

IOP NEWSLETTER 21

INTERNATIONAL ORGANIZATION OF PALAEOBOTANY

INTERNATIONAL UNION OF BIOLOGICAL SCIENCES

-SECTION FOR PALAEOBOTANY

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N. E. London Polytechnic,

Romford Road,

London, E15 4LZ, England.

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PLEASE MAIL NEWS AND CORRESPONDENCE TO YOUR REGIONAL REPRESENTATIVE OR TO THE SECRETARY FOR THE NEXT NEWSLETTER 22, BEFORE THE END OF OCTOBER 1983. The views expressed in the newsletter are those of its correspondents and do not necessarily reflect the policy of IOP.

IOP NEWS

NEWSLETTER FORMAT

Russell M. Jeffords, consultant in Stratigraphy, Palaeontology, Ground Water and Editing, 8002 Beverly Hill, Houston, Texas 77063, USA, has written to comment on the format of the IOP newsletter: "Inasmuch as the IOP Newsletter now seems to constitute a continuing output that has at least moderately wide distribution, seemingly consideration could well be given to format (and content?) changes to enhance useability and appearance and to "entice" additional submittals (participation by membership). The newsletter of the American Airedale Terrier Club changed to reduced letter size by offset a few years ago and found that postage costs fully paid for the change...."

Will those who favour some change in the present style of the newsletter please write to the secretary. Useful proposals will be considered by the Executive Committee.

NEWS OF OTHER ORGANIZATIONS

PALYNOLOGICAL & PALAEOBOTANICAL ASSOCIATION OF AUSTRALASIA

Newsletter number 6 was distributed in January 1983 and gives details of the meeting held at Dunedin in February 1983. There are also details of an Australasian regional reference centre established for Deep Sea Drilling Project sediments and microfossils at the New Zealand Geological Survey, Lower Hutt.

ASOCIACION LATINOAMERICANA DE PALEOBOTANICA Y PALINOLOGIA

Bulletin 8 was published in 1982 and includes the following papers:

O. Rosler, Plant megafossil collections at the Geoscience Institute, Sao Paulo.
E. Romero & M. Arguijo, Nomenclatural notes of some Cenophytic Fossil Plants of Austrosouthamerica.

A. Rimski-Korsakov, The use of computer for the Argentine Palaeobotanical and Palynological Bibliography.

M.E. Bernardes de Oliveira & R. Yoshida, Conifers of the Irapua taphoflora, Rio Bonito Formation, Santa Catarina.

J.C. Gamero, R. Weber & S. Archangelsky, Palaeobotanical and Palynological Bibliography in Latin America, 1979-1980.

Write to the editor for details: Dr W. Volkheimer, Museo Argentino de Ciencias Naturales "B. Rivadavia", Av. Angel Gallardo 470, 1405 Buenos Aires, Argentina.

ARGENTINIAN CONGRESS ON PALAEONTOLOGY & BIOSTRATIGRAPHY

The third such congress was held in Corrientes from September 6th - 10th 1982.

A volume with selected papers is in press and is available from Dr R. Herbst, Lavalle 2675, 3400 Corrientes, Argentina. An abstracts volume is also available.

BIBLIOGRAPHIES

BIBLIOGRAPHY OF PALAEOBOTANY & PALYNOLOGY IN ARGENTINA, 1970-1980.

This is compiled by A. Rimski-Korsakov (CIRGE0, Velasco 847, 1414 Buenos Aires, Argentina) The two parts are organised by author and by significant key words. There are 250 references covering all the literature published in Argentina, processed by the computer system at Buenos Aires University.

BIBLIOGRAPHY & INDEX TO PALAEOBOTANY & PALYNOLOGY 1971-1975

There has been unavoidable delay in the long expected publication of this volume. The work is now in press and should be published soon. For details, write to Dr B. Lundblad, Swedish Museum of Natural History, Section of Palaeobotany, S-104 05 Stockholm, Sweden.

D.D. PANT'S RETIREMENT

Professor Divya Darshan Pant retired from the University of Allahabad, India, as professor and head of the Department of Botany after 36 years of service on October 17th 1981. He occupied the chair of Botany from 1966 to 1981, and under his leadership the Department of Botany became internationally known as a centre for the study of palaeobotany and plant morphology. On the occasion of his 63rd birthday, on October 18th 1982, a 4 day national symposium on "Developmental and Comparative Aspects of Plant Structure and Function" was organised to commemorate his retirement, and he was presented with a Festschrift: "Studies on living and fossil plants". This is a special issue of Phyta, the journal of the society of plant taxonomists of which Professor Pant is a founder member. It was presented by the late Professor T.M. Harris, together with the originals of letters of appreciation received from his admirers all over the world.

This set of appreciative letters has been printed and bound as a 56 page book, with an introduction by Dr D.D. Nautiyal. Some of the letters are reproduced in their original hand-written form, and tell as much of the authors as they do of Professor Pant.

APPRECIATIONS TO THE LATE T.M. HARRIS

Professor Harris died on May 1st 1983, at the age of 80. A formal obituary appeared in The Times of Tuesday May 3rd. Rather than solicit another obituary for the IOP newsletter, those contributing to J. Linn. Soc. Bot., 61 in 1968 (a set of papers presented to Harris on his retirement) were asked to write brief appreciations of the man and his work for this edition of the newsletter. As the news of Harris's death spread other contributions to this section have been received too, and many are printed here. Most of the appreciations that follow have been edited in such a way as to avoid repetition. A thanksgiving gathering was held in the Great Hall of the University of Reading on June 24th.

From K. ALVIN, London

Harris (for he urged me many years ago: "Just call me Harris" - so Harris I called him ever after) will be remembered as a human being by me, and surely by many who knew him personally, for his amiable eccentricities and phenomenal energy. Like many others, I first experienced the energy painfully on the North Yorkshire moors. From the time I first met him - in 1949 at a meeting of the British Association in Newcastle when, while sitting back in a chair looking up at the ceiling with his adam's apple wobbling up and down between the wings of his stiff collar accompanying the otherwise distinctly soiled dinner jacket, he persuaded me that palaeobotany had greater attractions for an aspiring research student than life-cycles of red algae - from that time my fascination and respect for him grew.

