlikely that there was a single glacial maximum, as would be inferred from the over-all record of vegetative change culminating in the appearance and eventual maximum of spruce.

An intensive study of the San Augustin Plains area has been in progress since 1950. Included among the various scientific contributions are: areal geology by Stearns; relation of the current pollen rain to the distribution and composition of vegetational types producing pollen, and phytosociologic study of the present vegetation by Potter; sedimentation and mineralogy by Foreman; palynology by Clisby; and finally, help in correlating the amassed data by Sears. Excepting Stearns' contribution, the financial support of this work has been under the auspices of the National Science Foundation.

The object has been to obtain a paleo-climatic record of the Pleistocene which would serve as a master profile for climatic studies in the semi-arid lands in the soutwest portion of the United States. In order to obtain such a record the following basic factors were essential: 1. a site beyond the limits of continental glaciation; 2. an undrained intermontane depositional basin; 3. correlation with known archaeology.

The San Augustin Plains in the Datil-Mogollon plateau of western New Mexico meets these requirements. The floor of this basin lies at an elevation of 6775' and is surrounded by mountain ranges, and is elongated in a NE-SW direction, with an area of 255 sq. miles. Drainage into the plains includes the slopes of mountain ranges reaching an elevation of 9780' with an area of nearly 2000 sq. miles. The vegetational types in the general order of increasing altitude are SEMI-ARID DESERT SCRUB: Sarcobatus vermiculatus - Suaida suffrutescens - Atriplex canescens. GRASSLAND: Bouteloa gracilis - Sporobolus airoides. WOODLAND: Pinus edulis - Juniperus spp.. FOREST: Pinus ponderosa - Pseudotsuga taxifolia. Spruce is at higher altitudes outside the drainage area.

The present playa in which the cores were drilled occupies about 35 sq. miles at the west end of the plains. The drill site (elevation 6790') is near the playa center, some four miles from the bottom slopes of the nearest hills. The site was chosen in order to obtain a sampling of the finest grained material carried into the basin in an area where there was the greatest likelihood of lacustrine conditions during the drier episodes.

In 1955 drilling was carried to a depth of 645'. Sediments from this core have been analyzed in considerable detail for pollen and other organic fossils as well as CO_2 content; and textural and petrographic studies have been made. Deeper drilling, a few feet from the first site, was done in 1958-1959. An almost continuous core between the 600' and 2000' depths has been obtained, logged, photographed and sampled. Some textural and pollen studies have been done. These are, however, too infrequent to give more than tentative ideas about conditions of sedimentation and vegetation. The sediments, derived from surrounding Tertiary volcanics, consist of allogenic clays, silts, sands, coarser clastics, and authigenic calcite. Fossil pollen, algae and valves of ostracods represent the organic remains.

The floor of the basin has not been reached at 2000' so we must begin interpretation with sediments which lie an unknown distance above it. In the accompanying highly generalized graph, Foreman shows the great thickness of coarse clastics from the bottom of Zone VIII to the top of Zone VI. These zones are characterized by red-brown colors of oxidation and by frequent graded bedding. The lithology indicates very different rates of erosion and deposition from that in Zones V-I.

During the deposition of Zones VIII to VI, slopes and climatic conditions on the upland surfaces must have been such that down-cutting and oxidation were proceeding rapidly. One would infer that slopes were steep and that rainfall was plentiful but intermittent, possibly seasonal. Detrital materials could have been formed under moist-temperate conditions in which active tectonic movements were taking place. The few pollen analyses so far studied consist of pine and deciduous broadleaved trees. Such vegetational types support Foreman's interpretation of a moist-temperate climate in these zones.

The next 720' (Zones V-IV-III) with their black to gray to green beds of fine hydrolysates and authigenic calcite, indicate stable conditions in an alkaline lake. Reducing conditions were present at least in the bottom waters. On the uplands, chemical weathering was dominant and only fine-grained sediments were carried into the lake. These zones are divided on the basis of vegetational dominants.

Zone V is characterized by semi-arid chaparral (woody) or steppe (herbaceous) vegetation with infrequent alternations to woodland or desert scrub. The dominant pollen genera are Artemisia and grasses. It is not known at this time if the Artemisia is A. tridentata (sage brush) or herbaceous species.