His professorial disregard for the really trivial was classical, though casual happenings and observations continually stimulated in a characteristic way pithy and amusing comments always much to the delight of his audience. His disregard for the trivia of life is well illustrated by the occasion when, accompanying me on one of my then annual field trips to Yorkshire (halcyon days!), he slipped away to the shops after breakfast on the first morning because he had forgotten to pack his trousers. Perhaps it was his disregard for things of so little importance, or perhaps the pithy thoughts stimulated by his surroundings that gave him his uniquely frightening qualities as a car driver. I had the unforgettable experience of being driven by him from the university to Reading station soon after he had passed the driving test (rather late in life). He had acquired a battered second hand Morris Minor - which had been responsible for the battering I could only guess -; more hootings and gesticulations from the sorely tried other road users I have never witnessed in so short a ride.

I would like to write him one last note:

Dear Harris, Thank you for all your help, your encouragement and your scientific example, but thank you too, and perhaps especially, for your humanity, your witty comments and even for the physical exercise and nervous stimulation.

From H.N. ANDREWS, New Hampshire, USA

When I was gathering together information about my colleagues, past and present, for my book The Fossil Hunters it was a particular pleasure to compose a few pages about Tom Harris. No man is perfect and few are unique in a significant and interesting way; I do not pass judgement on Tom's perfection but without question he was unique. It was always fascinating and usually very informative to listen to his discourses and opinions.

One of the highlights of my life was a weekend I spent with Tom and his wife at their delightful home just outside Reading. I have described something about this in my book. Among his many good traits he was a prompt and helpful correspondent and I have chosen here a few random quotes from letters that I have received from him over the years.

From an undated letter with illegible post mark, but about January 1978, in response to my request for some personal data, Tom sent me some information about his transfer from Nottingham to Cambridge: "I may say, that for all its merits, the Cambridge Botany School around 1922-1925 was not a place likely to inspire a boy to become a palaeobotanist (John Walton was the most inspiring). I saw very little of Seward till after my final honours degree when I told him I wanted to work on fossils, and he gave me a large Rhaetic collection from East Greenland (sent by Copenhagen to Seward by mistake, they should have been West Greenland). Seward was intensely loyal but a background figure because he was Vice-Chancellor in addition to having other whole time jobs. Hamshaw Thomas I liked, but he was surprisingly aloof and though I got valuable ideas from him, he was faintly discouraging, but Holden's vigour saw me through. (Harris gives much credit to Henry Holden who guided him into botanical channels, and away from medicine for which he was headed when he was a student at Nottingham.- H.N.A.) So I was in the happy state of doing what I liked and sure that Seward would approve of any positive progress, even when I found I disagreed with him."

From a letter dated 10th February 1950: "I have just come back from India where I spent two months trying to help at Sahni's Palaeobotanical Institute. Mrs Sahni is Director and she has three men - I liked Sitholey, Surange and Hsü as well as several juniors. I believe that with good sense from all concerned they will survive and slowly develop"

My last letter from him, just a few weeks ago, reported a short visit to Lucknow again, and it was evident that he was not physically fit for such a tedious journey.

In a letter of 4th October, 1965: "I have just made a little tour on North East Scotland to see two classic Jurassic localities, Brora and Holmsdale. Both are wretched, as localities, and I see no prospect of Botanical progress arising from further work at either...." I do not think it was like Harris to 'write off' a locality unless it was really gone - for he once wrote: "...I am convinced that it is the collector rather than the locality which is exhausted" ...

He had his own difficulties with the species problem which he resolved in his own way: 13th December 1961: "Volume 1 of my Yorkshire flora has been out some months but I see it is dated 1961. You will see evidence about Stachypteris and some other things. I wish I felt completely clear about the long series of Coniopteris species; I have worked hard and done my best but in the end I had the feeling that if I started again from scratch I might have reached slightly different results." And again, from 23rd December 1970: "My Ginkgoales volume is at last almost finished.....it has no morphological surprises and perhaps no taxonomic ones. But I was surprised for I supposed that when I had much material of properly localized Ginkgoalean leaves, they would fall satisfactorily into good species. On the contrary, each local population of leaves differs just slightly it seems ... and either I must describe each population as a new species or lump them considerably and I have lumped...."

August 1977, in a letter relating to Mrs Harris' illness and his 'take over' in the kitchen: "I find cooking interesting and I try new recipes and then when in my opinion successful, never repeat, except possibly for a guest."

He also relates a trip to the United States: "I spent three happy weeks with my youngest daughter Elizabeth at her new home in Maryland. She has 5 acres of secondary forest and I made trails and cleared out honeysuckle and poison ivy (which I respect now). A farmer told me he had desensitized himself by eating the leaves in bread and butter sandwiches but I was too timid to try..."

These are just a few odd 'bits and pieces' from my acquaintance with a man who I have learned to respect and admire and who has lead us for several decades. As palaeobotanists we may be proud of such a colleague.

From S. ARCHANGELSKY, Buenos Aires.

My first meeting with Professor Harris was in Edinburgh in 1959 when he lectured on fossil plant cuticles. I had with me, to show Harris, good specimens of what was later to become the Ticó Flora. At the very first glance, Tom showed his enthusiasm about the material. So, we decided that I should spend several months of my scholarship with him, at Reading; and that I did. As a geologist, I had to train in Botany, having fortunately some background in it. Fossil cuticles and how and what to obtain from them were no secrets for Tom. The specimens were good, giving him the possibility to develop his exceptional didactic talent. And so I learned and learned. I had to do drawings and reconstruct complicated stomata. Tom liked drawings much more than photographs, because they represented a "personal touch", and it was possible to underline some particular character. Several years later, when the first SEM photos appeared, he told me: "Those are nice pictures, but I prefer the drawings."

Personality was one of his many outstanding facets, and not only in science. He was quick in appreciations and ready to explain and defend them. A clear logic followed by action were seen in laboratory and field. Who can forget the Yorkshire weeks collecting at the sea-shore and cliffs, having refreshing tea at the Robin Hood place, where all events were discussed? Once I found a rare specimen; Tom recognised this but he did not ask for it as I was doing my personal collecting: there is another facet of his personality.

Next time it was 1967 when I saw Professor Harris again, spending two weeks at Reading still in the old huts. Though some of my Ticó papers had been published at that time many more problems arose: one was the conifers. Long talks, literature, discussions, interpretations and so on, showed that his student was becoming a botanist. I was often worried about the Family or Order to which the fossil plant could belong. Tom had more realistic views: he used to say that the best known fossil plant was the Lepidodendron complex, and yet there were many aspects to be developed. He liked to integrate the plants, playing with organs rather than with names. A name was a circumstance that could be changed at any moment - and indeed he changed them several times according to new evidence or by making a new balance of characters. He would not argue about that for long. My last contact was in May 1983 when he came to London to hear me talk about our fossils. And again, we had a short chat on some Cycadean and Ginkgoalean Patagonian cuticles. A few days later I visited him at Reading and had, at his home, our last cup of tea with bread of his own production. His vitality was still contagious and I left with happy feelings. Back in Argentina I always try to transmit Harris's methods, thoughts and even particular views about fossil groups to my students. I still remember how he disliked the name Cycadophyta. Harris's work is both easy and difficult. Easy, because he concentrated the work with cuticles from few places, but difficult for judging the wealth of information: every paragraph has its precise history and meaning. Honestly, I believe that Harris is a key figure in Palaeobotany of modern times: he changed many concepts, expressed several ideas, and he was usually right. Then, he transmitted those dynamic thoughts to so many students, that his teaching was heard in all the continents.

For the new generation of palaeobotanists, Harris will be remembered for his Scoresby Sound and Yorkshire papers. We, his students, will remember him for the way in which he did the work, for his nature, his love of plants, his constant optimism, self criticism and his pure essence of Science.

My last thought is merely of gratitude: gratitude for his friendship, teaching and patience.

From P.D.W. BARNARD, Reading, UK

T.M. Harris's publications on the fragmented remains of the floras of Greenland and Yorkshire are his memorial. His motivation was to record the facts of the material he examined. The Yorkshire Jurassic Flora is largely a taxonomic, diagnostic and descriptive work of organ species, with little if any discussion concerning the form of the whole plant or its place in the Jurassic landscape. To me, this is the great and only failing. Tom Harris had a tremendous feel for living plants, and as his paper on The Fossil Cycads in Palaeontology 1961 showed, his reconstruction of the Nilssonia twigs was very close to reality. His lectures displayed his ability to develop well argued phylogenies but he regarded this as speculation and therefore unworthy of publication for posterity.

Some idea of the man may be gained from an account of his day in 1965. Although his research was carried out most economically he was very generous with his knowledge. He was a man of tremendous physical stamina, rising early, and when daylight permitted, gardening for two hours before breakfast and arriving in the department around 8.30. He read the day's post and replied to all letters. If departmental duties permitted he left his roll-top desk and got to work on his current research. His material was kept in drawers. Before storage he would have sorted the collection and retained only the best specimens. The rejects were discarded in the dustbin and I found this a useful source for my class teaching. The specimens retained for study were examined at his window research bench in his office. On this short bench stood his research tools, a compound microscope, a binocular dissecting microscope, a bunsen burner with tripod and a small pan containing a bottle of glycerine jelly, a retort stand and a *Chambre Claire* Universelle camera lucida. There would also be writing paper and Bristol board for drawing, pens and pencils, dissecting needles and so forth.

His routine was to draw the specimen in pencil on board using the *Chambre Claire* at a magnification of times two. Then examining the specimen with the binocular at low magnification he would ink in the drawing checking detail as he did so

and making notes. Small fragments of the compression were removed for maceration. Maceration and transfer were largely carried out in the grounds on a bench under a walnut tree. He had constructed this bench out of old railway sleepers and on it stood an assortment of upturned earthenware flower-pots. Under these pots were glass tubes with a chlorate concentrated nitric acid mixture, and the bottom halves of plastic detergent bottles containing hydrofluoric acid used to dissolve the rock from the back of the transfers. The hydrofluoric acid bottles were kept propped up by loose bricks under the bench. He never used goggles or rubber gloves or any protective clothing and apparently never suffered ill effects. After mounting, the cuticle slides would be examined and again only a proportion were retained. Some portions of cuticle were drawn using the oil immersion of the compound microscope which was fitted with a camera lucida. The final stage with every species involved assembling his drawings and notes on his desk and the writing in longhand of his diagnosis and description.

Apart from the usual duties which fall on a university teacher and head of department his research was only interrupted for morning coffee and lunch in the Senior Common Room and departmental tea in the hut which housed some of the staff, research students and final year honours students. This was a social occasion which involved Harris in some debate with all of his staff. These occasions revealed his immense store of botanical knowledge and often brought forth some reminiscence. One of these shows similarities with the yellow rain of Vietnam. It concerns an Air Raid Warden and a Nazi secret weapon in the second world war. Cycling into the department early one autumn morning Tom Harris found his way barred by the local Air Raid Warden. Tom enquired the reason only to be told that the previous night enemy planes had dropped their latest weapon all over the road ahead. It consisted of little piles of yellow substance which must be dangerous in some way. Tom persuaded the warden to let him have a look, where upon he found the wind had blown the pollen bearing male cones off a nearby cedar tree and scattered them on to the road where they had burst. Tom was able to reassure the warden all was well and the road was reopened to traffic. After tea, he went off home to more gardening, log cutting, brewing, cooking or some other occupation by way of relaxation before dinner and an early bed.

From time to time, passing palaeobotanists visited Reading and we would be invited out to dine at his home. On these occasions, especially since Kay's incapacity, Tom did the cooking. These evenings were always a great pleasure for besides the company there was usually some botanical culinary surprise. This may have been in the form of food or drink; yam, an accidentally pink chestnut bread, or cherry laurel jam or home brewed elder berry wine, elder flower champagne, apple juice or wine and a Cornus mas gin (like sloe gin). One never knew what to expect. His garden was his great delight and was opened annually to the public. He gave plants away freely to all keen gardeners. To his many visitors the Chusan palms (Trachycarpus fortunei), after which his home was named, must be the most memorable feature of his terraced hillside garden and will be another of the memories of those who knew him.

From W. & E. BAXENDALE, Denver, USA

We first became acquainted at a meeting of AIBS in Tempe, Arizona, in 1974. It quickly became evident that his reputation as a sharp, energetic, and somewhat eccentric palaeobotanist was well earned. A two-day field trip proved him the most fit of us all; he was always found striding at the head of the pack. Asked by a novice if a particularly lovely dendrite was anything of value, he replied: "No, but it's a damn sight better than anything I've found."

Shortly thereafter, inspired by Tom, I accepted a year of post-doctoral study at the University of Reading. Tom's indomitable dry wit made his driving supervision of my writing and research enjoyable, and indeed, my writing style will never be the same. A returned manuscript was always accompanied by copious pages of scrawl. I can hear him yet: "Rather small? Drat it, either it is or it isn't."