In Zone IV, mixed woodland, consisting of pine, juniper, and oak, assumes increasing importance. Ostracods and oolites appear in the upper half of the zone.

Zone III includes the cold moist sub-alpine spruce forest, although the spruce maxima are low. Ostracods continue to increase in abundance toward the top of the Zone.

The abundant allogenic sand in Zone II shows that erosion was again more rapid. For the most part, only unweathered phenocrysts and weathered clays were carried into the lake. Weathering of the ground mass of the lavas, but not that of the phenocryst minerals, was keeping pace with erosion. Deposition was more rapid than that of the underlying silts and clays but not nearly as rapid as the deposition of Zones VIII through VI. Artemisia and calcite are markedly reduced and the spruce maxima rise. This zone is suggestive of canyon cutting during the time of maximum regional uplift.

Zone I was again a time of slow erosion and deposition where clastics coarser than silt are almost absent. Carbonates are low and spruce reaches its highest maximum. A fresh-water lake is indicated by the presence of the alga Pediastrum. The lake was deep, as evidenced by fresh strand lines 185' above the now dry playa surface; and it may even have overflowed the basin during this episode.

The plotting of a 4000' elevation at the bottom of Zone V is based on the pollen evidence from two pluvial Pleistocene lakes at approximately 4000' elevation on the Texas High Plains. Pollen from Arch Lake, reported on by Wendorf and Hafsten as Middle Wisconsin, shows that its surrounding area was covered with grass and Artemisia during continental glaciation. Pollen from other lakes in the Channing Basin in Texas, considered to be early Middle Pleistocene, showed the same vegetation. These areas are too dry and warm to support Artemisia now. Further evidence of the Artemisia-grass complex during the early Pleistocene and late Pliocene comes from Spain and Russia. Additional studies are under way by Martin and Gray in Arizona, and by Roosma in California, as well as by others in arid and semi-arid lands of Russia, Spain and Africa.

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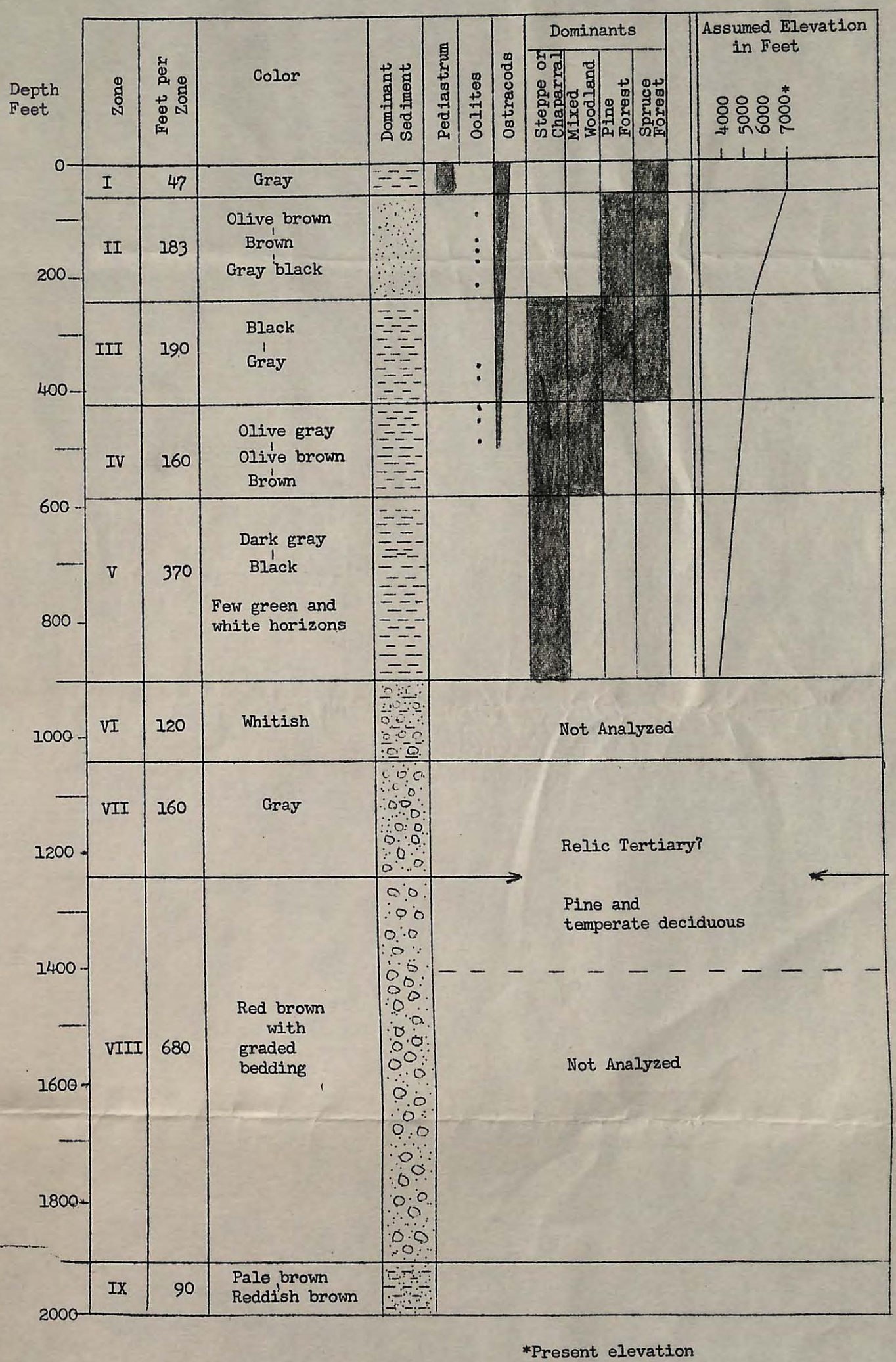
SAN AUGUSTIN PLAINS, NEW MEXICO



*Present elevation

OBERLIN COLLEGE
OBERLIN, OHIO

E & P RESEARCH
FEB 10 1960

File M. Dowe R A
P-S | | T | L Per
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Adm. Serv.
~~Basic Res.~~
Expl. Res.
Prod. Res.
~~DVH~~ H
Traverse

DEPARTMENT OF GEOLOGY AND GEOGRAPHY
FRED FOREMAN
REUEL B. FROST
LAWRENCE L. DEMOTT

Dr. Alfred Traverse
Shell Development Company
3737 Bellaire Blvd.
Houston 5, Texas

Dear Al,

I am returning the paper minus the micro-photographs. I tried to copy it without much success. The reason I am keeping it for approximately two weeks is to show the paper to the NSF people. I leave for New Haven tomorrow, then go to Baltimore and Washington.

Fred and I will be very pleased to have our names included as junior authors. The only comments are: on Page 4, Line 13; Page 5, Lines 1 and 13.

Please publish the pollen flora as quickly as possible, I could certainly use such a reference in studying this core. We have saved the outside washings from a good many horizons. Perhaps some of these would be useful to your paper. I would be glad to send you the washings themselves or slides as I make them up.

As ever,

Kathryn H. Clisby

KHC/ap

Dr. Clisby should not show paper to NSF people.
Have asked A.T. to call her about this.
DVH

P. O. Box 481

Houston 1, Texas

2 February, 1960

Mrs. Kathryn Clisby
Oberlin College
Oberlin, Ohio

Dear Kathryn:

Enclosed is the little blurb I propose to publish. You will note that I have expanded this in a different direction and in a different way from that originally discussed. I plan to submit this thing to Micropaleontology as soon as I hear from you about it. Eventually, I hope to be able to expand the work on the North Dakota material still further, perhaps publish the pollen flora, in which I have become quite interested. If you and Fred wish to do so, a more detailed description of the drilling methods you used, along the lines you had in mind, might be worked up. You will see from the enclosed paper that I have sidestepped that.

Now, in view of the present form of the paper, perhaps you and Fred would find co-authorship embarrassing. If so, I would go along with the idea of a suitably flowery acknowleggement as being appropriate. On the other hand, if you still wish co-authorship of the paper as I plan to submit it, that's all right with me too.

I would appreciate any comments you may have on this. I think I should submit the deal as soon as possible, so send it back as soon as you can. I am also returning herewith your Kodachromes and notes.

January 19, 1960

Dr. Kathryn Clisby
Department of Geology and Geography
Oberlin College
Oberlin, Ohio

Dear Kathryn:

The talk at Arizona was well received. I showed one of your core slides, but most of the talk centered around analysis of various mud additives, and the specific floras encountered. The manuscript I promised earlier should be forthcoming soon.