As demanding a taskmaster as Tom could be, he was ever the gracious host. During our tenure at Reading, he and Kate made sure that we saw parts of Berkshire that were inaccessible without a car: Sunday afternoons were spent on hair-raising auto expeditions exploring small parish churches, usually with a pint, cheese roll

and Spanish onion beforehand and tea after. One unforgettable afternoon Tom walked our legs off and while he waited for us picked elder flowers for his wonderful wine in the pouring rain, just to pass the time. He was never bothered by inconveniences such as the weather, though he remarked on one occasion that Scalby Ness had a direct view of the North Pole early in the year. Always the one to go charging ahead the way he saw fit, he was truly his own man. So dear was he to us that we named our son after him. Now almost 9 months old, our Tom shows the same fierce independence and plucky spirit.

From M.N. BOSE, Lucknow, India

I first met Thomas Maxwell Harris in December 1949 when he came to our newly founded Institute as an advisor. The very first day showed that he was not an ordinary man. It was then that I made up my mind to work under him. So in September 1953 I went to Reading. There, I found that most people, young and old, were addressing him as "Tom". I wondered why such an eminent scientist was being addressed like that because in India we never address our teachers by their first name. Soon I realised that they were right, because as I made out TOM was only an abbreviation for a "Totally Outstanding Man". Even after my study in Reading, almost for the last 30 years, I have had correspondence courses from him. Hardly ever a month passed when I did not hear from him.

This correspondence course terminated in a refresher course when he came to our Institute as Birbal Sahni Professor and I had the good fortune of working with him on "The Pentoxylon Plant" from October 1982 to January 1983. This actually was his last serious palaeobotanical work. It will be presumptuous on my part if I comment on his scientific contributions. He was the last of the greatest palaeobotanists, a man of great conviction and courage.

His scientific talent was combined with a unique sense of humour. While working on the Pentoxylon plant he expressed his desire to visit the Rajmahal Hills. I should have said "no" but could not. On our return journey on 15th December 1982, at Varanasi he had a severe attack of bronchitis. On the morning of the 16th he left a note on my table saying "Dear Mahendra - I am sorry I have disgraced myself - I have bronchitis. I don't think I have it badly but I must be lazy for a few days - in fact until I am better - Tom". I immediately rushed to the Guest House and met him along with a physician. He then said: "I've never had bronchitis, so it is good to have an experience of the same." Maybe now he has told the Almighty that he has never died before and it was good to have that experience.

Perhaps his last public experience was to have a happy celebration of his 80th birthday in the Birbal Sahni Institute of Palaeobotany on 8th January 1983. He was both in very high spirits as well as being visibly moved with emotion.

From W.G. CHALONER, London

Tom Harris had so many students and colleagues who are still active in palaeobotany that you will, I am sure, receive many nostalgic and entertaining reminiscences. Rather than adding to these with some of my own, I offer the following. Just after he was elected Vice-President of The Royal Society New Scientist (March 1961) carried an anonymous "Profile" of him. Its opening paragraph read: "Once upon a time, professors were slightly absent-minded men who rode on bicycles, eschewed smart London clothes, had unruly white hair and did not care much about administration, how to raise money through press conferences or the ability to influence those in high places. They never imagined that you could produce students on a production line, and they were slightly surprised and grateful that anyone should feel like providing quite simple facilities to enable them to do their work. All that, as we know, was a long time ago, as long ago as the wasps buzzing round a jam-pot under the vicarage cedar tree on a summer's afternoon. Yet every now and then the years slide back and one comes across a man who was all that a professor was in those far off days one man who has more than a touch of this about him is Professor T.M. Harris."

Speaking in a lecture at Reading University a few years ago of his own student days at Cambridge, he was (to me, surprisingly) critical of the teaching in the Botany School at that time. "If under those lecturers a man actually knew something, he came under

the stigma of being a 'self-educated man'. In the course of the same lecture he related how Seward had introduced him to the Danish geologist Koch, 'a huge rather fierce looking man in charge of the Greenland Survey'. After an evening spent in Harris's company at Seward's home, Harris related, Koch asked him if he would go with him to East Greenland for a year, starting the following month. Harris said in his lecture: 'It appeared to me instantly that that was one of those situations where thought doesn't lead to a wiser decision, so I said 'yes''.

Harris always regarded his own research achievements with undue and characteristic modesty. At the end of his own very penetrating account of the Purbeckian fossil charophytes, he wrote that: 'all that could fairly be claimed for (..their study..) was that they had led to the clearing up of many of the problems that they themselves had raised.' Indeed, one reflects that the same might be said for the study of all fossil plants.

Harris attributed to his old Nottingham University mentor H.S. Holden the maxim that 'whatever one does, even if something terribly silly, should be done as if one meant it'. I don't recall his ever doing something which qualified as 'terribly silly', but he certainly lived his life 'as though he meant it' with energy and vigour and a tireless, infectious enthusiasm.

From C. HILL, London

My relationship with Professor Harris was very much that of youngster, even at times a young Turk, with his sage and Elder. It was sometimes extremely close, rather as grandfatherly relations tend to be in a family. At its most poignant, near the end, it touched on those fragrant scenes from Hesse's "Das Glasperlenspiel" where the great teacher almost imperceptibly fades, melting away into oblivion. In other aspects there was sometimes distance.

The beginning, for me, was a field trip to Yorkshire in 1970. It left me with a deep respect, duly tinged with awe, for this great man. I had then known only two people of such stature, my maternal grandfather and Irene Manton; but both were quite different and neither, despite efforts, was so visibly eccentric. This respect (almost despite the eccentricity) never vanished. Indeed it grew through numerous subsequent meetings in the field and through correspondence. He was always ready to take a keen interest in, and comment in enormous detail on, the work of others: especially of young initiates to palaeobotany. He was undoubtedly a very great teacher, though not always a comfortable one.

Harris had, I believe, too many things to teach than can be distilled in a few words, but two items are outstanding. He himself confided one while pacing me very effectively on the old railway line between Saltwick and Jackass Trod, after a hard collecting trip and a typical lunch of raw onion and cheese. He said he supposed others would write that his one big idea was to develop microscopic study of the cuticle, following the initiatives of Nathorst and Hamshaw Thomas. (It was Harris himself, of course, who pioneered maceration in bulk.) He also felt, however, that to single out this one aspect would be unkind, I think rightly. For there was a much wider theme, it might be described as positivism combined with a simple fascination with ancient plants (Harris's beloved 'fossil botany'). He was above all a botanist, interested, like anyone with eyes to see, in objective, conscientious but incisive description of plant fossils for their own sake. His published work stands as a monument to this. He never forgot the importance of the hand specimen as well as its cuticle, nor of new discoveries in the field.

Much as objective, involved, description was one notable strength of Harris, the other was a broadly experimental attitude. One recalls various experiments with goat dung, artichokes in ovens, and bonfires; he picked up the approach from Walton and Marie Stopes and always held that such experimenting is not done enough by palaeobotanists. Like many a Cambridge man of his generation, Harris had vigorous views on practically everything. Such, at times, led to a perhaps inevitable distance between us concerning areas of change. He was, for example, sceptical for several years about the use of SEM in palaeobotany, and was convinced to the end that a suitable place for HF work was on the lawn or on the roof. Perhaps also it is almost natural that an ardent positivist should dislike real philosophy, and so on.

However, in such respects, I write as one who knew Harris in his later years. He was nonetheless a good deal gentler than most, and like Churchill, would rarely trust his own initial reaction to a problem. He would think over some days and frequently change his mind. As a person I think that is how he would have liked to be remembered, described by one storekeeper in Yorkshire: "now then, there's a real gentleman."

From N.F. HUGHES, Cambridge, UK

Tom Harris when young clearly had much more energy and drive than most other palaeobotanists of his time; one could sense that he was viewed with awe and concern by the generation senior to him. He developed as the kind of invaluable stimulus and critic whom everybody regarded as a fine scientist, and in maturity he achieved that excellent spirit that sought out the good points in all levels of work. I shall remember him most as an untiring referee of papers over which he would take very great trouble both anonymously and otherwise to re-shape, re-word or improve submissions that seemed irretrievable to many others. In the very best sense he conserved knowledge, using his own powers to encourage not only his own associates and students, but any others he encountered.

From W.S. LACEY, Bangor, Wales

Our acquaintance began in 1936 during my first year in Reading. I can still see him as a tall, slim, dark-haired young man of thirty three, tearing up his notes after giving a lecture as he passed through the laboratory with enormous strides. Not for him the use of the same notes year after year. A fresh approach each time characterised his superb teaching style. His ability to impart a sense of fascination and excitement in a subject - any subject - was amazing.

He was unconventional to a degree. When we camped on Cader Idris in 1937, in appalling weather, we laboriously dug trenches all round our tents to keep the water out - except Tom, who simply made a small channel through the length of his tent to let out the water that came in at the up-hill end. During a botanical gathering in the Harris home in 1938, when a young child at the crawling stage threatened to become a disturbing factor Tom said: "Oh, just pull the furniture round into a semi-circle and make a barricade".

When after the second world war I was exploring the possibility of working at Bangor for a Reading PhD Tom got a dispensation through the Senate to permit me to work wholly externally - up to that time no such provision existed at Reading. In the matter of my PhD research I found him a hard task-master, but that is more a reflection of my reactions at the time than a criticism of him. He set himself a high standard in all his work and expected the same high standard in all his students. I found it a challenge that was sometimes difficult to meet, but I know that it was the best training I could have had.

In 1948, when I wrote to congratulate him on his election to The Royal Society, he replied that he saw it as a mark of recognition of the importance of palaeobotany. He seemed more pleased about that than the personal honour.

Perhaps I may be permitted one more example of his kindness - the inclusion in the Conifer volume of his monumental work on the Yorkshire Jurassic Flora of a reference to a very small piece of palaeobotanical work carried out by my daughter in 1969 while she was an Honours Botany student at Bristol University. In such ways his interest and encouragement were always extended to younger botanists.

Tom Harris has gone from our midst. His work and the inspiration of his example will survive for generations.

From B. LUNDBLAD, Stockholm, Sweden

I would like to contribute some comments on Professor Harris and Swedish palaeobotany. In the first part of The Yorkshire Jurassic Flora (1961, page 2) Harris himself gives evidence of the great influence that the work of the founder of Swedish palaeobotany, Professor A.G. Nathorst (1850-1921), had on his own approach to the study of fossil plants: "Although I never met Nathorst, I regard my own work as the application of his ideas." As a student at Cambridge Harris was a contemporary of H.H. Thomas who held

a university lectureship and had spent a summer vacation with Nathorst at Stockholm learning cuticle technique. Nathorst was certainly not a pioneer in applying maceration methods to the study of compressions, but he was the first to take the full consequences of the technique, producing spectacular results, for instance, in his studies of Bennettitalean flowers.

Tom Harris visited the Stockholm Riksmuseum for the first time in 1926. The Head of the Palaeobotanical Department, Professor Thore G. Halle, was still in his prime, and the Assistant Keeper, Rudolf Florin was a man of thirty two who had then published no more than a dozen papers on fossil plants. Harris discovered, however, that 'he had an enormous body of work beneath the surface, like an iceberg!' Harris had brought with him, for discussion and comparison, the manuscript of his first paper on the Rhaeto-Liassic floras of Scoresby Sound, published in Meddr Grønland 68, 1926. One result of this visit was a bond of friendship between Harris and the Swedish palaeobotanists. Florin was closer in age to Harris than Halle, and in this case, it is indeed proper to speak of a 'beautiful friendship'. I have looked through the correspondence between the two palaeobotanists kept in the Bergius foundation at Stockholm, and have been struck by the pleasant tone and total absence of controversy. This does not mean that Harris and Florin were always of the same opinion. In the middle of the thirties they were both engaged in the classification of Ginkgoalean leaves, solving the problem each in his own way. The summary of the state of Mesozoic Gymnosperms given by Harris in 'Patterns of Gymnosperm Evolution' (Rev. Palaeobotan. Palynol., 21, 1976) bears witness to the fact that there were certain points of disagreement, but most of his critical remarks refer to material, which was not accessible to Florin when he treated the subjects in question. Their mutual admiration of each other's scientific accomplishments is evident not only from letters but also from reviews. Thus, Florin published a popular account in Swedish on Harris's work on the fossil floras of Scoresby Sound, whereas Harris reviewed important papers by Florin in Nature and New Phytologist.

Harris returned to the Riksmuseum in connection with the Seventh International Botanical Congress at Stockholm in 1950, lecturing on 'Palaeobotanical Technique', and 'Nilssonsonia and its Reproductive Organs'. One of Harris's most important contributions to palaeobotany was the wide use he made of 'maceration in bulk', and oxidative method which involved the disintegration of the shale and the sifting of the plant remains through a series of wire gauzes.