Re Artemisia: Paul Martin at Arizona has been making some interesting observations about it in his Arizona deposits. You may find it interesting to write him if you haven't already. His observations re pluvials vs. this genus sound like yours.

Though it seems interesting, I am afraid that species identification in Artemisia is beyond my resources at the moment and for the foreseeable future--too many other things in the works. No, I am afraid that I am not in the position to say anything for publication about Artemisia at this time.

Very best wishes.

Very truly yours,

Alfred Traverse

AT:pjd

Shell Development Company
Exploration and Production Research Division

OBERLIN COLLEGE
OBERLIN, OHIO

DEPARTMENT OF GEOLOGY AND GEOGRAPHY

FRED FOREMAN
REUEL B. FROST
LAWRENCE L. DEMOTT

January 13, 1960

Dr. Alfred Traverse
Shell Development Company
P. O. Box 481
Houston 1, Texas

Dear Al,

By all means tell everyone about Carbonox. Often information is disseminated more rapidly via the grape vine than through print.

Is the information about high Artemisia percentage in your early Pleistocene sediments confidential, or may I quote you? I am beginning to think that the Artemisia species(?) is going to be the important marker at medium to low elevations in the Southwest for glacial reflections throughout the pluvial or cool Pleistocene and perhaps well into the Pliocene. Are you having any luck in establishing a research project for species identification?

Regards,

Kathryn

Kathryn H. Clisby

KHC/ap

OBERLIN COLLEGE
OBERLIN, OHIO

DEPARTMENT OF GEOLOGY AND GEOGRAPHY

FRED FOREMAN
REUEL B. FROST
LAWRENCE L. DEMOTT

November 16, 1959

Dr. Alfred Traverse
Shell Development Company
3737 Bellaire Blvd.
Houston 5, Texas

Dear Al,

Thank you for your letter of November 11th with the addresses. By this time you have probably received my letter, transparencies and slide for Artemisia.

Herb Wright has written me about Artemisia that they are finding in the Chuska Mountains and asked for help in species identification. I told him that I am trying to enlist your help and suggested that he get in touch with you. This can be a time consuming project, but an extremely important one for all of us who find Artemisia in abundance.

Hope to hear from you soon,

Sincerely,

Kathryn

Kathryn H. Clisby

KHC/ap

November 11, 1959

Mrs. Kathryn Clisby
Department of Geology and Geography
Oberlin College
Oberlin, Ohio

Dear Kathryn:

The addresses I promised are:

Narda Ultrasonics Corp.
625 Main St.
Westbury, L. I., New York

General Ultrasonics Co.
67 Mulberry St.
Hartford 3, Conn.

Vibro-Ceramics Div.
Gulfton Industries Inc.
212 Durham Ave.
Metuchen, New Jersey

Pioneer Central Division
Bendix Aviation Corp.
Davenport, Iowa

Of these, Narda and Bendix seem to be the most palynologically popular--perhaps just "follow the leader."

Did I get that transparency from you in Pittsburgh after our talk? I have turned things inside out and can't find it. If I did get it, I'll look some more. But perhaps I absentmindedly forgot it?

Very truly yours,

AT

Alfred Traverse

AT:pjd

Shell Development Company
Exploration and Production Research Division

OBERLIN COLLEGE
OBERLIN, OHIO

DEPARTMENT OF GEOLOGY AND GEOGRAPHY
FRED FOREMAN
REUEL B. FROST
LAWRENCE L. DEMOTT

November 10, 1959

Dr. Alfred Traverse
Shell Development Company
3737 Bellaire Blvd.
Houston 5, Texas

Dear Al,

I thought it might simplify writing the paper if you knew briefly the drilling method, core recovery and laboratory sampling methods. We also tried to draw the jig which holds the core, the knife, paper towel and method of cutting off the contaminated drill mud. Slide #39 shows the drill mud contamination very well. Portions of two field samples #18 and #19 are included in Slide #39. The "disturbed" sign placed between 750'2" and 752'8" marks the juncture between two 10' field samples. The small circles and/or gouges mark places where laboratory samples were taken for pollen analyses. Slide #34 marked "sampling", 662'2", clearly shows the surrounding drill mud and also indicates our first method of sampling. This method had to be discontinued when the sliced cores showed drill mud penetration. The only way I can explain this cross-section contamination is by mechanical lifting and lowering of the core barrel during a core run.