Harris's work on the Rhaeto-Liassic of East Greenland and Sweden was followed with great interest by Dr Gustaf T. Troedsson, Professor of Geology at the University of Lund between 1949 and 1954. Using Harris's conception of a Rhaetic Lepidopteris flora (Zone) and a Liassic Thaumatopteris flora (Zone) Troedsson was able to simplify and revise the old stratigraphic scheme chiefly established by Nathorst in 1880. Harris visited Stockholm in 1959 and in 1972, when he had the opportunity to do some collecting in Scania, too. The documentation about Tom Harris in the Riksmuseum is very good, for, in spite of his great scientific productivity, he was a prolific writer of letters. One of his great personal qualities was his willingness to help and encourage his junior colleagues, and he found time for correspondence not only with the great Swedish palaeobotanists mentioned above but also with those representing a later generation, such as the author of these lines, Henning Horn af Rantzien and Hans Tralau.

Tom Harris became a member of the Swedish Academy of Sciences in 1964.

In summing up his impression of Harris's work, Halle states that: 'the whole palaeobotanical literature contains no account of a Mesozoic flora which can compare with his excellent treatment of the Rhaeto-Liassic flora of East Greenland'. This was written in the thirties, and it is pleasant to be able to add that there is now more work of the same standard, which, fortunately enough, could be completed - the Yorkshire Jurassic Flora.

From S.B. MANUM, Oslo, Norway

From November 1982 to January 1983 I had the privilege of being a visitor at the Birbal Sahni Institute of Palaeobotany at the same time as Tom Harris. We shared Guest House facilities during this period, which turned out to be his last

palaeobotanical work.

Nearly every day he took his morning walk, mostly in the park of Lucknow University adjoining the Institute. His paces were considerably slower than a couple of years ago, but his mind was as vigorous as before. To pass time on his walks he used to try and identify all the birds that he saw. He was busy at his microscope every day at the Institute working on a revision of the Pentoxylales. He also had time to share his extensive experience and knowledge with everyone who sought his help. In one of our conversations we touched upon palaeobotanists and their work. His distinction was not between the good and less good ones, but between those who loved their fossils and those who didn't. He loved his fossils. They were far from dead to him. It was this love which drew this great man away from medicine and saved him for palaeobotany.

He spent his 80th birthday in Lucknow. One day he revealed that he was planning to give a party for the entire Institute on that day, but we insisted that we would rather give a party for him. I remember so well his broad smile when he said: "I think it is an old English tradition that when you celebrate your 80th birthday abroad, you give a party". That settled it.

From D.D. PANT, Allahabad, India

I first came into personal contact with Professor Harris when he came to India as Advisor to the Birbal Sahni Institute at Lucknow and visited Allahabad for the viva voce examination of my doctoral thesis. I found he had brought nearly 20 pages of notes on my thesis and started asking questions. Some of them I could answer satisfactorily but then he quoted a passage from my thesis wherein I had said that according to Teichert the Lower Gondwana glaciation in Australia took place in the Permian. Professor Harris pointed out that I should have mentioned arguments instead of quoting an authority. He also referred to other statements from my thesis which he found defective but when I gave contrary arguments he would agree and in some cases his remark was: "All right, let us agree to differ." After my viva voce examination was over, the then Professor of Botany at Allahabad, Dr Ranjan, who had been Professor Harris's contemporary at Cambridge, offered to take him round the university campus and to the famous confluence of the Ganga and Yamuna. Professor Harris was not interested in sight-seeing and replied: "I have seen many university buildings and confluences of rivers, why not take my wife with you? I had better discuss the future research of this young man with him." And he continued to discuss my research plans until late in the evening and saw my little fossil collection. When I showed him an impression of a branched axis and asked what he thought it could be, he said: "It is nothing, but if you say I am wrong, you can't prove it." His critical attitude, sense of humour, single minded devotion, and the immense pains he took in dealing with a novice like me created a lasting impression in my mind.

Just before the Easter of 1954, while preparing to go with him for collecting on the Yorkshire coast, I had gone one day to the British Museum (Natural History) to borrow a hammer, a chisel and boxes for bringing fossils, and there I happened to meet the late Professor Florin and Mr Wonnacott. At the mention of my proposed trip Wonnacott emphasised the difficulties of collecting with Professor Harris, and among other things mentioned his habit of walking very fast. Before we parted company he remarked with a twinkle in his eye: "Good Bye, dear friend, I don't hope to see you again." Professor Florin sighed loudly and said that when he went with Harris it was not at all like a collecting trip but a regular walking exercise. Undaunted, I did go with Professor Harris, his daughter Frances, R.A. Couper and my wife. Although true to the warning given by Florin and Wonnacott I did find the collection work strenuous, and used to return to the Inn exhausted. Sometimes when I would express doubts about my being able to go for the next day's collecting, Professor Harris would say: "Let us wait till tomorrow morning" and he would also try to dangle before me the possibility of a good collection next day. His optimism and enthusiasm always had a positive effect on me and each morning I found myself ready for the day's hard work.

He taxed himself even more than his collection mates. During the day's collecting I

would often wonder why Professor Harris left some of the heavier fossils at marked points on the sea shore. I came to know the secret one day when I got ready earlier than usual and Mrs Barker, the keeper of the Red Lion Inn at Cloughton told me that Dr Harris had gone on his usual first bicycle ride to bring back the heavier stones. It was now clear that the trip he made with us on foot was his second one. At Yorkshire I would not only see how hard he worked but I was also deeply impressed by his intimate knowledge of the coast fossil flora where he had named the beds by such names as Ginkgo-, Czekanowskia- or Equisetum- etc beds after their commonest fossils. Every day during the Easter holidays, with a pick axe on his left shoulder, a rucksack on his back and a hammer in his right hand, he was moving far ahead of us collecting and hopping from one boulder to another.

In spite of the strain of collecting he never showed any sign of exhaustion. Every evening when he returned to the Inn he was still quite energetic and after dinner he would either read a novel or discuss biochemistry with my biochemist wife. She could not help remarking to me that his knowledge of the subject was considerable. On my asking, the professor disclosed that he had at one time intended to join the medical profession.

Once the collecting was over, work on the fossils would begin at Reading with such gusto that within few months the identification and sorting out of several boxes of fossils and their maceration etc was complete. Thereafter every year he would examine his slides, sketch and photograph them and revise or add to his previous work and reconstruct the fossils afresh with utmost care. His ideas were thus constantly revised.

While at Reading in 1954-6 I found him very meticulous about factual details of fossils but he cared much less about their interpretation. His later writing shows a marked change in his attitude and had become more interpretative and philosophical. One of the most important things I learnt from him in research was the need to keep one's mind open, to continue looking for better fossils and to decide things only when there was no possibility of any counter arguments.

He was usually very polite and courteous but was devastating when he came across bad research work. One palaeobotanist gave a paper on fossil algae at Lucknow in his presence and showed very elaborate reconstructions of its form and structure. At the end Professor Harris asked how many specimens he had. The answer was: "one specimen". At this, Harris boiled over: "And all that nonsense about one specimen?"

After hearing about his death I cannot help recalling his remarks about something which I said to him during his last visit to my house: "You know, everything must end." His death is not only a loss to world palaeobotany but a personal loss to me. As I said when he presented the Festschrift after my retirement: "To me, Prof, as I usually call him, is an eternal source of knowledge, like the Rishis of ancient India. And let me inform this gathering that he is ever ready to help one and all who approach him for guidance anywhere in the world."

From J. WATSON, Manchester, UK

From the moment I first met Professor Harris in the spring of 1961 on the platform of Castleton Railway Station in North Yorkshire, I was totally captivated by him and soon became acutely aware that he was to be a profound influence in my life. Having passed the acid test on that memorable collecting trip I arrived in Reading the following October to find myself the first and only research student in the department for some years past. He set the pattern from the very first morning and his exact words still ring in my ears: "If you must have coffee there is the Buttery." Thus, coffee breaks were never a feature of daily life. However, tea in 'the hut' when the afternoon practical finished was a ritual which I relished. The rigours of working with him in that first year are difficult to convey in a few words and compared to the clamour and chatter of today it seems hard to believe that often I did not exchange a word with a living soul other than T.M.H. between the hours of 9am and 5pm. Professor Harris generated such an air of industry and was so dedicated himself that it was only in retrospect years later that we realised just how hard we worked. Would that I had such application now.

Intertwined with the joy of working with him my overriding memory of Professor Harris both then and ever since is one of constant laughter. His rapier wit and

choice of the mot juste have ever been a delight to me and like everyone who knew him well. I have a wealth of Harris stories. There were the everyday happenings like him constantly falling off his bicycle in the icy winter of 1962 ("I say Willis, do you know how to put lenses back in spectacles?"), or buying his wife a dried shark at Rogers, the Delicatessen. It was on the topic of his driving test that I saw him nettled for the only time. Mrs Harris was having tea with us in the hut, and she started teasing him about his failing the driving test. He didn't like it a bit. I have kept and treasure every letter he ever sent me and since his death have had the delight of reading them all again. He never shrank from declaring who was "a thoroughly third-rate chap" or when the scientific facts were "somewhere between precious little and damn all". I have long been aware that these candid assessments influenced me with sledge-hammer effect. He continues to colour all aspects of one's academic life: people, situations, work, are all judged on a Harrisian scale of values and often found wanting.

Commiserations on Harris's death have been received from The Geological Institute Moscow, The Cleveland Museum of Natural History and the Polish Academy of Sciences Krakow.

NEWS OF INDIVIDUALS

- ALICIA BALDONI, CONICET-CIRGEO, Buenos Aires, spent 2 months in 1982 at the laboratory of Dr T.N. Taylor in Ohio. She worked on Early Cretaceous fructifications from Patagonia, using the transmission and scanning electron microscope.
- JACK DOUGLAS, Melbourne, Australia, visited the United States in early 1983. His visit was financed by the US/Australia Cooperative Science Program and he spent the time on the eastern flanks of the Rocky Mountains looking at Cretaceous sediments and collections, including those with Smiley, Miller, Stockey and Tidwell. He was obtaining information to use to complete his final memoir on the biostratigraphy of the Coniferales. He also visited Cross and Dilcher.
- HUGH PEARSON, British Museum (Natural History), London, spent three weeks in April visiting the laboratories of Galtier, Montpellier, and Lemoigne, Lyon. Permineralised Carboniferous lycopods were the main interest but the Garigue flora proved rather attractive too.
- JANE FRANCIS, Bedford College, London, has completed her research on the Purbeck (Upper Jurassic) fossil forests, at Southampton University. She is now working on the palaeoclimatic interpretation of growth rings from Upper Jurassic and Lower Cretaceous wood as a Post Doctoral Research Fellow.
- PETER BARNARD, retired from his post as Lecturer at the University of Reading over a year ago. His address is 37 Danywern Drive, Winnersh, Wokingham, Berkshire RG11 5NX, UK.
- JOHN HOLMES, University of Montpellier, France, has been awarded a bronze medal for his contribution to palaeobotany. This is from the Centre National de la Recherche Scientifique. In March 1983 he spent two weeks with Streel and Demaret in Liège, and sawed his way through 500 coal balls. He also met Suzanne Leclercq there, "fighting fit at the age of 82. She kept talking palaeobotany until ten at night."
- GEOFFERY CREBER, Bedford College, London, visited the Komarov Institute in Leningrad during May 1983, in search of data on the occurrence of fossil wood in the USSR. Snigirevskaya and others helped him note localities from the Urals, Uzbekhistan and the Koryak Range east of Kamchatka. The Uzbekhistan material has been described by R.

Khudajberdyev of the Institute and himself a native of that part of the Union. V.G. Lepekhina very kindly came over from the Geological Institute and provided further useful information on Russian fossil wood. E. Chavchavadse is authoress of a splendid book on conifer wood and also helped with a conducted tour of the Botanical Museum. Sergei Vikulin, a palaeobotany student at the Institute acted as a very efficient interpreter.

GERHARD O.W. KREMP has a new address at: 101 North Avenida Carolina, Tucson, Arizona 85711, USA

JOHN E.A. MARSHALL has a new address at: Department of Geology, The University, Highfield, Southampton SO9 5NH, UK.

MARK H. SCHEIHING has a new address at: ARCO Oil & Gas Co., Exploration & Production Research Center (PRC,TG20), 3000 West Plano Parkway, Plano, Texas 75075, USA.

BRITTA LUNDBALD has a new address at: Section of Palaeobotany, Swedish Museum of Natural History, Box 50007, S-104 05 Stockholm 50, Sweden.