Now for a brief history of the problem. The drilling mud contained a mixture of Bentonite, Quebracho and Carbonox. The latter, as you know, is rich in Paleocene pollen. Small samples were cut from core sections and air-mailed to Oberlin in envelopes. The first Paleocene pollen contamination was not noted until we reached some friable sand zones about 1000'. This contamination necessitated drilling a new hole using uncontaminated mud. This was an expensive process for us and the drilling company. Laboratories should at least be made aware of contamination possibilities from drilling mud.

I am sending you a slide high in Artemisia pollen in the hope that you can interest your Company in the need for Artemisia species identification.

With regards,

Kathryn

Kathryn H. Clisby

KHC/ap

June 29, 1959

Mrs. Kathyrn Clisby
Department of Geology and Geography
Oberlin College
Oberlin, Ohio

Dear Kathyrn:

Thanks for yours of the 18th. I have already done some of the legwork for this little paper, including a lengthy conference with the Baroid people. It proves to be a rather complex story. For instance, there are some thirty different products on the market of this general sort, only part of which are made from North Dakota lignite. A really thorough job on all of the products is out of the question at the moment, though I would like to have a crack at it and perhaps will after we've got this joint note in the works.

What I most need from you and Fred at this time is a few paragraphs or pages with the complete story of your experience with this particular core. Give me as thorough a yarn about it as you can. I can cut but can't add, so it will save time to go a little on the long side. A good gloss photograph or two of the core would be helpful, but would not be essential, in my opinion.

Best wishes.

Very truly yours,

Alfred Traverse

AT:mpd

OBERLIN COLLEGE
OBERLIN, OHIO

DEPARTMENT OF GEOLOGY AND GEOGRAPHY
FRED FOREMAN
REUEL B. FROST
LAWRENCE L. DEMOTT

June 18, 1959

Dr. Alfred Traverse
3737 Bellaire Boulevard
Houston 25, Texas

Dear Al:

This is to confirm our telephone conversation about a joint paper on the North Dakota lignite.

I would like to wait two or three weeks before sending you the complete story of contamination. We are cutting and photographing the cores and only have about 200' to go. At 1300' a synthetic binder was used for the bentonite.

I am glad the Baroid Company will cooperate because I think they should stop using the lignite.

With warm regards,

Kathryn Clisby

KC/jh

June 11, 1959

Dr. Kathryn H. Clisby
Department of Geology and Geography
Oberlin College
Oberlin, Ohio

Dear Kathryn:

Thank you for that very interesting letter of May 21, and the slide, which arrived in perfect condition under separate cover. Incidentally, I am much impressed with that idea of shipping slides in small mailing tubes. It seems a very good idea. I have lost slides when using nearly all types of conventional slide-mailers.

I can't tell from your letter whether you knew that I had once written a very few lines in one of my papers about the variety of North Dakota lignite that is used for drilling mud. I think you might find this interesting. The reference is: Bureau of Mines Information Circular 7691, Part 1, p. 71-73, 1954. In brief, the stuff is a naturally oxidized lignite, nearly 100% humic acid, hence, nearly 100% soluble in KOH. It has about the consistency of cake mix when it is mined, hence does not need to be ground up.

I knew that this stuff contains pollen and had been telling people about this situation for some years, but I admit I had not thought about publishing anything. Your letter has jogged me about this, and I think it's probably a good idea. What would you think of a joint note?

Very truly yours,

Alfred Traverse

AT:pjd

Shell Development Company
Exploration and Production Research Division

OBERLIN COLLEGE
OBERLIN, OHIO

DEPARTMENT OF GEOLOGY AND GEOGRAPHY
FRED FOREMAN
REUEL B. FROST
LAWRENCE L. DEMOTT

May 21, 1959

Dr. Alfred Traverse
Shell Development Company
3737 Bellaire Blvd.
Houston 5, Texas

Dear Al,

Under separate cover I am sending you a slide made from Carbonox derived from a selected horizon of lignite obtained from the vicinity of Bowman, North Dakota, the Tongue River formation, Fort Union Group, sent me by R. W. Wilson, Manager, Technical Sales and Operations, Baroid Division, National Lead Company, P. O. Box 1675, Houston 1, Texas.