SERGIO ARCHANGELSKY has a new address at: Facultad de Ciencias Exactas y Naturales, Universidad de Buenos Aires, Buenos Aires, Argentina.

BOOK REVIEWS

ABSCISSION. F.T. Addicott, with illustrations by A.B. Addicott. Berkeley, Los Angeles & London. University of California Press, 1982. 369pp £31.75.

It is somewhat unexpected to see and then to read a fairly thick book devoted to such an allegedly narrow topic as the abscission process. Most botanists, I think, would think first of all about leaf and fruit abscission, and palaeobotanists would remember leaf and branch scars in various fossil plants. The major interest of Addicott's book is in that it shows that the abscission phenomena in plants is much broader than these familiar processes in different organs. The author has shown convincingly that the evolution of abscission began when two cells separated for the first time in the Early Precambrian. All further evolution of abscission proceeded along two trends: the localisation of abscission to particular places in the plant, and the development of various control systems governing and regulating the basic mechanisms of secretion of the abscission enzymes.

An important conclusion of the book is that in nearly all abscission phenomena observed in plants - the separation of cells and gemmae, dehiscence of sporangia and fruits, shedding of leaves, fructifications and bark etc - the same basic biochemical mechanisms are involved, namely, the secretion of polysaccharide-degrading enzymes that break the bonds of branching chains holding cells together. The independent origin of leaf, bark and fructification abscission in different phylogenetic lineages would be quite embarrassing if we did not know this basic unity of the processes.

The book covers practically all aspects of abscission phenomena - anatomy, mechanism, biochemistry, genetics, ultrastructure, ecology, agricultural implications etc. Separate chapters deal with the lower plants, palaeontology and evolution. It would be interesting in the future to survey the pertinent palaeobotanical materials more extensively. When reading the palaeobotanical chapter I thought of some more interesting examples of abscission in extinct plants. For instance, the extra-equatorial (Angara) Lower Carboniferous lepidophytes and pteridosperms mostly had persistent leaves, and their abscission appeared only after the Ostrogonian cooling episode at the beginning of the Middle Carboniferous. In conifers, the ability to shed separate leaves appeared only in the Mesozoic. Interestingly, the seed scars of the Palaeozoic gymnosperms were repeatedly mistaken for sori or male fructifications (eg in Biarmopteris,

Dicksonites, Gondwanotheca) or seeds themselves (Walchiostrobus). We do not think enough about the possibility that the deciduous habit of some plants in higher latitudes might have been controlled by the light regime rather than the temperature.

One evolutionary implication of abscission omitted in the book comes to mind. The very ability of plants to produce the abscission mechanism at necessary sites contradicts gradualistic models of evolutionary transformations. In most cases the abscission zone changes its position homoeotically and leads to heterotopy. This was specially underlined by Leavitt (1909, Bot. Gaz., 47, 30 - 68) when he first put forward homoeosis as an important evolutionary model in plants. The book is very well compiled and profusely illustrated. Many of the original line drawings deserve inclusion in botanical text-books and manuals. I am sure that palaeobotanists will read the book with much interest.

S.V. MEYEN, Moscow.

JURASSIC AND CRETACEOUS SEDIMENTARY BASINS IN SOUTH AMERICA. Ed.: W. Volkheimer & E. Mussacchio. Available from them at: Museo Argentino de Ciencias Naturales, Av Angel Gallardo 470, 1405 Buenos Aires, Argentina.

This work is published in two volumes as Contributions of the Jurassic and Cretaceous South American Committee to the second Latinamerican Congress in Palaeontology. This important contribution has the following sections: General, Stratigraphy & Regional Geology, Palaeontology, Applied Geology, and Palaeomagnetism. For Palaeobotany: A. Baldoni, Jurassic and Cretaceous taphofloras in South America (pp 359-392); E.J. Romero & M.M. Arguijo, Biostratigraphical analysis of Late Cretaceous taphofloras in southern South America (pp 393-406); E. Mussacchio, South American Jurassic and Cretaceous Foraminifera, Ostracoda and Charophyta in the Andean and Sub-Andean regions (pp 461-498). There are also two palynological contributions dealing with Brazilian Cretaceous palynology (M.R. de Lima) and Jurassic and Cretaceous stratigraphic palynology in the Neuquen Basin of Argentina (Volkheimer & Quattrocchio).

S. ARCHANGELSKY, Buenos Aires.

TRIASSIC FLORAS OF EURASIA. I.A. Dobruskina, 1982. Trudy Geologicheskogo Instituta Akadmiy Nauk SSSR, volume 365. 182pp. 3 roubles 50 kopeks (in Russian).

The first of Dobruskina's books devoted to Triassic floras of Eurasia was reviewed in IOP Newsletter 15, 1981, pages 13-14. This present one is devoted to the characteristics of plant assemblages and their comparisons. Plant lists are given for all localities. The phytogeographic patterns are shown on maps compiled for the first half of the period, the Ladinian - Karnian, and the Norian - Rhaetian epochs. Three major stages in the floristic development are recognised. One chapter deals with the origin of the Mesophyte flora of Eurasia. The position of the Triassic floras of Eurasia among coeval ones in other continents is analysed. The following plants are described: Pleuromeia rossica, P. sternbergii, Ferganodendron sauktangensis, Cladophlebis sp., Scytophyllum pennatum, Vittaeophyllum bifurcatum, V. hirsutum, V. brickianum and V. ferganense.

S.V. MEYEN, Moscow.

STRATIGRAPHY & PALAEONTOLOGY OF THE DEVONIAN & CARBONIFEROUS. Ed.: O.V. Yuferev, 1982. Trudy Instituta Geologii i Geofiziki SO AN SSSR, No. 483, Nauka, Moscow. 2 roubles 60 kopeks. (In Russian).

This collection of papers contains, among other: M.A. Rzhonsnitskaya, Zlichovian stage in the Lower Devonian of Barrandian and its equivalents in the USSR. V.N. Krasnov, The Tashtypsky horizon and its value for the stratigraphy of the Devonian red facies from the Altai-Sayan region. V.N. Dubatolov & A.V. Smirnov, The stratigraphy of Devonian deposits from the Borotalinsky synclinorium (Dzhungarsky Alatau). M.A. Senkevich, The stratigraphic value of Devonian lycopsids. V.A. Ananiev, O.I. Bogush, O.V. Vaag et al, Biostratigraphy of the Middle Siberian Lower Carboniferous.