We have continued drilling in the San Augustin Plains to a depth of 2000'. The drillers were remiss in sending me samples of the mud mixture, so a section of our sandy zone was badly contaminated. A new hole, using synthetics in the mud mixture had to be drilled at a cost of some $7,000.00 to the drilling company. It is my understanding that the ingredients of Tannex are commonly used by most drillers. The pollen contaminants would be of no concern in tight clays or consolidated sediments, but are devastating in friable sediments. We think a short note of explanation should be published in one or more journals for the benefit of anyone studying pollen and spores in unconsolidated sediments. Have you any suggestions?

Contamination with Tertiary pollen is particularly serious for us since the deeper samples reach through the Pleistocene and extend well into the Pliocene, where we are finding a relic Tertiary pollen flora dominated by Pinus, but including at least two types of Juglandeceae.

I have never seen pollen slides made from lignite. The Baroid Division evidently grind the lignite to a fine powder and the only treatment I used for this slide was KOH - acetolysis - safranin. Their processing of lignite might be of great help to those of you studying such sediments. You may want to talk to Mr. Wilson.

With regards,

Kathryn H. Clisby

cc. : Dr. William E. Benson
Mr. R. W. Wilson

KHC/ap

Mr. R. J. White, Baroid
spoke to me 10-11-59
about this

OBERLIN COLLEGE
OBERLIN, OHIO

DEPARTMENT OF GEOLOGY AND GEOGRAPHY
FRED FOREMAN
REUEL B. FROST
LAWRENCE L. DEMOTT

November 22, 1957

Dr. Alfred Traverse
Shell Development Company
3737 Bellaire Blvd.
Houston, 5, Texas

Dear Al,

Thank you for your reprint on SYSTEMATIC METHODS FOR MESOZOIC AND CENOSOIC PLANT MICROFOSSILS.

I wish I had time to write you about the meetings in Europe, but I have to get ready to go to the Texas Technological Institute next week.

Cordially,

Kathryn

Kathryn H. Clisby

KHC/ap

July 18, 1957

Dr. Kathryn Clisby
Department of Geology and Geography
Oberlin College
Oberlin, Ohio

Dear Kathryn:

My curiosity about what INQUA might be is aroused. Sounds impressive. The pollen conference I suppose must be the one Estella Leopold and Elso Barghoon are attending. I was sent no notices about this but couldn't have skipped the Palo Alto meeting anyway.

The "4th National Pollen Conference" looks good. We expect also to have a thorough discussion of the merits of my proposal to create a palynological committee for the Paleonbotanical Section, B.S.A.

Good luck on your trip.

Very truly yours,

AT

Alfred Traverse

AT:ml

Shell Development Company
Exploration and Research Division

OBERLIN COLLEGE
OBERLIN, OHIO

DEPARTMENT OF GEOLOGY AND GEOGRAPHY
FRED FOREMAN
REUEL B. FROST
LAWRENCE L. DEMOTT

July 11, 1957

Dr. Alfred Traverse
Shell Development Company
3737 Bellaire Blvd.
Houston 5, Texas

Dear Al,

I am leaving for the Pollen Conference in Switzerland and the INQUA meetings in Spain, but expect to return to Oberlin by the middle of October. Consequently, I will miss the AIBS meetings in California. I hope that you and Dr. Hansen have worked out a mutually satisfactory program for a pollen conference.

In the San Augustin Plains core we have a wonderful and exciting history of Botryococcus. I am hoping that Shell or some other company will be interested in assisting us financially for a more detailed study of this alga.

Sincerely,

Kathryn H. Clisby

KHC/ap

November 27, 1956

Mrs. Kathryn H. Clisby
Department of Geology and Geography
Oberlin College
Oberlin, Ohio

Dear Mrs. Clisby:

Thanks for your good letter of November 20. I shall indeed write to Dr. Hansen. I have some misgivings about having the next pollen conference in conjunction with the A.I.B.S. meetings, but that may be the best idea. As you may know, I am secretary of the Paleobotanical Section, B.S.A., and with the recent heart attack of the chairman, Professor Hoskins, I shall have to arrange the program for the Stanford meetings. Naturally, I wonder what this conference would do to our program, but I am sure that something could be worked out.

I agree heartily with your statement about desirability of the palynologists of the several time divisions being included in any conference. I envisage the conference becoming a rather big thing, with different sections, and so forth. I deduce that you feel somewhat the same way from the embryonic developments in that direction at the Oberlin meeting last May. I only hope that future conferences can measure up to that one!

Yours very truly,

Alfred Traverse

AT:rlg

Shell Development Company
Exploration and Production Research Division

OBERLIN COLLEGE
OBERLIN, OHIO

DEPARTMENT OF GEOLOGY AND GEOGRAPHY
FRED FOREMAN
REUEL B. FROST
LAWRENCE L. DEMOTT

November 20, 1956

Dr. Alfred Traverse
Shell Development Company
3737 Bellaire Blvd.
Houston 5, Texas

Dear Dr. Traverse:

Paul Sears has never written a summary for me about the pollen conference, but I think that Dean Henry P. Hansen, Oregon State College, Corvallis, Oregon, ~~Dr.~~ Mr. Terah L. Smiley, University of Arizona, Tucson, Arizona, and Dean Pierre Dansereau, Institut Botanique, 4101 est, rue Sherbrooke, Montreal 36, Canada, were appointed to settle the time for the next pollen conference. Dansereau tells me he has never been informed that he is on the committee and I do not think very highly of Smiley's scientific integrity, consequently, I would like to suggest that you write directly to Dean Hansen. He felt that a pollen conference could be profitably held either preceding or succeding the 1957 AIBS meetings in California with the main emphasis on a field trip. It would seem to me that Dr. Rein would enjoy such a pollen conference. Dr. Rein has written to me and I have invited him to spend sometime in Oberlin. Furthermore, I think that you and Dean Hansen would be a good committee to arrange the next pollen conference. Perhaps Pierre Dansereau could then invite us to Montreal in 1958 or 1959.

I still feel that pre-Quaternary, Quaternary, and Recent palynologists as well as Pleistocene geologists should be included in any of the North American pollen conferences. By scientific interchange of the various disciplines and including the ecologists we may within the next fifteen years work out these problems of interpretation which cause so much controversy at the moment.

Sincerely,

Kathryn Clisby

Kathryn H. Clisby

cc. Dean Henry P. Hansen
Dean Pierre Dansereau

November 13, 1956

Mrs. Kathryn Clisby
Department of Geology and Geography
Oberlin College
Oberlin, Ohio

Dear Mrs. Clisby:

When I was visiting in Germany last year I met Dr. Ulrich Rein, who has charge of the pollen analytical laboratory at the Amt für Bodenforschung, Krefeld. He studies the Tertiary brown coals of the Rhine region and other regions. At the time of my visit and several times since this, Rein has expressed his intention of coming to this country for a visit. He now writes that his plans have crystallized to the extent of making fall, 1957, the time. (Nothing more specific as yet.)

The purpose of this letter is to suggest, for what it may be worth, that it might be worth considering making Rein's visit the occasion for the next National Pollen Conference. I don't even know if the suggestion is in order and hope you will forgive me if it isn't. Rein's interests being in the pre-Quaternary, perhaps it would be more appropriate for on the pre-Quaternary people to arrange the thing. I don't understand at this moment whether the National Pollen Conference has a "committee for arranging the next meeting" or not. If it doesn't, it should. Will you let me have your reactions?

Yours very truly,

Alfred Traverse

AT:rlg

Shell Development Company
Exploration and Production Research Division

OBERLIN COLLEGE
OBERLIN, OHIO

DEPARTMENT OF GEOLOGY AND GEOGRAPHY
FRED FOREMAN
REUEL B. FROST
LAWRENCE L. DEMOTT

June 4, 1956

Dr. Alfred Traverse
Shell Development Company
3737 Bellaire Blvd.
Houston 5, Texas

Dear Dr. Traverse:

This is the paper on the refractive index of pollen grains: ON THE INDICES OF REFRACTION OF POLLEN GRAINS, by Masa Ikuse of the Department of Botany, Toho University, Tsudanuma, Japan, published in THE JOURNAL OF JAPANESE BOTANY, Vol. 28, No. 6, (June 1953).

I am very happy that you think that the pollen conference was worth coming such a distance for. Dr. Iversen has the greatest respect for your laboratory set up at Shell. I very much regreted that I had no time for a personal conversation with you. We find two lacustrine algae botryococcus and pedeastrum in our New Mexican sediments. Pedeastrum occurs only in the high spruce horizons, while botryococcus occurs in abundance with pine and low spruce. Fred Foreman and I are planning to check the density patterns of the algae with the carbon dioxide content of the sediment.

I hope the new son is doing well.

Cordially,

Kathryn Clisby

Kathryn H. Clisby

KHC/ap

May 24, 1956

Mrs. K. H. Clisby
Department of Geology and Geography
Oberlin College
Oberlin, Ohio

Dear Mrs. Clisby:

This is to convey a word of appreciation for a very well run meeting and a real contribution to the advancement of the profession of palynology. Let us hope that a precedent has been established.

Just before I left I mentioned to Cal Heusser the desirability of sending in a brief blurb on the meeting to Science, for inclusion in the section on societies and meetings. Good public relations are (is?) important. I deduce that the piece would have to be very short to be accepted.

Sincerely yours,

Alfred Traverse

AFT:rlw

Shell Development Company
Exploration and Production Research Division

May 4, 1956

Mrs. Kathryn H. Clisby
Department of Geology and Geography
Oberlin College
Oberlin, Ohio

Dear Mrs. Clisby:

I plan to arrive in Oberlin sometime in the evening, perhaps rather late at night, on the 17th, so I probably will not make contact with Mrs. Podwalny until the next morning.

Would Mrs. Podwalny please check to be sure that my reservation at the Oberlin Inn is in order for the 17th? The anticipated event has occurred, and I should be able to be on hand, barring unexpected complications.

Sincerely yours,

Alfred Traverse

AT:nro

Shell Development Company
Exploration and Production Research Division

March 28, 1956

Mrs. Kathryn H. Clisby
Department of Geology and Geography
Oberlin College
Oberlin, Ohio

Dear Mrs. Clisby:

The arrangements you have made for me for the Pollen Conference are quite satisfactory, and I am looking forward with great interest to the Conference. There is one slight possibility that I might not be able to attend, which is the reason why I have not made a formal commitment for some sort of presentation. The possibility to which I refer is that the Traverses are expecting an addition to the family at about the time of the Pollen Conference. I hope that the event will occur long enough before the Conference that I am not prevented from attending.

Yours very truly,

Alfred Traverse

AT:bsc

Shell Development Company
Exploration and Production Research Division

OBERLIN COLLEGE
OBERLIN, OHIO

DEPARTMENT OF GEOLOGY AND GEOGRAPHY

FRED FOREMAN
REUEL B. FROST
LAWRENCE L. DEMOTT

April 3, 1956

Dr. Alfred Traverse
Shell Development Company
3737 Bellaire Blvd.
Houston 5, Texas

Dear Dr. Traverse:

The pollen conference is running competition with the stork in more than one case. I certainly hope the stork cooperates, because I am counting a lot on your attendance.

Dr. Iversen and I had a splendid field trip in New Mexico and Arizona. He spoke with pride and enthusiasm about your laboratory set up. I am hoping that you and the Shell Company will set an example to the other oil companies.

Cordially yours,

Kathryn Clisby

Kathryn H. Clisby

KHC/ap

OBERLIN COLLEGE
OBERLIN, OHIO

DEPARTMENT OF GEOLOGY AND GEOGRAPHY

FRED FOREMAN
REUEL B. FROST
LAWRENCE L. DEMOTT

February 6, 1956

Dr. Alfred Traverse
Shell Development Company
3737 Bellaire Blvd.
Houston 5, Texas

Dear Dr. Traverse:

Thank you for the reprint on Botryococcus. I am mailing the card to the Bureau of Mines. Glad to have your new address. I gave your name to Cal Heusser in order to invite you to the pollen conference in Oberlin. It will probably be the week end of May 18th. If you have not received a notice, write to Cal Heusser, American Geographical Society, Broadway at 156th Street, New York 32, N. Y. , if you are interested in attending. People are coming from Carter, Magnolia, and Humble Oil.

Sincerely yours,

Kathryn Clisby

Kathryn H. Clisby

KHC/ap